



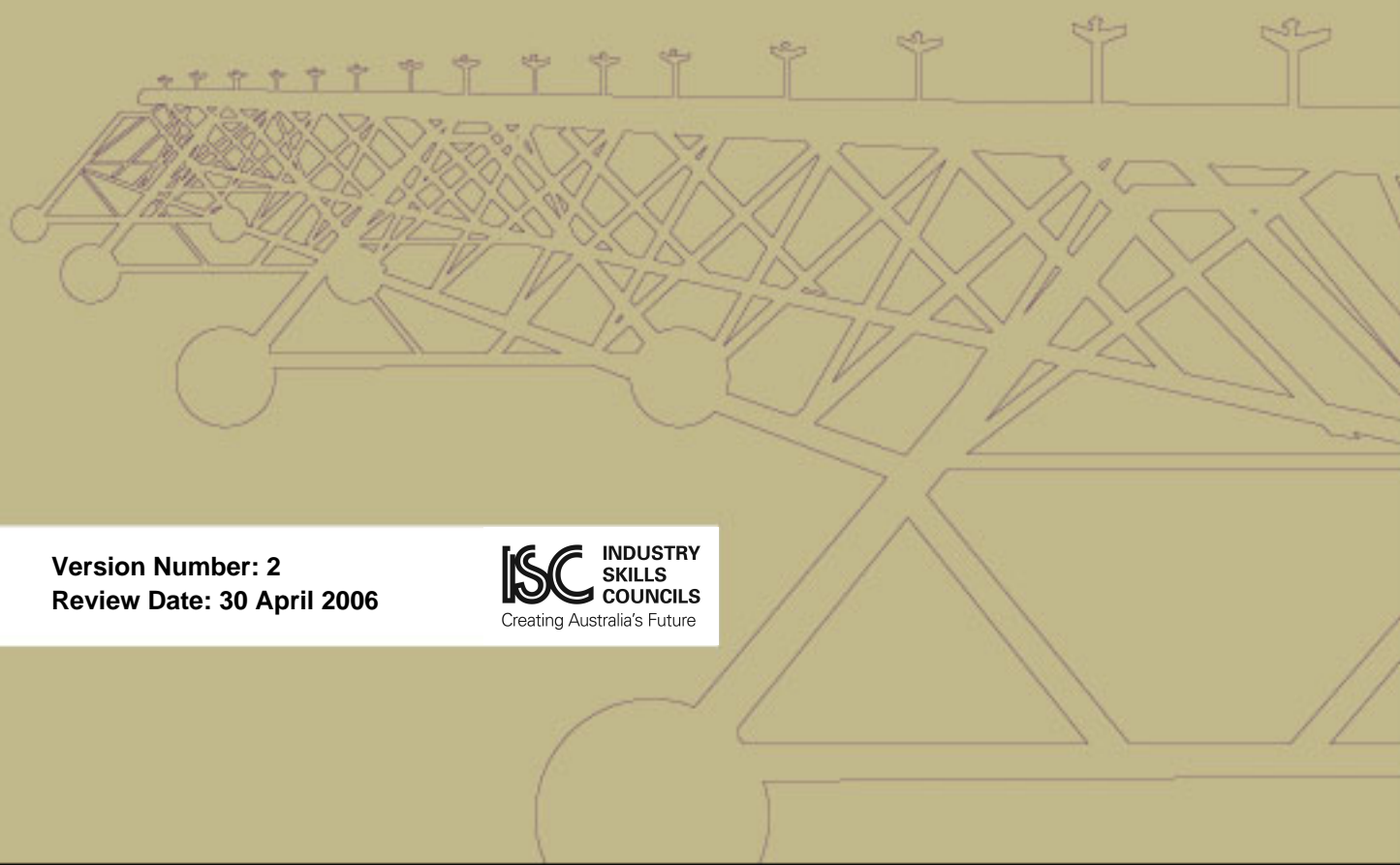
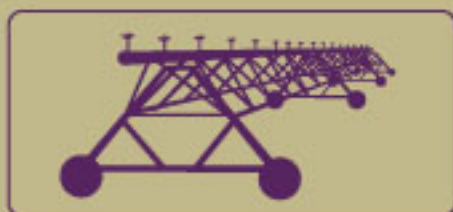
Australian Government
**Department of Education,
Science and Training**



**Agrifood
Industry Skills
Council**

RTE03 Rural Production Training Package

Volume 3 of 8



Version Number: 2
Review Date: 30 April 2006

ISC **INDUSTRY
SKILLS
COUNCILS**
Creating Australia's Future

RTE03 Rural Production Training Package

The contents of this volume refer only to the Endorsed Components of RTE03 Rural Production Training Package. This volume should not be read in isolation but in the context of the Training Package as a whole.

Volume 3 of 8 Rural Production Volume 3 - Units of Competency

Volume 1: Rural Production Introduction, Qualification Packaging, Assessment Guidelines

Volume 2: Rural Production Units of Competency

Volume 4: Rural Production Units of Competency and Units of Competency Imported from RTD02 Conservation and Land Management Training Package and RTF03 Amenity Horticulture Training Package

Volume 5: Units of Competency Imported from other Training Packages

Volume 6: RTC Common Units of Competency

Volume 7a: Rural Production units of competency for additional sectors

Volume 7b: Units of Competency imported from other Training Packages for additional Sectors

Endorsed by the National Training Quality Council 10 April 2003. This Training Package is to be reviewed by April 2006.

RTE03 - Rural Production Training Package

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Version Modification History

The version details of this endorsed Training Package are in the table below. The latest information is at the top of the table.

Version	Release Date	Comments
2	21/09/2007	<p>Addition of Volumes VIIa and VIIb, including four new qualifications in commercial composting, new suggested pathways and specialisations in alpaca, beekeeping, deer production, emergency disease and plant pest response, fertiliser and soil ameliorant industry operations, mushroom production, olive production and organic production. Further changes include new units of competency, three replacement units of competency, new versions of endorsed units of competency and additional imported units of competency. New versions of endorsed units have replaced original version units in Volumes I, II and III.</p> <p>Assessment Guidelines and Qualifications Framework text updated to conform to new requirements.</p> <p>Addition of descriptive material relating to new sectors added to RTE03 (alpaca, beekeeping, deer production, emergency disease and plant pest response, fertiliser and soil ameliorant, mushroom production, olive production and organic production)</p> <p>Deletion of matrix of units from (former) Part F.</p> <p>Addition of four qualifications in commercial composting (refer Qualifications Framework, Volume I):</p> <ul style="list-style-type: none"> • RTE20807 Certificate II in Commercial Composting • RTE32107 Certificate III in Commercial Composting • RTE40707 Certificate IV in Commercial Composting • RTE50507 Diploma of Commercial Composting. <p>New RTE units added to commercial composting qualifications:</p> <ul style="list-style-type: none"> • RTE2315A Operate a compost bagging process • RTE2506A Assess and receive raw materials for composting • RTE2507A Recognise raw materials, production processes and products on a composting site • RTE2608A Set up, operate and maintain a water delivery system • RTE2709A Recognise and respond to fire emergencies on a composting site • RTE3322A Operate compost processing plant, machinery and equipment • RTE3323A Dispatch materials and composted product • RTE3512A Prepare raw materials and compost the feedstocks • RTE3513A Prepare value-added compost-based products • RTE4027A Develop a soil health and plant nutrition program • RTE4519A Develop a composting recipe

Version	Release Date	Comments
		<ul style="list-style-type: none"> • RTE4520A Plan and schedule compost production • RTE5919A Identify and secure raw materials supply for compost production. <p>Additional imported units from other Training Packages included in the commercial composting qualifications:</p> <ul style="list-style-type: none"> • PMLSAMP200A Collect routine site samples • TDTB397B Carry out vehicle servicing and maintenance • TDTI297C Apply customer service skills • PRMWM15A Move waste using load shifting equipment • MNQOPS339A Conduct sales loader operations • MNQOPS262A Operate medium vehicles • PMLORG301A Plan and conduct laboratory/field work • PMLTEST300B Perform basic tests • TDTE701A Use communications system • PMLTEST406A Perform physical tests • BSBMKG601A Develop marketing strategies • BSBMKG602A Develop a marketing plan • TDTJ798B Conduct internal quality audits • PRMWM43B Develop an environmental management strategy • BSBHR401A Administer human resource systems <p>Addition of new suggested pathways for specialisations:</p> <ul style="list-style-type: none"> • RTE20103 Certificate II in Agriculture, pathways added in alpaca and beekeeping • RTE30103 Certificate III in Agriculture, pathways added in alpaca and beekeeping • RTE40103 Certificate IV in Agriculture, pathways added in alpaca, beekeeping, deer production and organic production • RTE50103 Diploma of Agriculture, pathways added in beekeeping, deer production and organic production • RTE20603 Certificate II in Production Horticulture, pathways added in mushroom production and olive production • RTE31603 Certificate III in Production Horticulture, pathways added in mushroom production and olive production • RTE40503 Certificate IV in Production Horticulture, pathways added in mushroom production and olive production • RTE50303 Diploma of Production Horticulture, pathways added in olive production • RTE31903 Certificate III in Rural Operations, pathway added in fertiliser and soil ameliorant operations. <p>Addition of one new qualification with a suggested pathway page:</p> <ul style="list-style-type: none"> • RTE60307 Advanced Diploma of Production Horticulture specialising in olive production.

Version	Release Date	Comments
		<p>Addition of new units of competency to the suggested pathways and new qualification noted above and to:</p> <ul style="list-style-type: none"> RTE10103 Certificate I in Rural Operations, unit added: <p>RTE1107A Support organic production.</p> <ul style="list-style-type: none"> RTE20103 Certificate II in Agriculture, units added: <p>RTE2031A Handle and move mushroom boxes RTE2032A Water mushroom crops RTE2152A Shear alpacas RTE2153A Carry out alpaca handling and husbandry operations RTE2154A Support alpaca shearing operations RTE2155A Undertake basic skirting of alpaca fleece RTE2156A Support beekeeping work RTE2157A Open and reassemble a beehive RTE2217A Construct and repair beehives RTE2305A Use a bee smoker RTE2505A Perform mushroom substrate process tasks RTE2708A Work effectively in the mushroom industry.</p> <ul style="list-style-type: none"> RTE30103 Certificate III in Agriculture, units added: <p>RTE3150A Class alpaca fleece RTE3151A Mate and monitor reproduction of alpacas RTE3152A Plan and prepare for alpaca shearing RTE3153A Manage honey bee swarms RTE3154A Requeen a honey bee colony RTE3155A Manipulate honey bee brood RTE3156A Rear queen bees RTE3319A Ground spread fertiliser and soil ameliorant RTE3320A Remove a honey crop from a hive RTE3321A Extract honey RTE3407A Identify and report unusual disease or plant pest signs RTE3408A Carry out emergency disease or plant pest control procedures at an infected premises RTE3409A Carry out movement and security procedures RTE3410A Work effectively in an emergency disease or plant pest response</p>

Version	Release Date	Comments
		<p>RTE3415A Manage pests and disease within a honey bee colony</p> <p>RTE3511A Supervise mushroom substrate preparation</p> <p>RTE3818A Develop and apply fertiliser and soil ameliorant product knowledge.</p> <ul style="list-style-type: none"> RTE40103 Certificate IV in Agriculture, units added: <p>RTE4013A Manage mushroom crop development</p> <p>RTE4029A Assess olive oil for style and quality</p> <p>RTE4113A Handle, store and grade deer velvet</p> <p>RTE4121A Select and establish an apiary site</p> <p>RTE4122A Produce and harvest royal jelly</p> <p>RTE4126A Oversee alpaca farm activities</p> <p>RTE4128A Provide bee pollination services</p> <p>RTE4130A Trap and store pollen</p> <p>RTE4131A Collect and store propolis</p> <p>RTE4132A Perform queen bee artificial insemination</p> <p>RTE4133A Manage organic livestock production</p> <p>RTE4408A Supervise activities on infected premises</p> <p>RTE4409A Carry out field surveillance for a specific emergency disease or plant pest</p> <p>RTE4515A Manage mushroom substrate preparation</p> <p>RTE4516A Control Phase II mushroom substrate process</p> <p>RTE4517A Manage organic soil improvement</p> <p>RTE4518A Manage biodynamic production</p> <p>RTE4814A Provide information and referrals on environmentally responsible fertiliser and soil ameliorant use</p> <p>RTE4920A Develop harvesting and processing specifications to produce an olive oil.</p> <ul style="list-style-type: none"> RTE50103 Diploma of Agriculture, units added: <p>RTE5105A Comply with deer industry national velvet accreditation requirements</p> <p>RTE5108A Harvest deer velvet</p> <p>RTE5406A Manage the implementation of an emergency disease or plant pest control program</p> <p>RTE5407A Manage active operational emergency disease or plant pest sites</p> <p>RTE5526A Develop an organic management plan</p>

Version	Release Date	Comments
		<p>RTE5527A Conduct environment and food safety risk assessment of plant nutrition and soil fertility programs</p> <p>RTE5923A Prepare the enterprise for organic certification</p> <p>RTE5924A Research and apply rural industry knowledge.</p> <ul style="list-style-type: none"> RTE60103 Advanced Diploma of Agriculture, units added: <p>RTE6401A Plan and oversee an emergency disease or plant pest control program</p> <p>RTE6402A Develop a plant pest survey strategy</p> <p>RTE6403A Develop a plant pest destruction strategy.</p> <p>Updated units of competency included in qualifications and suggested pathways for specialisations:</p> <ul style="list-style-type: none"> RTE2113B Monitor livestock to parturition RTE2124B Carry out birthing duties RTE2128B Provide feed for livestock RTE2131B Care for health and welfare of livestock RTE2503B Observe and report on weather RTE2707B Follow site quarantine procedures RTE2902B Collect and record production data RTE3115B Implement livestock husbandry practices RTE3121B Prepare animals for parturition RTE3124B Rear newborn and young livestock RTE3133B Prepare livestock for competition RTE3138B Determine wool characteristics RTE3504B Collect samples for a rural production or horticulture monitoring program. <p>Units deleted from qualifications and suggested pathways for specialisations and replaced with new units:</p> <ul style="list-style-type: none"> RTF4004A Develop a plant nutrition program deleted and replaced with RTE4027A Develop a soil health and plant nutrition program RTE2003A Carry out postharvest operations deleted and replaced with RTE2033A Carry out post-harvest operations RTE4012A Supervise horticultural crop harvesting deleted and replaced with RTE4028A Implement and monitor a horticultural crop harvesting program. <p>Additional units of competency imported from other Training Packages to the suggested pathways and new qualification noted above:</p> <ul style="list-style-type: none"> BSBCMN304A Contribute to personal skill development and learning BSBCMN305A Organise workplace information BSBFLM404A Lead work teams BSBFLM507A Manage quality customer service BSBFLM511A Develop a workplace learning environment

Version	Release Date	Comments
		<ul style="list-style-type: none"> • BSBHR401A Administer human resource system • BSBMKG601A Develop marketing strategies • BSBMKG602A Develop a marketing plan • FDFCORFSY2A Implement the food safety program and procedures • FDFCORQAS2A Implement quality systems and procedures • FDFCORQFS3A Monitor the implementation of quality and food safety programs • FDFHYCH2A Operate a creamed honey manufacture process • FDFOPTHCP3A Participate in a HACCP team • FDFOPTISP2A Implement sampling procedures • FDFZCSCS2A Clean and sanitize equipment • FDFZCSCIP2A Clean equipment in place • FDFZPKPP2A Operate a packaging process • FPIFGM139A Operate a 4X4 vehicle in off-road conditions • FPICOT3231A Operate steam boiler • MNMOLH305A Conduct front end loader operations • MNQOPS339A Conduct sales loader operations • MNQOPS262A Operate medium vehicles • PMLSAMP200A Collect routine site samples • PMLSAMP400B Obtain representative samples in accordance with sampling plan • PMLTEST300B Perform basic tests • PMLTEST406A Perform physical tests • PRMPFES03B Safely move materials and loads in the workplace • PRMWM04B Develop waste management strategies <p>PRMWM07B Implement waste management plan</p> <p>PRMWM15A Move waste using load shifting equipment</p> <p>PRMWM43B Develop an environmental management strategy</p> <p>PRMWM45B Develop site safety plan</p> <p>PRSSO323A Lead small teams</p> <p>PSPGOV307B Organise workplace information</p> <p>PSPGOV417A Identify and treat risks</p> <p>PSPPA601A Manage public affairs</p> <p>PSPPM405A Administer simple projects</p> <p>PUACOM001B Communicate in the workplace</p> <p>PUADEFRM205A Manage emergency operations</p> <p>PUAOPE001A Supervise response</p> <p>PUAOPE005A Manage a multi-team emergency response</p> <p>PUAOPE006A Control multi-agency emergency situations</p> <p>PUAOPE007A Command emergency personnel within a</p>

Version	Release Date	Comments
		<p>multi-agency emergency response</p> <p>PUAOPE008A Coordinate resources within a multi-agency emergency response</p> <p>PUAPOL017A Plan and develop strategies to support organisational policy</p> <p>PUAWER001A Identify, prevent and report potential workplace emergency situations</p> <p>RTF2001A Apply a range of treatments to trees</p> <p>RTF2017A Prune shrubs and small trees</p> <p>RTF3017A Implement a tree pruning program</p> <p>RTF4514A Develop soil survey maps</p> <p>RUV3501A Provide advice on companion animal selection and general care</p> <p>TDTB397B Carry out vehicle servicing and maintenance</p> <p>TDTD497B Load and unload goods/cargo</p> <p>TDTD1497B Load and unload vehicles carrying special loads</p> <p>TDTE701A Use communication systems</p> <p>TDTF1397B Coordinate breakdown and emergencies</p> <p>TDTI297C Apply customer service skills</p> <p>TDTJ798B Conduct internal quality audits.</p>
1	April 2003	First release

Forms control: All endorsed training packages will have a version number displayed on the imprint page of every volume constituting that training package. Every training package will display an up-to-date copy of this modification history form, to be placed immediately after the contents page of the first volume of the training package. Comments on changes will only show sufficient detail to enable a user to identify the nature and location of the change. Changes to training packages will generally be batched at quarterly intervals. This modification history form will be included within any displayed sample of that training package and will constitute all detail available to identify changes.

Qualifications Framework

The Australian Qualifications Framework

What is the Australian Qualifications Framework?

A brief overview of the Australian Qualifications Framework (AQF) follows. For a full explanation of the AQF see the *AQF Implementation Handbook, 3rd Edition 2002*. You can download it from the Australian Qualifications Advisory Board (AQFAB) website (www.aqf.edu.au) or obtain a hard copy by contacting AQFAB on phone 03 9639 1606 or by emailing AQFAB on aqfab@curriculum.edu.au

The AQF provides a comprehensive, nationally consistent framework for all qualifications in post-compulsory education and training in Australia. In the vocational education and training (VET) sector it assists national consistency for all trainees, learners, employers and providers by enabling national recognition of qualifications and Statements of Attainment.

Training Package qualifications in the VET sector must comply with the titles and guidelines of the AQF. Endorsed Training Packages provide a unique title for each AQF qualification which must always be reproduced accurately.

Qualifications

Training Packages can incorporate the following eight AQF qualifications.

- Certificate I in ...
- Certificate II in ...
- Certificate III in ...
- Certificate IV in ...
- Diploma of ...
- Advanced Diploma of ...
- Vocational Graduate Certificate of ...
- Vocational Graduate Diploma of ...

On completion of the requirements defined in the Training Package, a Registered Training Organisation (RTO) may issue a nationally recognised AQF qualification. Issuance of AQF qualifications must comply with the advice provided in the *AQF Implementation Handbook* and the Australian Quality Training Framework *Standards for Registered Training Organisations*, particularly Standard 10.

Statement of Attainment

Where an AQF qualification is partially achieved through the achievement of one or more endorsed units of competency, an RTO may issue a Statement of Attainment. Issuance of Statements of Attainment must comply with the advice provided in the *AQF Implementation Handbook* and the Australian Quality Training Framework *Standards for Registered Training Organisations*, particularly Standard 10.

Under the *Standards for Registered Training Organisations*, RTOs must recognise the achievement of competencies as recorded on a qualification or Statement of Attainment issued by other RTOs. Given this, recognised competencies can progressively build towards a full AQF qualification.

AQF Guidelines and Learning Outcomes

The *AQF Implementation Handbook* provides a comprehensive guideline for each AQF qualification. A summary of the learning outcome characteristics and their distinguishing features for each VET related AQF qualification is provided below.

Certificate I

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and skills would prepare a person to perform a defined range of activities most of which may be routine and predictable.

Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate knowledge by recall in a narrow range of areas;
- demonstrate basic practical skills, such as the use of relevant tools;
- perform a sequence of routine tasks given clear direction
- receive and pass on messages/information.

Certificate II

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and skills would prepare a person to perform in a range of varied activities or knowledge application where there is a clearly defined range of contexts in which the choice of actions required is usually clear and there is limited complexity in the range of operations to be applied.

Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes.

Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate basic operational knowledge in a moderate range of areas;
- apply a defined range of skills;
- apply known solutions to a limited range of predictable problems;
- perform a range of tasks where choice between a limited range of options is required;
- assess and record information from varied sources;
- take limited responsibility for own outputs in work and learning.

Certificate III

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and competencies would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available.

Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures

and within known time constraints.

Applications may involve some responsibility for others. Participation in teams including group or team co-ordination may be involved.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate some relevant theoretical knowledge
- apply a range of well-developed skills
- apply known solutions to a variety of predictable problems
- perform processes that require a range of well-developed skills where some discretion and judgement is required
- interpret available information, using discretion and judgement
- take responsibility for own outputs in work and learning
- take limited responsibility for the output of others.

Certificate IV

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and competencies would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance are involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills. Applications involve responsibility for, and limited organisation of, others.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- apply solutions to a defined range of unpredictable problems
- identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- identify, analyse and evaluate information from a variety of sources
- take responsibility for own outputs in relation to specified quality standards
- take limited responsibility for the quantity and quality of the output of others.

Diploma

Characteristics of Learning Outcomes

Breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and co-ordination.

The self directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

Applications involve participation in development of strategic initiatives as well as personal

responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team co-ordination may be involved.

The degree of emphasis on breadth as against depth of knowledge and skills may vary between qualifications granted at this level.

Distinguishing Features of Learning Outcomes

Do the competencies or learning outcomes enable an individual with this qualification to:

- demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- analyse and plan approaches to technical problems or management requirements
- transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- evaluate information, using it to forecast for planning or research purposes
- take responsibility for own outputs in relation to broad quantity and quality parameters
- take some responsibility for the achievement of group outcomes.

Advanced Diploma

Characteristics of Learning Outcomes

Breadth, depth and complexity involving analysis, design, planning, execution and evaluation across a range of technical and/or management functions including development of new criteria or applications or knowledge or procedures.

The application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts in relation to either varied or highly specific functions. Contribution to the development of a broad plan, budget or strategy is involved and accountability and responsibility for self and others in achieving the outcomes is involved.

Applications involve significant judgement in planning, design, technical or leadership/guidance functions related to products, services, operations or procedures.

The degree of emphasis on breadth as against depth of knowledge and skills may vary between qualifications granted at this level.

Distinguishing Features of Learning Outcomes

Do the competencies or learning outcomes enable an individual with this qualification to:

- demonstrate understanding of specialised knowledge with depth in some areas
- analyse, diagnose, design and execute judgements across a broad range of technical or management functions
- generate ideas through the analysis of information and concepts at an abstract level
- demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills
- demonstrate accountability for personal outputs within broad parameters
- demonstrate accountability for personal and group outcomes within broad parameters.

Vocational Graduate Certificate

Characteristics of competencies or learning outcomes

- The self-directed development and achievement of broad and specialised areas of knowledge and skills, building on prior knowledge and skills.

- Substantial breadth and complexity involving the initiation, analysis, design, planning, execution and evaluation of technical and management functions in highly varied and highly specialised contexts.
- Applications involve making significant, high-level, independent judgements in major broad or planning, design, operational, technical and management functions in highly varied and specialised contexts. They may include responsibility and broad ranging accountability for the structure, management and output of the work or functions of others.
- The degree of emphasis on breadth, as opposed to depth, of knowledge and skills may vary between qualifications granted at this level.

Distinguishing features of learning outcomes

- Demonstrate the self-directed development and achievement of broad and specialised areas of knowledge and skills, building on prior knowledge and skills.
- Initiate, analyse, design, plan, execute and evaluate major broad or technical and management functions in highly varied and highly specialised contexts.
- Generate and evaluate ideas through the analysis of information and concepts at an abstract level.
- Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills in complex contexts.
- Demonstrate responsibility and broad-ranging accountability for the structure, management and output of the work or functions of others.

Vocational Graduate Diploma

Characteristics of competencies or learning outcomes

- The self-directed development and achievement of broad and specialised areas of knowledge and skills, building on prior knowledge and skills.
- Substantial breadth, depth and complexity involving the initiation, analysis, design, planning, execution and evaluation of major functions, both broad and highly specialised, in highly varied and highly specialised contexts.
- Further specialisation within a systematic and coherent body of knowledge.
- Applications involve making high-level, fully independent, complex judgements in broad planning, design, operational, technical and management functions in highly varied and highly specialised contexts. They may include full responsibility and accountability for all aspects of work and functions of others, including planning, budgeting and strategy development.
- The degree of emphasis on breadth, as opposed to depth, of knowledge and skills may vary between qualifications granted at this level.

Distinguishing features of learning outcomes

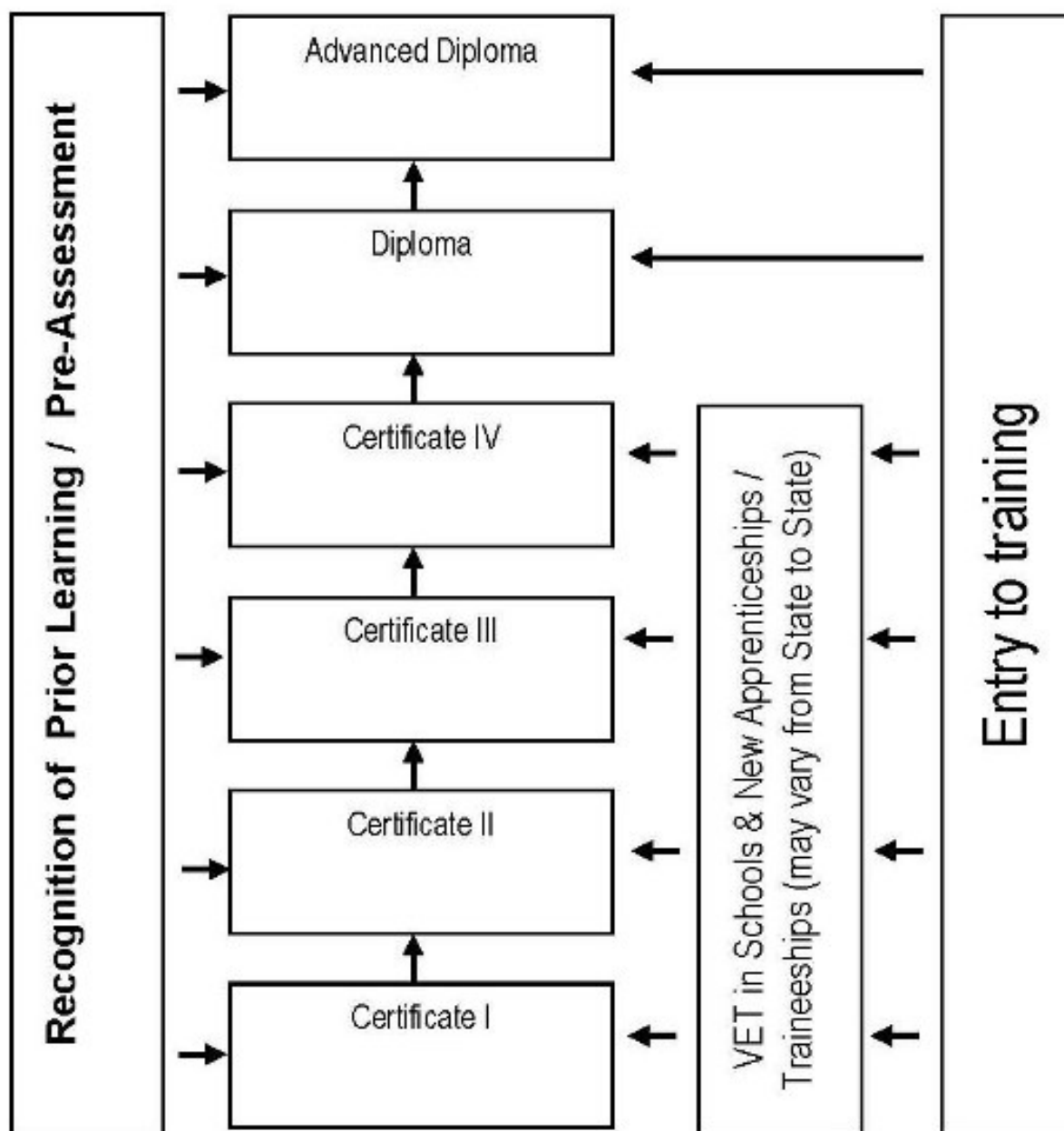
- Demonstrate the self-directed development and achievement of broad and highly specialised areas of knowledge and skills, building on prior knowledge and skills.
- Initiate, analyse, design, plan, execute and evaluate major functions, both broad and within highly varied and highly specialised contexts.
- Generate and evaluate complex ideas through the analysis of information and concepts at an abstract level.
- Demonstrate an expert command of wide-ranging, highly specialised, technical, creative or conceptual skills in complex and highly specialised or varied contexts.
- Demonstrate full responsibility and accountability for personal outputs.
- Demonstrate full responsibility and accountability for all aspects of the work or functions of others, including planning, budgeting and strategy.

Qualification pathways

RTE03 Rural Production Training Package is the framework for VET for those engaged in the agriculture and production horticulture industries. The Training Package supports a wide range of learning pathways. These include institution-based programs, workplace and school-based training, as well as other flexible combinations of workplace and off-the-job training and assessment.

Qualifications within RTE03 Rural Production Training Package can be achieved through a variety of pathways including new apprenticeships (traineeships).

The training pathways for qualifications contained within RTE03 Rural Production Training Package are illustrated below. For further advice about pathways and qualifications contact the Agri-food Industry Skills Council on telephone 02 6163 7200 or email reception@agrifoodskills.net.au.



Training pathways for Rural Production

RTE03 Rural Production Training Package qualifications and pathways for specialisation

RTE03 Rural Production Training Package contains qualifications and suggested pathways comprising groups of units from which choices can be made according to the specialisations being undertaken. The following is a full list of qualifications and specialisations.

RTE10103 Certificate I in Rural Operations

RTE20703 Certificate II in Rural Operations

RTE31903 Certificate III in Rural Operations - includes a suggested pathway for specialisation in fertiliser and soil ameliorant industry operations

RTE20103 Certificate II in Agriculture - includes suggested pathways for specialisation in:

- alpaca
- beef production
- beekeeping
- cotton production
- dairy production
- goat production
- grain production
- horse breeding
- milk harvesting
- pig production
- poultry production
- sheep and wool production
- sugar production

RTE30103 Certificate III in Agriculture - includes suggested pathways for specialisation in:

- alpaca
- beekeeping

RTE30203 Certificate III in Agriculture (Beef Production)

RTE30303 Certificate III in Agriculture (Cotton Production)

RTE30403 Certificate III in Agriculture (Dairy Production)

RTE30503 Certificate III in Agriculture (Goat Production)

RTE30603 Certificate III in Agriculture (Grain Production)

RTE30703 Certificate III in Agriculture (Horse Breeding)

RTE30803 Certificate III in Agriculture (Milk Harvesting)

RTE30903 Certificate III in Agriculture (Pig Production)

RTE31003 Certificate III in Agriculture (Poultry Production)

RTE31103 Certificate III in Agriculture (Sheep and Wool Production)

RTE31203 Certificate III in Agriculture (Sugar Production)

RTE40103 Certificate IV in Agriculture - includes suggested pathways for specialisation in:

- alpaca
- beef production
- beekeeping
- cotton production
- dairy production
- deer production
- goat production
- grain production
- horse breeding
- milk harvesting
- organic production
- pig production
- poultry production
- sheep and wool production
- sugar production

RTE50103 Diploma of Agriculture - includes suggested pathways for specialisation in:

- beef production
- beekeeping
- cotton production
- dairy production
- deer production
- goat production
- grain production
- horse breeding
- organic production
- pig production
- poultry production
- sheep and wool production
- sugar production

RTE60103 Advanced Diploma of Agriculture

RTE20807 Certificate II in Commercial Composting

RTE32107 Certificate III in Commercial Composting

RTE40707 Certificate IV in Commercial Composting

RTE50507 Diploma of Commercial Composting

RTE20203 Certificate II in Irrigation

RTE31303 Certificate III in Irrigation

RTE40203 Certificate IV in Irrigation

RTE50203 Diploma of Irrigation

RTE20303 Certificate II in Wool Handling

RTE31403 Certificate III in Wool Clip Preparation

RTE32003 Certificate III in Advanced Wool Handling

RTE40303 Certificate IV in Wool Classing

RTE20403 Certificate II in Shearing

RTE31503 Certificate III in Shearing

RTE40403 Certificate IV in Shearing

RTE20503 Certificate II in Crutching

RTE20603 Certificate II in Production Horticulture - includes suggested pathways for specialisations in:

- mushroom production
- olive production

RTE31603 Certificate III in Production Horticulture - includes suggested pathways for specialisations in:

- mushroom production
- olive production

RTE40503 Certificate IV in Production Horticulture - includes suggested pathways for specialisations in:

- mushroom production

- olive production

RTE50303 Diploma of Production Horticulture - includes suggested pathways for specialisation in:

- olive production

RTE60307 Advanced Diploma of Production Horticulture with pathway for specialisation in olive production

RTE31703 Certificate III in Rural Business

RTE31803 Certificate III in Rural Merchandising

RTE40603 Certificate IV in Rural Business

RTE50403 Diploma of Rural Business Management

RTE60203 Advanced Diploma of Rural Business Management

Accommodating the streams within each of these qualifications (Certificate I through to Advanced Diploma) has been achieved by developing three lists of units of competency in each stream:

- **Group A list** - These are the key technical work functions that have been designated for each sector specialisation. Units of competency that are compulsory for each qualification are shown in italics in this group.
- **Group B list** - These are the more generic work functions across a number of industry sectors.
- **Group C list** - These include units of competency from RTE03 Rural Production Training Package not listed in Group A or B at that level, and relevant units of competency from other Training Packages.

A qualification for each occupational stream is achieved by selecting units of competency from each of the above lists.

Units of competency imported from other Training Packages are known as cross-industry units of competency, and the rules attached to these units of competency from their originating Training Package must be adhered to when they are incorporated into training programs or assessments.

Common units

A group of units has been developed to describe competency in areas that are common across the Conservation and Land Management, Rural Production and Amenity Horticulture Training Packages. For convenience, these units are referred to as common units and are coded RTC, to distinguish them from units addressing competency relevant to some but not all industries, such as the RTD units that describe competency in the Conservation and Land Management industry. The common units are presented in one stand-alone volume.

Issuing qualifications

Under the agreed arrangements of the Australian Quality Training Framework (AQTF), only registered training organisations (RTOs) can issue qualifications and do so according to the AQTF Standards.

When a qualification is issued by an RTO, there will be an option to include the sector specialisation or occupational stream on the academic transcript, Statement of Attainment and the qualification parchment issued by the RTO.

Rules (Rural Production)

There is *generally one rule that can be found detailed in each qualification, for example:

For a Certificate II in Agriculture specialising in Pig Production, at least thirteen of the units of competency presented for this qualification must relate to pig production work procedures, activities or contexts.

This is designed to ensure that some eighty per cent of units of competency submitted for a qualification relate to the specialisation (pig production in the above example) and the integrity of the qualification is maintained.

* As a result of feedback from industry, this rule excludes the following eight qualifications:

RTE20303 Certificate II in Wool Handling

RTE31403 Certificate III in Wool Clip Preparation

RTE32003 Certificate III in Advanced Wool Handling

RTE40303 Certificate IV in Wool Classing

RTE20403 Certificate II in Shearing

RTE31503 Certificate III in Shearing

RTE40403 Certificate IV in Shearing

RTE20503 Certificate II in Crutching.

Context of assessment for competency standards

Due to the large number of generic units of competency in this Training Package, including imported units and those that are common with the Conservation and Land Management and Amenity Horticulture Training Packages, there may be a need to indicate the context in which the units of competency have been assessed.

As an example, consider *RTE2030A Assist agricultural crop harvesting*. This unit may refer to harvesting a crop in the cotton, grains or sugar cane sectors. Where the unit is related to the sugar cane sector, the registered training organisation may make a notation in the Competency Record Book to indicate the context in which the unit was achieved.

In this example, the context of assessment for sugar cane would include:

- assisting with field work
- monitoring cane production
- maintaining and operating equipment such as tractors
- cane harvesting
- cane haulage.

Statements of Attainment

Individuals who are assessed against one or a number of the units of competency set out within a qualification are entitled to receive a Statement of Attainment that recognises partial achievement of a full qualification.

For example, a student may have completed the following units of competency contained within the Certificate II in Agriculture:

RTE2129A Move and handle pigs

RTE2111A Identify and mark animals

RTE2133A Artificially inseminate pigs

RTE2143A Mate pigs and monitor dry sow performance

In this case, the student's Statement of Attainment could note:

In partial completion of the following qualification:

Certificate II in Agriculture

specialising in Pig Production

Skill Sets

Definition

Skill sets are defined as single units of competency, or combinations of units of competency from an endorsed Training Package, which link to a licence or regulatory requirement, or defined industry need.

Wording on Statements of Attainment

Skill sets are a way of publicly identifying logical groupings of units of competency which meet an identified need or industry outcome. Skill sets are not qualifications.

Where skill sets are identified in a Training Package, the Statement of Attainment can set out the competencies a person has achieved in a way that is consistent and clear for employers and others. This is done by including the wording 'these competencies meet [the relevant skill set title or industry need is included]' on the Statement of Attainment. This wording applies only to skill sets that are formally identified as such in the endorsed Training Package.

All Statements of Attainment must include the wording 'A Statement of Attainment is issued by a Registered Training Organisation when an individual has completed one or more units of competency from a nationally recognised qualification'. The following may also be used 'these competencies form part of the [the relevant qualification(s) code and title are inserted]'.

This section below provides information on skill sets within this Training Package, with the following important disclaimer: **Readers should ensure that they have also read the part of the Training Package that outlines licensing and regulatory requirements.**

Skill Sets in this Training Package

Where this section is blank, nationally recognised skill sets have yet to be identified in this industry.

Assessment Guidelines

Introduction

These Assessment Guidelines provide the endorsed framework for assessment of units of competency in this Training Package. They are designed to ensure that assessment is consistent with the Australian Quality Training Framework (AQTF) *Standards for Registered Training Organisations*. Assessments against the units of competency in this Training Package must be carried out in accordance with these Assessment Guidelines.

Assessment System Overview

This section provides an overview of the requirements for assessment when using this Training Package, including a summary of the AQTF requirements; licensing/registration requirements; and assessment pathways.

Benchmarks for Assessment

Assessment within the National Training Framework is the process of collecting evidence and making judgements about whether competency has been achieved to confirm whether an individual can perform to the standards expected in the workplace, as expressed in the relevant endorsed unit of competency.

In the areas of work covered by this Training Package, the endorsed units of competency are the benchmarks for assessment. As such, they provide the basis for nationally recognised Australian Qualifications Framework (AQF) qualifications and Statements of Attainment issued by Registered Training Organisations (RTOs).

Australian Quality Training Framework Assessment Requirements

Assessment leading to nationally recognised AQF qualifications and Statements of Attainment in the vocational education and training sector must meet the requirements of the AQTF as expressed in the *Standards for Registered Training Organisations*.

The *Standards for Registered Training Organisations* can be downloaded from the DEST website at www.dest.gov.au or can be obtained in hard copy from DEST. The following points summarise the assessment requirements under the AQTF.

Registration of Training Organisations

Assessment must be conducted by, or on behalf of, an RTO formally registered by a State or Territory Registering/Course Accrediting Body in accordance with the *Standards for Registered Training Organisations*. The RTO must have the specific units of competency and/or AQF qualifications on its scope of registration. See Section 1 of the *Standards for Registered Training Organisations*.

Quality Training and Assessment

Each RTO must have systems in place to plan for and provide quality training and assessment across all its operations. See Standard 1 of the *Standards for Registered Training Organisations*.

Assessor Competency Requirements

Each person involved in training, assessment or client service must be competent for the functions they perform. See Standard 7 of the *Standards for Registered Training Organisations* for assessor competency requirements. Standard 7 also specifies the competencies that must be held by trainers.

Assessment Requirements

The RTOs assessments must meet the requirements of the endorsed components of Training Packages within its scope of registration. See Standard 8 of the *Standards for Registered Training Organisations*.

Assessment Strategies

Each RTO must identify, negotiate, plan and implement appropriate learning and assessment strategies to meet the needs of each of its clients. See Standard 9 of the *Standards for Registered Training Organisations*.

Mutual Recognition

Each RTO must recognise the AQF qualifications and Statements of Attainment issued by any other RTO. See Standard 5 of the *Standards for Registered Training Organisations*.

Access and Equity and Client Services

Each RTO must apply access and equity principles, provide timely and appropriate information, advice and support services that assist clients to identify and achieve desired outcomes. This may include reasonable adjustment in assessment. See Standard 6 of the *Standards for Registered Training Organisations*.

Partnership Arrangements

RTOs must have, and comply with, written agreements with each organisation providing training and/or assessment on its behalf. See Standard 1.6 of *Standards for Registered Training Organisations*.

Recording Assessment Outcomes

Each RTO must have effective administration and records management procedures in place, and must record AQF qualifications and Statements of Attainment issued. See Standards 4 and 10.2 of the *Standards for Registered Training*.

Issuing AQF Qualifications and Statement of Attainment

Each RTO must issue AQF qualifications and Statements of Attainment that meet the requirements of the *AQF Implementation Handbook* and the endorsed Training Packages within the scope of its registration. An AQF qualification is issued once the full requirements for a qualification, as specified in the nationally endorsed Training Package are met. A Statement of Attainment is issued where the individual is assessed as competent against fewer units of competency than required for an AQF qualification. See Standard 10 and Section 2 of the *Standards for Registered Training Organisations*.

This section provides information on licensing/registration requirements for this Training Package, with the following important disclaimer.

Licensing and registration requirements that apply to specific industries, and vocational education and training, vary between each State and Territory, and can regularly change. The developers of this Training Package, and DEST, consider that the licensing/registration requirements described in this section apply to RTOs, assessors or candidates with respect to this Training Package. While reasonable care has been taken in its preparation, the developers of this Training Package and DEST cannot guarantee that the list is definitive or accurate at the time of reading; the information in this section is provided in good faith on that basis.

Contact the relevant state or territory department(s) to check if the licensing/registration requirements described below still apply, and to check if there are any others with which you must comply. For further information contact www.agrifoodskills.net.au.

Requirements for assessors

Some individual units of competency may be subject to licensing arrangements before training is commenced or before undertaking related work in the industry. Other units may require licences for those responsible for delivery and assessment. Competency standards where licensing arrangements may be relevant include those dealing with:

- operating vehicles, machinery and equipment such as chainsaws, motor vehicles, tractors, forklifts and earthmoving machinery
- driving or transporting machinery and equipment on public roads
- firearms
- chemical purchase and use
- access to and activities on private or protected lands
- management activities related to particular animal and plant species
- waste water
- soil disturbance and conservation
- irrigation
- water allocations
- underground water
- landscape construction
- natural bush clearing.

Requirements for RTOs

Selected units of competency and qualifications in this Training Package provide the basis for a range of statutory licensing and industry registration arrangements. To satisfy these licensing and registration arrangements, RTOs must meet those additional requirements.

Requirements for candidates

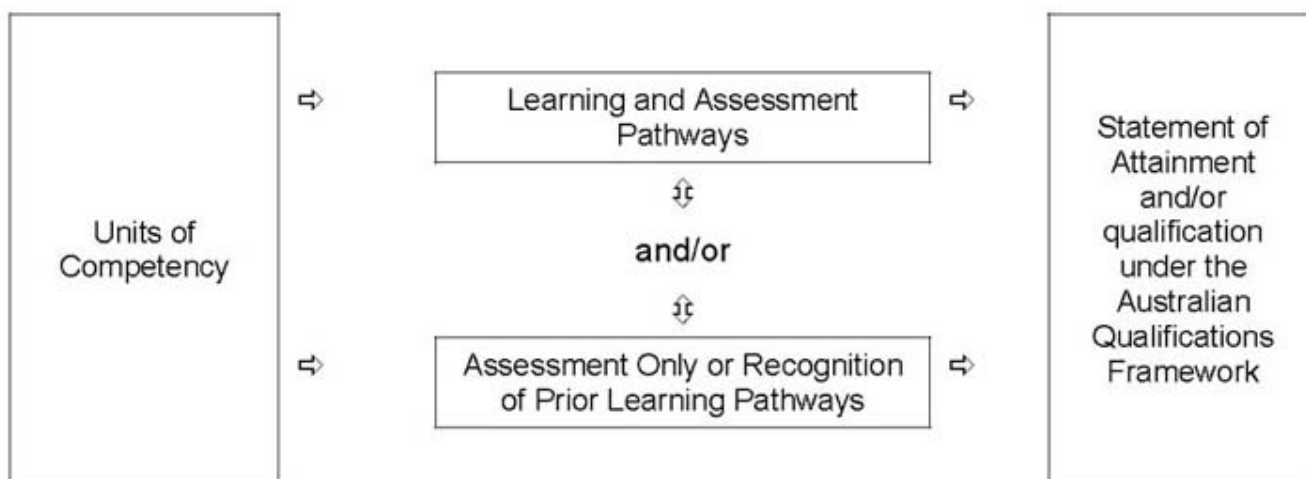
Individuals being assessed under statutory licensing and industry registration systems must comply with training and experience requirements additional to the minimum requirements identified in this Training Package.

Pathways

The competencies in this Training Package may be attained in a number of ways including through:

- formal or informal education and training
- experiences in the workplace
- general life experience, and/or
- any combination of the above.

Assessment under this Training Package leading to an AQF qualification or Statement of Attainment may follow a learning and assessment pathway, an assessment-only or recognition pathway, or a combination of the two as illustrated in the following diagram.



Each of these assessment pathways leads to full recognition of competencies held - the critical issue is that the candidate is competent, not how the competency was acquired.

Assessment, by any pathway, must comply with the assessment requirements set out in the *Standards for Registered Training Organisations*.

Learning and Assessment Pathways

Usually, learning and assessment are integrated, with assessment evidence being collected and feedback provided to the candidate at anytime throughout the learning and assessment process.

Learning and assessment pathways may include structured programs in a variety of contexts using a range of strategies to meet different learner needs. Structured learning and assessment programs could be: group-based, work-based, project-based, self-paced, action learning-based; conducted by distance or e-learning; and/or involve practice and experience in the workplace.

Learning and assessment pathways to suit New Apprenticeships have a mix of formal structured training and structured workplace experience with formative assessment activities through which candidates can acquire and demonstrate skills and knowledge from the relevant units of competency.

Assessment-Only or Recognition of Prior Learning Pathway

Competencies already held by individuals can be formally assessed against the units of competency in this Training Package, and should be recognised regardless of how, when or where they were achieved.

In an assessment-only or Recognition of Prior Learning (RPL) pathway, the candidate provides current, quality evidence of their competency against the relevant unit of competency. This process may be directed by the candidate and verified by the assessor, such as in the compilation of portfolios; or directed by the assessor, such as through observation of workplace performance and skills application, and oral and/or written assessment. Where the outcomes of this process indicate that the candidate is competent, structured training is not required. The RPL requirements of Standard 8.2 of the *Standards for Registered Training Organisations* must be met.

As with all assessment, the assessor must be confident that the evidence indicates that the candidate is currently competent against the endorsed unit of competency. This evidence may take a variety of forms and might include certification, references from past employers, testimonials from clients, and work samples. The onus is on candidates to provide sufficient evidence to satisfy assessors that they currently hold the relevant competencies. In judging evidence, the assessor must ensure that the evidence of prior learning is:

- authentic (the candidate's own work)
- valid (directly related to the current version of the relevant endorsed unit of competency)
- reliable (shows that the candidate consistently meets the endorsed unit of competency)
- current (reflects the candidate's current capacity to perform the aspect of the work covered by the endorsed unit of competency), and
- sufficient (covers the full range of elements in the relevant unit of competency and addresses the four dimensions of competency, namely task skills, task management skills, contingency management skills, and job/role environment skills).

The assessment only or recognition of prior learning pathway is likely to be most appropriate in the following scenarios:

- candidates enrolling in qualifications who want recognition for prior learning or current competencies
- existing workers
- individuals with overseas qualifications
- recent migrants with established work histories
- people returning to the workplace, and
- people with disabilities or injuries requiring a change in career.

Combination of Pathways

Where candidates for assessment have gained competencies through work and life experience and gaps in their competence are identified, or where they require training in new areas, a combination of pathways may be appropriate.

In such situations, the candidate may undertake an initial assessment to determine their current competency. Once current competency is identified, a structured learning and assessment program ensures that the candidate acquires the required additional competencies identified as gaps.

Assessor Requirements

This section identifies the mandatory competencies for assessors, and clarifies how others may contribute to the assessment process where one person alone does not hold all the required competencies.

Assessor Competencies

The *Standards for Registered Training Organisations* specify mandatory competency requirements for assessors. For information, Standard 7.3 from the *Standards for Registered Training Organisations* follows:

7.3	a	The RTO must ensure that assessments are conducted by a person who has:
		<ul style="list-style-type: none"> • the following competencies* from the Training Package for Assessment and Workplace Training, or demonstrated equivalent competencies: <ul style="list-style-type: none"> • TAAASS401A Plan and organise assessment; • TAAASS402A Assess competence; • TAAASS404A Participate in assessment validation; • relevant vocational competencies, at least to the level being assessed.
	b	However, if a person does not have all of the competencies in Standards 7.3 a (i) and the vocational competencies as defined in 7.3 a (ii), one person with the competencies listed in Standard 7.3 a (i), and one or more persons who have the competencies listed in Standard 7.3 a (ii) may work together to conduct assessments.

		<p>* A person who holds the competencies BSZ401A Plan assessment, BSZ402A Conduct assessment, and BSZ403A Review assessment from the Training Package for Assessment and Workplace Training will be accepted for the purposes of this standard. A person who has demonstrated equivalent competencies to BSZ401A and BSZ402A and BSZ403A in the period up to 12 months following publication of the Training and Assessment Training Package will also be accepted for the purposes of this standard.</p>
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Designing Assessment Tools

This section provides an overview on the use and development of assessment tools.

Use of Assessment Tools

Assessment tools provide a means of collecting the evidence that assessors use in making judgements about whether candidates have achieved competency.

There is no set format or process for the design, production or development of assessment tools. Assessors may use prepared assessment tools, such as those specifically developed to support this Training Package, or they may develop their own.

Using Prepared Assessment Tools

If using prepared assessment tools, assessors should ensure these are benchmarked, or mapped, against the current version of the relevant unit of competency. This can be done by checking that the materials are listed on the National Training Information Service (<http://www.ntis.gov.au>). Materials on the list have been noted by the National Quality Council as meeting their quality criteria for Training Package support materials.

Developing Assessment Tools

When developing assessment tools, assessors must ensure that they:

- are benchmarked against the relevant unit or units of competency
- are reviewed as part of the validation of assessment strategies as required under 9.2 (i) of the *Standards for Registered Training Organisations*
- meet the assessment requirements expressed in the *Standards for Registered Training Organisations*, particularly Standards 8 and 9.

A key reference for assessors developing assessment tools is TAA04 Training and Assessment Training Package and the unit of competency TAAASS403A *Develop assessment tools*. There is no set format or process for the design, production or development of assessment materials.

Conducting Assessment

This section details the mandatory assessment requirements and provides information on equity in assessment including reasonable adjustment.

Mandatory Assessment Requirements

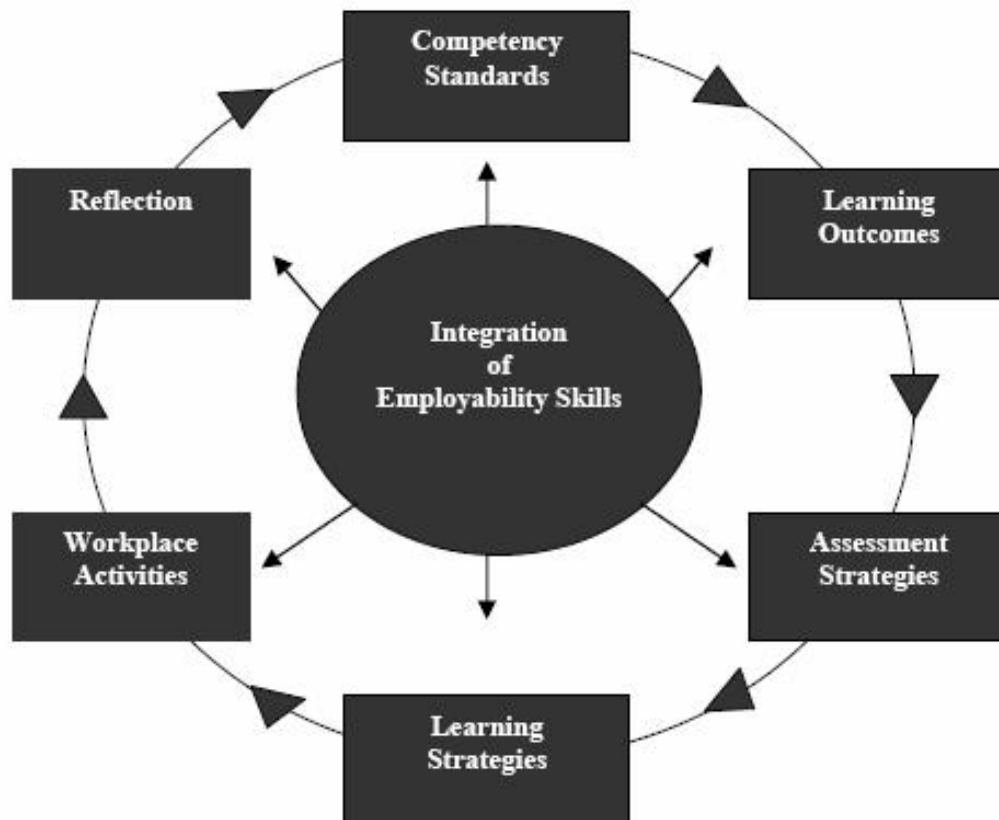
Assessments must meet the criteria set out in Standard 8 from the *Standards for Registered Training Organisations*. For information, Standard 8 from the *Standards for Registered Training Organisations* is reproduced below.

8	RTO Assessments
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		The RTOs assessments meet the requirements of the endorsed components of Training Packages and the outcomes specified in accredited courses within the scope of its registration.
8.1		The RTO must ensure that assessments (including RPL):
	i.	comply with the assessment guidelines included in the applicable nationally endorsed Training Packages or the assessment requirements specified in accredited courses;
	ii.	lead to the issuing of a statement of attainment or qualification under the AQF when a person is assessed as competent against nationally endorsed unit(s) of competency in the applicable Training Package or modules specified in the applicable accredited course;
	iii.	are valid, reliable, fair and flexible;
	iv.	provide for applicants to be informed of the context and purpose of the assessment and the assessment process;
	v.	where relevant, focus on the application of knowledge and skill to standard of performance required in the workplace and cover all aspects workplace performance, including task skills, task management skills, contingency management skills and job role environment skills;
	vi.	involve the evaluation of sufficient evidence to enable judgements to be made about whether competency has been attained;
	vii.	provide for feedback to the applicant about the outcomes of the assessment process and guidance on future options in relation to those outcomes;
	viii.	are equitable for all persons, taking account of individual needs relevant to the assessment; and
	ix.	provide for reassessment on appeal.
8.2	a	The RTO must ensure that RPL is offered to all applicants on enrolment
	b	The RTO must have an RPL process that:
		i. is structured to minimise the time and cost to applicants; and ii. provides adequate information, support and opportunities for participants to engage in the RPL process.

Delivery and assessment of Employability Skills

Employability Skills are integral to workplace competency and, as such, must be considered in the design, customisation, delivery and assessment of vocational education and training programs in an integrated and holistic way, as represented diagrammatically below.



Training providers must analyse the Employability Skills information contained in units of competency in order to design valid and reliable learning and assessment strategies. This analysis includes:

- reviewing unit(s) of competency to determine how each relevant Employability Skill is found and applied within the unit
- analysing the Employability Skills Summary for the qualification in which the unit(s) is/are packaged to help clarify relevant industry/workplace contexts with regard to the application of Employability Skills at that qualification level
- designing learning and assessment activities that address the Employability Skills requirements.

For more information on Employability Skills in Agri-Food Industry Skills Council Training Packages go to the Agri-Food Industry Skills Council website at <http://www.agrifoodskills.net.au>.

Access and Equity

An individual's access to the assessment process should not be adversely affected by restrictions placed on the location or context of assessment beyond the requirements specified in this Training Package.

Reasonable adjustments can be made to ensure equity in assessment for people with disabilities. Adjustments include any changes to the assessment process or context that meet the individual needs of the person with a disability, but do not change competency outcomes. Such adjustments are considered reasonable if they do not impose an unjustifiable hardship on a training provider or employer. When assessing people with disabilities, assessors are encouraged to apply good practice assessment methods with sensitivity and flexibility.

Further Sources of Information

The section provides a listing of useful contacts and resources to assist assessors in planning, designing, conducting and reviewing of assessments against this Training Package.

Contacts

Contacts

Agri-food Industry Skills Council

7 National Circuit

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General Resources

Refer to <http://antapubs.dest.gov.au/publications/search.asp> to locate the following ANTA publications.

AQF Implementation Handbook, third Edition. Australian Qualifications Framework Advisory Board, 2002, aqf.edu.au

Australian Quality Training Framework (AQTF) - for general information go to:

www.dest.gov.au/sectors

Australian Quality Training Framework (AQTF) - for resources and information go to:
www.dest.gov.au

Australian Quality Training Framework *Standards for Registered Training Organisations*, Australian National Training Authority, Melbourne, 2005. Available in hard copy from State and Territory Training Authorities or can be downloaded from www.dest.gov.au

TAA04 Training and Assessment Training Package. This is available from the Innovation and Business Skills Australia (IBSA) Industry Skills Council and can be viewed, and components downloaded, from the National Training Information Service (NTIS). National Training Information Service, an electronic database providing comprehensive information about RTOs, Training Packages and accredited courses - www.ntis.gov.au *Style Guide for Training Package Support Materials*, Australian National Training Authority, Melbourne, 2003. Can be downloaded from the ANTA page at www.dest.gov.au

Assessment Resources

Training Package Assessment Guides - a range of resources to assist RTOs in developing Training Package assessment materials developed by DEST with funding from the Department of Education, Training and Youth Affairs. It is made up of 10 separate titles, as described at the ANTA publications page of www.dest.gov.au. Go to www.resourcegenerator.gov.au/loadpage.asp?TPAG.htm

Printed and/or CD ROM versions of the Guides can be purchased from Australian Training Products (ATP). The resource includes the following guides:

- 1 Training Package Assessment Materials Kit
- 2 Assessing Competencies in Higher Qualifications
- 3 Recognition Resource
- 4 Kit to Support Assessor Training
- 5 Candidates Kit: Guide to Assessment in New Apprenticeships
- 6 Assessment Approaches for Small Workplaces
- 7 Assessment Using Partnership Arrangements
- 8 Strategies for ensuring Consistency in Assessment
- 9 Networking for Assessors
- 10 Quality Assurance Guide for Assessment

An additional guide "Delivery and Assessment Strategies" has been developed to complement these resources.

Assessment Tool Design and Conducting Assessment

VETASSESS & Western Australian Department of Training and Employment 2000, *Designing Tests - Guidelines for designing knowledge based tests for Training Packages*. Vocational Education and Assessment Centre 1997, *Designing Workplace Assessment Tools, A self-directed learning program*, NSW TAFE.

Manufacturing Learning Australia 2000, *Assessment Solutions*, Australian Training Products, Melbourne.

Rumsey, David 1994, *Assessment practical guide*, Australian Government Publishing Service, Canberra.

Assessor Training

Australian Committee on Training Curriculum (ACTRAC) 1994, *Assessor training program - learning materials*, Australian Training Products, Melbourne.

Australian National Training Authority, *A Guide for Professional Development*, ANTA, Brisbane.

Australian Training Products Ltd *Assessment and Workplace Training, Training Package - Toolbox*, ATPL Melbourne.

Green, M, et al. 1997, *Key competencies professional development Package*, Department for Education and Children's Services, South Australia.

Victorian TAFE Association 2000, *The professional development CD: A learning tool*, VTA, Melbourne.

Assessment System Design and Management

Office of Training and Further Education 1998, *Demonstrating best practice in VET project - assessment systems and processes*, OTFE Victoria.

Toop, L., Gibb, J. & Worsnop, P. *Assessment system designs*, Australian Government Publishing Service, Canberra.

Western Australia Department of Training and VETASSESS 1998, *Kit for Skills Recognition Organisations*, WADOT, Perth.

RTE4002A

Unit Descriptor

Develop a crop regulation program

This competency standard covers the process of developing a crop regulation program to control the yield and quality of horticultural crops. Developing a crop regulation program requires assessing and selecting cost effective techniques, resources and equipment for the regulation of horticultural crops, and preparing implementation plans, specifications and associated documents to achieve the crop production targets specified in the enterprise production plan.

Developing a crop regulation program is likely to be undertaken without supervision, with only general guidance on progress sought by managers. Responsibility for and limited organisation of the work of others involved in the program may be required. Developing a crop regulation program requires a broad range of skills and underpinning knowledge with depth in some areas, such as pruning and plant nutrition requirements.

Unit Sector No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-----------------------------------|--|
| 1. Assess crop regulation methods | <p>1.1 Production targets and production requirements in terms of quantity, quality and availability of specified crops are identified from the enterprise production plan.</p> <p>1.2 Research is conducted into the characteristics and growing requirements of plant species and cultivars that may affect the crop regulation program.</p> <p>1.3 The benefits and limitations of available crop regulation methods for specified crops are assessed based on published data on the species and cultivars, historical records, own experience, and enterprise guidelines.</p> <p>1.4 A cost benefit analysis is conducted on available crop regulation methods, and the most cost effective approach to crop regulation is determined and submitted to management for approval.</p> |
|-----------------------------------|--|

- | | |
|--|--|
| 2. Identify the requirements of a crop regulation program | <p>2.1 The crop regulation program is developed to achieve the appropriate yield and quality specified in the enterprise production plan.</p> <p>2.2 Resources, tools, equipment and machinery required for the crop regulation program are identified, costed and availability confirmed with suppliers, contractors and appropriate personnel.</p> <p>2.3 OHS hazards associated with the implementation of the crop regulation program are identified, risks assessed and controls developed according to enterprise guidelines, budgeted and documented in the plan.</p> <p>2.4 Environmental implications of the crop regulation program are identified and documented in the plan.</p> <p>2.5 Staged implementation and development are outlined, where appropriate, according to the range of conditions over the growing cycle of the plant species and cultivars.</p> <p>2.6 Timelines for crop regulation activities are determined taking into account the needs of the plant species and cultivars, site conditions, and any other planning requirements.</p> |
| 3. Prepare and document the crop regulation program and specifications | <p>3.1 Detailed plan, specifications and quotation are prepared based on the requirements of the program and presented to management for acceptance.</p> <p>3.2 Scaled site plan is produced which can be readily interpreted and understood by on-site personnel according to enterprise standards.</p> <p>3.3 Detailed on-site procedures and schedules required for the crop regulation program are developed and documented.</p> |
| 4. Monitor the crop regulation program | <p>4.1 Implementation of the program is monitored to ensure requirements of the enterprise production plan are achieved.</p> <p>4.2 The crop regulation program is reviewed and monitored to ensure it remains responsive to changing conditions.</p> <p>4.3 Appropriate courses of action are implemented to alleviate or overcome identified shortcomings in the program.</p> <p>4.4 Remedial action undertaken is documented and reported to management according to enterprise policy.</p> |

KEY COMPETENCIES

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Results of the cost benefit analysis of crop regulation methods and selection of resources and equipment should be communicated with the manager orally and in writing. There is likely to be negotiation between the developer of the crop regulation program and the manager to achieve the program objectives.	3
Collecting analysing and organising information	Information will need to be obtained from field results, research and/or industry experts. Information obtained about specific crop regulation methods should be analysed and outcomes discussed with the manager and other members of the work team. Information about the crop regulation program should be organised and presented as a site plan, documented plans, written work procedures, a timeline chart, and schedules for implementation activities.	3
Planning and organising activities	The planning process should proceed in an orderly and efficient manner. Timely and appropriate information needs to be available for decision-making. The crop regulation program should reflect the activities required to implement the program.	3
Working with others and in teams	Developing a crop regulation program will involve working with other members of a team to achieve the program objectives.	3
Using mathematical ideas and techniques	Mathematical concepts will be required to measure quantities, distances and depth, and to calculate areas, resources, costs, ratios, scales and application rates.	3
Solving problems	Problems relating to crop regulation techniques and procedures, nature of the site, availability of resources and equipment, costs, environmental issues, and monitoring of the program may arise during development of the crop regulation program and will require remedial action.	3
Using technology	Technology will be required to record, store and communicate ideas and information. It will also be used to research relevant information, obtain and analyse data from site evaluation tests, and to produce the crop regulation program.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in particular training and assessment requirements may depend on the work situations available.

What crops may be regulated?	Crops may include flower, fruit and vegetable crops.
What resources may be used for research?	Knowledge of plant species and cultivars, their uses, performance characteristics and growing requirements may be gained through consultation with team members, senior managers, own knowledge, specific industry, technical and research literature, supplier specifications, catalogues, enterprise sales figures and production records, local historical performance data, and industry best practice guidelines.
What crop regulation methods may apply to this standard?	Crop regulation methods may include manual thinning, chemical thinning, selective harvesting, training, summer and winter pruning, hedging, skirting, topping, trimming, Regulated Deficit Irrigation (RDI), and plant nutrition programs.
What resources may be required for a crop regulation program?	Crop regulation methods may include manual thinning, chemical thinning, selective harvesting, training, summer and winter pruning, hedging, skirting, topping, trimming, Regulated Deficit Irrigation (RDI), and plant nutrition programs.
What tools, equipment and machinery may be required for the implementation of the crop regulation program?	<p>Application equipment and machinery may include backpack spray equipment, tractors and trailed or 3 point linkage spreaders, seeders, rippers and spray equipment, pumps and pump fittings, and irrigation systems set up for fertigation.</p> <p>Pruning tools, equipment and machinery may include knives, handsaws, hand and battery-powered secateurs, pneumatic snips and compressor, hedge trimmers both manual and powered, small chainsaws, specialised mechanical pruning machinery, chippers, ladders, picking platforms, powered ladders and scissor lifts.</p> <p>Plant training equipment may include trellising and specialised training systems.</p>
What OHS hazards may be identified as part of the crop regulation program?	Hazards may include disturbance or interruption of services, solar radiation, dust, noise, air-, soil- and water-borne micro-organisms, chemicals and hazardous substances, sharp hand tools and equipment, manual handling, moving vehicles, machinery and machinery parts, slippery and uneven surfaces, and flying objects.

What controls may be introduced to minimise the risk of OHS hazards?

Controls should be introduced according to enterprise OHS policies and procedures and may include identifying hazards; assessing and reporting risks; cleaning, maintaining and storing tools, equipment and machinery; appropriate use of personal protective equipment including sun protection; safe operation of tools, equipment and machinery; safe handling, use and storage of chemicals and hazardous substances; correct manual handling; appropriate use of safety equipment such as signage and protective barriers; basic first aid available on site; personal hygiene, and reporting problems to supervisors.

What environmental implications may be associated with the implementation of a crop regulation program?

Over-application or run-off into the external environment may result in nutrient overload or excess water to native plants, natural waterways, water tables and ecosystems, water erosion, water logging and salinisation.

Beneficial impacts may include the minimisation of nutrient run-off and toxic side effects in soil and the surrounding environment from improved assessment and targeting of nutrient and irrigation requirements, application techniques and rates, and the reduction of toxic side effects of applied nutrients in the crop plants.

What range of conditions may affect the crop regulation program?

Over-application or run-off into the external environment may result in nutrient overload or excess water to native plants, natural waterways, watertables and ecosystems, water erosion, water logging and salinisation.

Beneficial impacts may include the minimisation of nutrient run-off and toxic side effects in soil and the surrounding environment from improved assessment and targeting of nutrient and irrigation requirements, application techniques and rates, and the reduction of toxic side effects of applied nutrients in the crop plants.

What remedial action may be undertaken to improve the crop regulation program?

Remedial action may include adjustments to thinning and pruning rates and levels, irrigation scheduling and nutrient application rates and methods, the use of foliar sprays, and changes to soil management practices.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in developing a crop regulation program requires evidence that a person can assess and select cost effective techniques, resources and equipment for the regulation of horticultural crops, and prepare implementation plans, specifications and associated documents in line with the enterprises crop production plan.

The skills and knowledge required to develop a crop regulation program must be transferable to a different work environment. For example, this could include different crops types, horticultural management practices, and worksites.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- site evaluation techniques including analysis of the condition of soils, plants and the site for production activities
- the characteristics of soil and other growth media types and the use of additives to enhance the available nutrition for specific plant species and cultivars
- the relationship between enterprise crop regulation methods such as thinning, pruning and RDI, and the yield and quality of specific crops
- processes and techniques for preparing, costing and documenting plans for and scheduling crop regulation activities.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- communicate and negotiate orally and in writing with the staff, managers, contractors and consultants
- research and evaluate information
- record all relevant information
- comply with legislative requirements
- document plans, specifications and work procedures, and write reports for the understanding of staff, managers and contractors
- calculate the cost and spatial and logistical requirements of components of the crop regulation program.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4008A

Unit Descriptor

Maintain grain quality in storage

This competency standard covers the processes of assessing and maintaining hygiene in grain storage areas, as well as monitoring the grain for deterioration or pests and contaminants. It includes implementing pre-determined integrated pest management strategies, and investigating and recommending options for technology, systems or practices that will improve grain quality.

Maintaining the quality of grain in storage is likely to be undertaken without supervision, with only general guidance on progress sought from others. This unit requires the application of extensive knowledge including the types, levels and control methods for a range of pests and contaminants. It requires skills in sampling grain and working safely in a potentially hazardous environment, as well as in calculating volumes, mass and quantities.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Maintain hygiene in storage areas | 1.1 Storage conditions and facilities are regularly tested to maintain the standard of hygiene in stored grain .
1.2 The need for repairs and maintenance is identified, and either carried out or a report of the need is made.
1.3 Treatments are applied to storage facilities to maintain hygiene standards and in line with the grain storage program.
1.4 The application of all treatments used is accurately recorded in line with the grain storage program . |
| 2. Monitor grain from arrival to dispatch | 2.1 Before the grain is stored , samples are taken for testing to ensure a complete record of the quality of the grain.
2.2 Samples of the grain are taken regularly for testing to ensure purity standards in the grain.
2.3 At dispatch, the grain is checked for quality and against the records taken at the point of storage.
2.4 Test samples are taken, prepared and forwarded for analysis according to prescribed guidelines.
2.5 Clear and accurate records of grain movements in and out of storage are created, maintained and kept as prescribed in the grain storage program.
2.6 Recommendations are made to adopt new technology, systems or practices that will improve or maintain grain quality in storage.
2.7 All activities around the grain storage facilities are undertaken according to the OHS guidelines detailed in the grain storage program. |

3. Monitor and maintain grain condition in storage
 - 3.1 Regular checks of grain in storage are conducted to maintain continued freedom from **contaminants** and deterioration.
 - 3.2 Periodical **checks** of grain in long-term storage are conducted for quality factors and viability according to enterprise requirements.
 - 3.3 Where necessary, samples of the grain are taken for testing in a laboratory setting.
 - 3.4 Where test samples are required, they are taken, prepared, and forwarded for analysis according to industry quality assurance and laboratory requirements.
 - 3.5 Clear and accurate **records** of grain tests and inspections are created, maintained and kept as described in the grain storage program.
 - 3.6 The **condition of storage facilities** is monitored using the schedule and methods outlined in the grain storage program.
 - 3.7 Where it is required, appropriate **corrective action** is taken to maintain grain quality.
 - 3.8 All activities around the grain storage facilities are undertaken according to the OHS guidelines detailed in the grain storage program.
4. Control weeds and pests in storage area
 - 4.1 Grain is monitored according to the monitoring points, targets and methods outlined in the grain storage program.
 - 4.2 Samples of the grain are appropriately taken to test for pest infestation.
 - 4.3 Where it is required, the sample is prepared and forwarded for analysis according to the prescribed guidelines.
 - 4.4 Pests in storage are **controlled** according to the guidelines in the grain storage program.
 - 4.5 Enclosed grain storage area is **fumigated**, and the surrounding environment is kept clean according to the integrated **pest management** strategy in the grain storage program.
 - 4.6 The sources of any infestations are identified and steps are taken to control them in line with the integrated pest management strategy in the grain storage program.
 - 4.7 All pest control activities are undertaken in line with the OHS guidelines detailed in the grain storage program.
 - 4.8 Clear and accurate records of treatments to the grain and storage facilities are created, maintained and kept as described in the grain storage program.
 - 4.9 Clear and accurate records of all chemical use in the storage facility, and the applicable withholding periods are created, maintained and kept as described in the grain storage program.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	By communicating with management, operators and contractors throughout the storage operations.	2
Collecting analysing and organising information	By observing and measuring the impact on the grain of pests and contaminants.	2
Planning and organising activities	In arranging for samples to be taken of the grain, and in getting those samples laboratory tested.	2
Working with others and in teams	In working safely to store and monitor grain in silos and other storage facilities.	2
Using mathematical ideas and techniques	In calculating sampling results, loadings, and volumes of storages.	2
Solving problems	Through identifying deterioration in the grain quality and selecting an appropriate response.	2
Using technology	In operating any necessary equipment prior to, and during the storage operations - communication technology, calculating equipment, measuring and sampling equipment, and word processing/spread sheeting software.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What facilities might be tested for hygiene standards?

The storage facility covers all types of temporary and permanent storage, complete with installed aeration, and controlled atmosphere or refrigeration.

What is subject to hygiene standards?

The storage area, grain storages, machinery, buildings, vehicles, grain handling equipment, produce and vegetation, might all be subject to inspection and treatment, including for insect and other pest refuges.

The storage of what kinds of grain is described in this standard?

Grains being stored could include cereals, legumes, pulses, oilseeds, or pasture seeds.

How would the use of treatments be recorded?	Recording the application of treatments might require the use of either digital or paper based systems, or a range of data capture technologies.
How do each of the processes relate to each other?	Receival, storage , sampling and analysis operations are co-ordinated processes and detailed in the grain storage program.
What might the grain storage program provide for?	<p>The program will provide details of the grain to be stored, the timeframes involved, the resources to be used, the locations for storage, the recording and documentation requirements, the scheduling of the operation, the responsibility of the various operators to be involved, the method of pest control, and the method of sampling and where samples should be sent. Details of the requirements to minimise or eliminate OHS risks, the legislative requirements in relation to all activities undertaken during grain quality maintenance activities, and chemical handling procedures and guidelines would also be covered in the program.</p> <p>The grain storage program would also ensure that equipment and personnel arranged for operations are appropriate to the requirements of various legislation, and may include equipment for detection of fumigant in the atmosphere, confined spaces equipment, pressure testing equipment, fumigant/inert atmosphere pressure bottles, fumigant generation equipment, and personal protection.</p>
What equipment might be used to take and record samples of grain quality?	This equipment might include testing apparatus, sampling, measuring and sieving equipment, operational charts, calibration and identification samples, and organisational/client instructions.
How might the samples be taken?	Inspection/sampling techniques may include turning, visual inspection, hand sampling, grain sieves, probes and spears, or trapping.
Where would the analysing body be?	Testing of samples would generally take place off-site by a specialist organisation, which would then prepare analysis results that would be used as a basis for decision-making within the organisation.
What are the OHS hazards that apply to this standard?	Amongst the risks are operating and maintaining machinery and equipment, including hydraulics and guarding of exposed moving parts, noise, organic and other dusts, working with, transporting and storing hazardous substances (such as pesticides), using fumigants, working at heights, and working on the grain mass.

What actions could be taken to eliminate or minimise OHS risk?

The range of actions are both systemic and at an operational level. These are listed below.

Systems should be in place to ensure the safe operation and maintenance of machinery and equipment. Precautions should also be in place to minimise exposure to noise, and organic and other dusts. Systems and procedures for handling and storing grain, as well as working with and around electricity should also be in place.

Fixtures should be in place in all silos and storage sheds, including appropriate access ladders, hand rails and ladder cages.

Personal protective equipment should be selected, used and maintained.

Environmental conditions should be controlled. For example, keeping moisture levels within prescribed industry standards will reduce the likelihood of fire and silo collapse.

Procedures should be in place and used for working on top of stored grain, working with grain mass movement and stability, working within confined working spaces, moving vehicles, and working at heights.

Record keeping should ensure that requirements in relation to properly observing and using product labels and MSDS sheets, instruction manuals, and written organisational procedures.

What might be the contaminants, or factors which might cause deterioration of stored grain?

These may include moulds, moisture, mites, insects, or fungal diseases.

What do the records contain?

Records provide details required by legislation and are kept for the required period of time. They might contain information relating to the grain itself (types, varieties, quality segregation), expenditure in relation to storage and handling, OHS considerations (those relating to chemical handling and application), and operational functions (dates, times, quantities, personnel). The format of any reporting might be electronic or paper based.

What kind of problems might be revealed in an inspection of storage facility condition?

Problems encountered could include the presence of water or water damage, presence and activity of pests (including insects, moulds, birds and rodents), dead vertebrate pests in storage, breakdown of storage security and integrity (e.g. holes, cracks, poor sealing, etc.), grain moisture migration, excessive dust levels, high pesticide and fumigant residues, and legal withholding periods.

What corrective action might be taken?	<p>Corrective action could include maintenance activities such as inspection for structural problems, repair of physical damage, sealing of inlets and outlets to maintain gas tightness, pressure testing of sealed storages to recommended levels, location and repair of leaks in sealed storages, maintenance of pressure relief valves, and painting and upkeep of heat reflecting coating.</p> <p>Corrective action might also include the operation of installed equipment where it exists. For example, refrigeration may be used on storage facilities holding malt quality barley or sorghum, or where high moisture content is jeopardising grain quality. Matching the cooling load with equipment selection may involve site-specific data and calculations, combined with the use of manufacturers data.</p> <p>Additionally, aeration might assist to reduce grain temperature and grain moisture levels to client and organisations requirements.</p>
Where would pest control activities be targeted?	<p>This would be in silos, grain storages, surrounding area, grain handling equipment, machinery, buildings, and hay and other produce that can harbour insect pests.</p>
What pest control activities might be included in integrated pest management?	<p>Activities such as application of insecticides, herbicides and growth regulators, baiting (using registered controlled and generally available substances), desiccant dusts, or fumigation and/or inert atmosphere operations could be employed either separately or in partnership.</p> <p>Sampling and testing is a part of the integrated pest management activities and may provide evidence of the development of resistance to pesticides in pests.</p>
Why might the grain or storage facility be fumigated?	<p>Fumigation or inert gas may be for the purposes of treating identified pests, or for meeting grain quality requirements.</p>
Where would the stated goals of the organisation be found?	<p>They would be documented in the production/management plans, the business/marketing plans, and would be available verbally from management representatives and colleagues.</p>
What kind of options for maintaining or improving grain quality might be considered?	<p>They may involve new technology, new systems, or altered practices such as drying, aeration, sealing, controlled atmospheres, or the use of desiccant dusts.</p>

What kind of reduced quality might the checks and analysis reveal?

Some of the undesirable aspects might be moisture, protein, oil content, insects (live and dead), weed and other commodity seeds, other foreign matter, cracked grain, weather affected grain, pesticide and chemical residues/contamination, or undesirable grain size, hectolitre weight, or varietal purity.

What kind of problems might be revealed in an inspection of storage facility condition?

Problems encountered could include the presence of water or water damage, presence and activity of pests (including insects, moulds, birds and rodents), dead vertebrate pests in storage, breakdown of storage security and integrity (e.g. holes, cracks, poor sealing, etc.), grain moisture migration, excessive dust levels, high pesticide and fumigant residues, and legal withholding periods.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in maintaining grain quality in storage requires evidence that hygiene is monitored and maintained, that pests and contaminants are monitored and controlled, and that grain quality ensures the greatest possible return for the organisation by meeting the requirements of the client and of the organisations marketing requirements.

The skills and knowledge required to maintain grain quality in storage must be transferable to a different work environment. For example, across a range of pest and contaminant types that may occur in differing geographic locations or with different grain crops.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- silo and temporary storage configuration and operation
- chemical handling and dangerous goods requirements
- the range of applicable pesticides, their uses, application methods and handling requirements
- commodity types, varieties and grades
- handling requirements for gas cylinders
- insect life cycles and optimum conditions for development
- Integrated Pest Management principles and the procedures used within the organisation
- legislative requirements, and procedures relating to the purchase, transport, storage, use and disposal of pesticides and fumigants
- client's sampling and classification requirements
- common grain pests and their general control methods
- appropriate action to be taken in contingency situations
- marketing requirements and options for grain growers
- equipment available and its uses, limitations and OHS requirements
- site hazards and sound management practices and processes to minimise noise, odours, and debris from grain storage operations
- chemical handling and dangerous goods requirements
- developments and options available for maintaining or improving the quality of grain during storage.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- setup and operate fumigation and pesticide application equipment
- sample loads and grain in storage, and conduct a simple analysis
- create, maintain, use and keep clear and trackable records
- use a range of communication equipment, including in emergency situations
- inspect and test silos
- identify insects, pests and other factors that affect grain quality
- set up and operate inert atmosphere equipment
- handle and mix chemicals for baiting, fumigation, spraying, and other forms of application
- interpret monitored information on pests
- plan and schedule weed, pest and/or disease control including amending plans during the operations
- calculate mass and volumes of grain and grain storages
- observe, identify and react appropriately to environmental implications and OHS hazards.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4009A**Unit Descriptor****Plan a pasture establishment program**

This competency standard covers the process of developing a pasture establishment program for livestock production. Developing a pasture establishment program will require consideration of livestock needs, site factors, growing requirements of pasture species and cultivars, resources and equipment for planting and maintenance.

Developing a pasture establishment program requires a broad range of agricultural skills and involves the application of underpinning knowledge with depth in some areas such as pasture selection, planting and harvesting.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|--|---|
| 1. Determine requirements of the pasture establishment program | 1.1 Pasture species and cultivars that are appropriate to the site and meet production needs are identified and the required quantity calculated, costed and availability confirmed with suppliers.
1.2 Pasture establishment procedures are selected consistent with seasonal factors, production plans and the resources and equipment available.
1.3 Post-planting care is planned according to production needs, enterprise standards and site capabilities.
1.4 Resources, tools, equipment and machinery required for planting and post-planting care are identified, costed and availability confirmed with suppliers, contractors and appropriate personnel.
1.5 OHS hazards associated with the pasture establishment program are identified, risks assessed and controls developed according to enterprise guidelines, costed and documented in the plan. |
| 2. Prepare and document the pasture establishment program | 2.1 Detailed plans are prepared based on the requirements of the pasture establishment program and production requirements.
2.2 Plan is produced which can be readily interpreted and understood by on-site personnel according to enterprise standards.
2.3 Detailed on-site procedures and schedules required for the planting of the site and post-planting care of pasture are developed and documented. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through consultation with manager on livestock production needs and preferences for pasture species.	3
Collecting analysing and organising information	Some information will need to be researched and/or obtained from test results. Information addressing the specific requirements of the pasture establishment program should be analysed and outcomes discussed with the manager. The plan should be organised and presented as a document with written work procedures and timeline chart and schedules for pasture establishment activities.	3
Planning and organising activities	The planning process should proceed in an orderly and efficient manner. Timely and appropriate information needs to be available for decision making. The plan for the pasture establishment program should reflect the activities required to implement the program.	3
Working with others and in teams	Planning pasture establishment activities may involve working with other members of a team to achieve the desired outcomes.	3
Using mathematical ideas and techniques	Mathematical concepts will be required to measure quantities, distances, depth and calculate areas, resources, costs, ratios, scales, planting and chemical and fertiliser application rates.	3
Solving problems	Problems relating to the requirements of the livestock production plan, site problems, availability of resources and equipment, costs and environmental issues may arise during planning of the pasture establishment program.	3
Using technology	Technology will be required to record, store and communicate ideas and information. It will also be used to research relevant information, obtain and analyse data from site evaluation tests and to produce the pasture establishment program.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in particular training and assessment requirements may depend on the work situations available.

What pasture establishment procedures may apply to this standard?

Pasture establishment procedures may include:

- soil testing and treatments
- preparation of soil for planting
- fencing of stock and pest animals
- chemical, cultural or biological control of weeds and feral animals.

What aspects of post-planting care may be considered when establishing a pasture?

Post-planting care may include fertilising, controlling pests and diseases, irrigation and monitoring pasture health.

What OHS hazards may be associated with the establishment of pastures?

Hazards may include disturbance or interruption of services, solar radiation, dust, noise, soil-, water- and air-borne micro-organisms, chemicals and hazardous substances, sharp hand tools and equipment, manual handling, moving vehicles, machinery and machinery parts, uneven surfaces and flying objects.

What controls may be introduced to minimise the risk of OHS hazards?

Controls should be introduced according to enterprise OHS policies and procedures and may include identifying hazards; assessing and reporting risks; cleaning, maintaining and storing tools, equipment and machinery; appropriate use of personal protective equipment including sun protection; safe operation of tools, equipment and machinery; safe handling, use and storage of chemicals and hazardous substances; correct manual handling; basic first aid available on site; and reporting problems to managers.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in developing a pasture establishment program requires evidence that a person can assess site factors, select suitable pasture species and cultivars, determine resources and equipment for planting and post-planting care, and prepare pasture establishment plans to meet livestock production plans and schedules.

The skills and knowledge required to develop a pasture establishment program must be transferable to a different work environment. For example, this could include different pasture species, planting techniques and production systems.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- establishment techniques of specific pasture species and cultivars
- the advantages and disadvantages of a range of pasture establishment procedures
- maintenance requirements and practices for specific pasture species and cultivars after initial establishment
- livestock production systems and their integration with pasture production.
- planning process, including costing and scheduling of works.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- determine requirements of the pasture establishment program
- prepare and document the pasture establishment program.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4010A

Unit Descriptor

Supervise agricultural crop maintenance

This competency standard covers the functions required to promote and maintain the health of agricultural crops.

It requires the application of skills and knowledge to manage the production of a grains crop in an environment with optimal nutrient availability, and with minimum damage from pests, weeds and disease. The work is likely to be carried out under broad supervision within enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Determine condition of agricultural crops | 1.1 Measurement and assessment of soil moisture is undertaken to calculate soil water percentage.
1.2 Water requirements are calculated according to soil analysis data, standing crop , and forecast weather conditions.
1.3 Nutrient requirements for crops are assessed and deficiencies identified.
1.4 Factors affecting crop capacity are identified.
1.5 Sustainable land management is implemented according to enterprise requirements and environmental standards. |
| 2. Determine pest control | 2.1 Evidence of pests and disease is assessed and effective control measures appropriate to type and species of infestation are determined.
2.2 Areas of weed infestation, which may be reduced or eradicated, are located and species identified.
2.3 Control methods are selected to control pests and weeds without building up a resistance to chemicals.
2.4 Control methods are scheduled at the optimum time with minimal damage to the crop.
2.5 Severity of infestations and records of treatments are maintained to provide essential data for future management programs. |
| 3. Manage crop health | 3.1 Crop is planned and monitored to maintain water and nutritional requirements for optimal production.
3.2 Weed and pest levels are monitored and the control program modified as required.
3.3 Benefits from fertilisation methods are assessed and documented for analysis in future management programs.
3.4 Cropping programs are monitored for efficiency and effectiveness, and documented for future best practice.
3.5 Relevant data is documented for continual analysis and effective crop management. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Information with regard to the soil tests results and analysis may be discussed with industry network and work team.	3
Collecting analysing and organising information	Information on the pest control programs may be documented and organised by reports for analysis.	3
Planning and organising activities	Pest control applications may be planned and arranged around other crop management procedures or sequenced as required.	3
Working with others and in teams	In the implementation of methods and procedures to manage the crop to maximise yield.	3
Using mathematical ideas and techniques	Estimation techniques may be used to determine the likelihood of successful outcomes of the pest control program.	3
Solving problems	Problems may arise in the course of the program that need to be addressed through adjustments of resources or timetables.	3
Using technology	Technology may be used to monitor and calculate the results of the crop program.	3

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What agricultural crops are covered by this unit?

Agricultural crops covered by this unit include wheat and coarse grains, cotton, grain legumes, oilseeds, sugar, and temperate and tropical pastures

How factors might be considered in determining water requirements?

Considerations may include stage of crop, rainfall records, water availability, soil types, soil physical structure, and fertiliser applications.

How may nutrient requirements be assessed?	Nutrients may include nitrogen, phosphorus, potassium, sulphur, calcium, magnesium, boron, molybdenum, copper and chlorine. Nutrient requirements may be assessed by tissue or soil testing.
What factors affecting total crop capacity may be relevant to this standard	Factors may include climate, irrigation availability, soil types, pasture pests, topography, soil and plant nutrient status, paddock history, and drainage.
What enterprise requirements may apply to this standard?	<p>SOP, industry standards, Total Quality Management standards, product labels, manufacturers specifications, MSDS, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use), and reporting requirements. It may also include consideration of the following factors:</p> <ul style="list-style-type: none">• the introduction of transgenic varieties to minimise chemical use• the industry commitment to minimise pesticide use• containing weedicides to the weedicide site• selecting weedicides with minimal environmental impact.
What type of pests may be identified?	<p>Pests may include insects, weeds, pathogens, vertebrates, nematodes and molluscs. Vertebrate pests include rabbits, rats and mice, macropods and birds. Invertebrate pests include thrips, mites, nematodes, locusts and caterpillars.</p> <p>All pest and weed control is carried out according to principles of integrated pest management.</p>
What crop diseases may be identified?	Diseases may include forliar pathogens such as rusts, chocolate spot, <i>Ascochyta</i> , mildew, septaria, seferotina, soil borne pathogens, Take-all, cereal cyst nematodes, <i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> , and <i>Phytophthora</i> .
What control measures may be considered?	This may include herbicides and insecticides. Vertebrate pest control methods may include physical barriers, baiting methods, shooting, and fumigation of burrows. Invertebrate pest control methods may include insecticides, biological agents, crop rotation and fallowing.
What type of weeds may be identified?	Weeds may include annual, perennial, broad leaf, narrow leaf and grasses.
What may be involved in crop planning?	Planning may involve rotations which include wheat, other grains, lupins, pulses, pasture and fallow.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in supervising agricultural crop maintenance requires evidence of the ability to accurately assess crop needs, implement pest and weed control measures, apply growth control compounds, and monitor and assess crop maturity. It also requires the ability to ascertain water requirements from survey advice and weather forecasts, accurately measure soil moisture and interpret data, apply specialist sprays, and ascertain time of harvest with consultant advice. Evidence must be demonstrated in the maintenance of sustainable land management practices and principles.

The skills and knowledge required to supervising agricultural crop maintenance must be transferable to another agricultural enterprises. For example, this may include different crops, cropping systems, geographical regions, machinery and equipment, pests and diseases.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- crop growth stages and keys
- fertiliser types and application times, methods and rates
- chemical use
- factors leading to development of chemical resistance
- integrated pest management
- life-cycles of pest, diseases and weeds
- OHS legislative requirements
- relevant codes of practice with regard to the use and control of hazardous substances
- relevant codes of practice with regard to environmental protection.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- refer to records of paddock nutrient requirements
- dispatch samples to laboratories
- operate and interpret on-the-spot tests
- recognise damage caused by weeds, pests or diseases
- recognise poor growth and lack of vigour caused by nutrient deficiency
- record monitoring results manually or on the computer
- plan and implement control programs to rectify nutrient deficiencies, disease outbreaks, pest and weed infestations
- accurately measure soil moisture and estimate irrigation needs
- communicate with industry, suppliers and other personnel
- read and interpret MSDS, production plans and analysis results
- estimate and measure pest control treatments.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4011A

Unit Descriptor

Manage pastures for livestock production

This competency standard covers the work required to manage pastures for livestock production. It requires the application of skills and knowledge to set objectives to maximise pasture resources, and involves the implementation of strategies to ensure the sustainability of the land, and an awareness of resource use, as well as the capacity to introduce specific control measures to deal with infestations. Managing pastures for livestock production requires a broad range of agricultural skills, and involves the application of underpinning knowledge with depth in some areas such as pasture selection, planting and harvesting.

Unit Sector No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Develop a pasture management program | <p>1.1 Production targets for each pasture type are established, consistent with livestock production and enterprise objectives.</p> <p>1.2 Irrigation schedules, where required, are determined for each soil and pasture type based on assessed water requirements, rainfall and evapo-transpiration data.</p> <p>1.3 Nutrient requirements for pastures are assessed to determine appropriate fertiliser program.</p> <p>1.4 Budgetary constraints are identified and maintained according to enterprise requirements.</p> <p>1.5 A pasture management program is developed to meet production targets and enterprise objectives.</p> |
| 2. Implement pasture management program | <p>2.1 Pasture program is implemented and pasture capacity is monitored according to enterprise requirements.</p> <p>2.2 Strategic grazing may be carried out to reduce or eradicate areas of weed infestation where planned.</p> <p>2.3 Fertiliser applications and rates are determined appropriate to pasture type and applied accordingly.</p> <p>2.4 Pasture nutrient requirements are applied to ensure achievement of yield and sustainability of pasture.</p> <p>2.5 Soil moisture is monitored and watering scheduled adjusted as required.</p> <p>2.6 Processes to minimise waste and soil degradation are introduced and implemented according to environmental standards.</p> |

- 3. Monitor pasture growth and fodder production
 - 3.1 Longer term trends in weed, pest and disease incidence are determined and any necessary changes to control measures are implemented.
 - 3.2 Soil structure and erosion are monitored and necessary changes to cultural practices, grazing management and drainage are determined.
 - 3.3 Irrigation and drainage systems are checked regularly and maintained if appropriate.
 - 3.4 Grazing management is monitored to ensure high pasture and livestock production levels.
 - 3.5 Feed surpluses and deficiencies are identified and appropriate action taken according to enterprise requirements.
 - 3.6 Pasture maturity is monitored and harvesting is undertaken to meet marketing and production targets.
- 4. Review production levels
 - 4.1 Pasture yields are monitored and evaluated against forecast production levels.
 - 4.2 Grazing programs are evaluated for efficiency and effectiveness and documented for future best practice.
 - 4.3 **Physical and financial records** of production are maintained for analysis and evaluation of production performance.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Presentations about the pasture management may need to be developed and presented for the benefit of staff involved in the program.	3
Collecting analysing and organising information	Information on the program may be documented and organised by reports for analysis.	3
Planning and organising activities	Resources and materials necessary to the program may need to be scheduled to meet timetables and deadlines.	3
Working with others and in teams	The implementation of the plan may need input and advice from others as well as requiring the co-ordination of other staff work schedules.	3
Using mathematical ideas and techniques	Estimation techniques may be necessary to determine the likelihood of successful outcomes of the pasture management program.	3
Solving problems	Problems may arise in the course of the program that need to be addressed through adjustments of the programs resources or timetables.	3
Using technology	Technology may be used to monitor and calculate the results of the program.	3

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What types of pasture may be relevant to this standard?

This may include all unimproved and improved rangelands used for grazing, temperate and tropical pastures, crop stubble, shrubs and trees, and residues that may be used for stock feed.

How may nutrient requirements be assessed?

Nutrients may include nitrogen, phosphorus, potassium, sulphur, calcium, magnesium, boron, molybdenum, copper and chlorine. Nutrient requirements may be assessed by tissue or soil testing.

What enterprise requirements may apply to this standard?	<p>SOP, industry standards, Total Quality Management standards, product labels, manufacturers specifications, MSDS, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use), and reporting requirements. It may also include consideration of the following factors:</p> <ul style="list-style-type: none"> • the introduction of transgenic varieties to minimise chemical use • the industry commitment to minimise pesticide use • containing pesticides to the pesticide site • selecting pesticides with minimal environmental impact.
What information may be included in a pasture management program?	A pasture plan may include pasture species, seasonal influences, yield requirements, pasture renovation requirements to production goals, and the overall levels of weed infestations.
What factors affecting total pasture capacity may be relevant to this standard?	Factors may include climate, irrigation availability, stocking rates, soil types, pasture pests, topography, soil and plant nutrient status, paddock history, and drainage.
What grazing plans may be relevant to this standard?	This may include rotation plans, stocking rates, grazing systems, and grazing pressures.
What environmental protection strategies may be relevant to this standard?	Safe use and disposal of machinery and equipment debris and detergent waste from servicing, maintenance and cleaning procedures, strategic placing of dams, siting of stock to prevent overgrazing and erosion, and the maintaining of stable banks in streams.
What range of physical and financial records may be maintained?	This may include seed and fertiliser rates and costs, number of paddock operations and fuel costs, types of chemicals, rates and costs of applications for weed, pest and disease control, amount of irrigation water applied and application costs, weather conditions during growth, purchased labour, contracting and share-farming.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in managing pastures for livestock production requires evidence of the ability to successfully implement a pasture management programs and manage resources. Evidence must be provided in evaluating the success or otherwise of pasture programs as well as the quality and sustainability of the land.

The skills and knowledge required to manage pastures for livestock production must be transferable to other rural situations. For example, this could include different pasture species, livestock production systems, environments and enterprises.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- land and soil conditions
- pasture species and growing requirements
- effects of nutrients of soil types
- environmental protection strategies
- safe handling processes for fertilisers
- infestation patterns for different types of weed
- OHS legislative requirements
- relevant codes of practice, legislation and regulations relating to farm production.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- measure and assess quantities of fertiliser
- apply environmental protection strategies in land use
- set objectives and milestones
- calculate costs
- determine soil quality and land use capability
- predict patterns of weed infestation

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4018A

Unit Descriptor

Supervise agricultural crop establishment

This competency standard covers the work involved in supervising the establishment of agricultural crops. It includes sourcing information for input to the plan, as well as preparing the plan itself, communicating it to the people who will sow the crop, and monitoring the planting operations as they happen. It requires the need to monitor and adjust the plan in response to changing situations, and to subsequently evaluate, and report on, the outcomes of the planting operation.

The supervision of agricultural crop establishment is likely to be undertaken with only general guidance sought from others. This unit involves the application of extensive knowledge with depth in some areas including the actions that might be taken to minimise or eliminate detrimental environmental impacts.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Source information for input to planting plan | <p>1.1 Documents within the organisation that detail the requirements of the production plan are identified and obtained</p> <p>1.2 Information regarding activities that will be occurring at a similar time to planting is gathered through discussion with colleagues and management, and by reading the production / management plan</p> <p>1.3 The specific target area, or paddock, for planting is identified from the production / management plan</p> <p>1.4 Information regarding the trash levels and seedbed conditions is gathered by viewing the site and through discussion with colleagues</p> |
|--|---|

- 2. Prepare planting plan
 - 2.1 The **agricultural crop** and **method(s)** of planting to be used are determined from the organisations production / management plan and **availability**
 - 2.2 The **resources** required for the planting operations are assessed and calculated from the area to be sown, the method of planting to be used, and the available timelines
 - 2.3 The target dates are set for planting, including the sequencing for planting each paddock, in line with the overall production/management planning for the organisation
 - 2.4 The **chemical applications** that are required prior to and post planting are selected and organised to occur at an appropriate time
 - 2.5 The plan is prepared to ensure that any potential **detrimental environmental impacts** are minimised or eliminated, including the proper disposal of containers, drums and other waste
 - 2.6 **Occupational health & safety hazards** are identified, assessed, and the planting plan provides for responsible actions by the operators and management
 - 2.7 Any **approvals** that are required for the planting operations are identified, sought and obtained
 - 2.8 Measurable indicators, specifications and targets are determined, based on the production / management plan and the method, resources, and seed to be used
- 3. Determine scheduling and key responsibilities
 - 3.1 **Scheduling** for planting is determined taking the range of geographic and resourcing factors into consideration, as well as operations that will be occurring at the same time as the planting
 - 3.2 Key responsibilities for specific preparatory processes that are required **before planting** are determined
 - 3.3 Key responsibilities for specific implementation processes are determined
 - 3.4 Recordkeeping requirements are determined and procedures are put in place to ensure compliance with the range of applicable regulations
 - 3.5 The plan, including scheduling and key responsibilities, is clearly documented
 - 3.6 The plan includes the type, format, frequency and detail of any reporting required by both managers and operators

4. Monitor and adjust the planting plan
 - 4.1 Monitoring points outlined in the implementation plan are adhered to
 - 4.2 Checks are made to ensure that the **occupational health & safety requirements** are being observed and followed
 - 4.3 Checks are made to ensure that the site **environmental requirements** are being observed and followed
 - 4.4 Operational staff and any contractors are communicated with regularly to ensure smooth operation and progress
 - 4.5 Checks are made to ensure that the documentation required by the organisation, or other regulating bodies, is completed clearly and accurately during the progress of the planting process
 - 4.6 Where any corrective action or amendment to the planting plan is required, the action is initiated and taken

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	By clearly explaining to staff, and / or contractors, the purpose, requirements, and processes to be used during the operation.	3
Collecting analysing and organising information	In gathering and analysing the organisations long-term plans for planting as input to the implementation plan.	2
Planning and organising activities	By scheduling for the people, materials, and equipment to be in the right place at the right time.	3
Working with others and in teams	In coordinating and supervising the operation.	3
Using mathematical ideas and techniques	In calculating the resource requirements for the control operations from the plan.	3
Solving problems	In recognising where and when amendment is required to the plans.	2
Using technology	In operating any necessary equipment prior to, and during, the control operations - communication technology, calculating equipment, measuring equipment, word processing / spreadsheeting software.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What documents would be examined in preparation for the control operations?	The documents that outline the organisations production planning for the specified period the policies and procedures in relation to chemical handling and occupational health & safety, as well as the way in which potential environmental impacts should be approached.
What agricultural crops are covered by this unit?	Agricultural crops covered by this unit include wheat and coarse grains, cotton, grain legumes, oilseeds, sugar, temperate and tropical pastures
Why might particular planting methods be selected?	The reasons for selecting particular planting methods might be to minimise any erosion risks, to suit planting and production conditions, to control weeds and pests, or to suit the specific machinery that is available to be used.
How should the availability of the seed be determined?	This would depend on the existing seed that might be stored on-site, the particular supplier that would be used, and the seasonal requirements for particular seed types.
What resources will be required for the planting operation?	The resources required will be stated in terms of personnel (these might be temporary, permanent, or contracted workers), machinery and equipment, consumables, and leasing arrangements.
What reasons would there be for applying chemicals prior to planting?	Chemicals might be applied to enhance germination, to fertilise the soil, or to either prevent or kill weeds and pests.
What are the detrimental environmental impacts that would be avoided?	Suitable planning and appropriate decisions will avoid, or minimise, impacts such as wind erosion, removal of topsoil, the development of acid sulfate soils, and increased water run-off speeds.
What are the occupational health & safety hazards that might exist?	Hazards might be the operation of other machinery and vehicles, excessive noise, organic and other dusts, hazards associated with storing and handling bulk grain and other seeds, pulses, pasture seed and billets and the hazards associated with storing handling, and transporting hazardous substances.

What approvals might be required, and from where might they be obtained?

The approvals may be those that are required by the Environment Protection Act, environmental agencies regulations, duty of care, isolation procedures, occupational health & safety legislation, site regulations and procedures, Australian Standards, manufacturers specifications and recommendations, statutory requirements, or traditional land owners requirements. Such approvals may be obtained from the various authorities that implement the associated regulations, or agencies that operate on their behalf.

What other methods might be used to control weeds and pests?

Apart from chemical applications, physical, biological, or environmental methods could be used.

What might affect scheduling for planting?

Timing for planting is planned to suit seasonal influences, weather and weather forecasts, as well as the local geography and the organisations resourcing situation.

What processes are required to be undertaken before planting can begin?

Before beginning to sow, equipment must be serviced to a reliable and operational standard, the seed must be prepared and made available, and any pre-planting chemicals that are required must be applied.

What occupational health & safety requirements relate to planting operations?

Actions that will reduce the occupational health & safety risk are the selection, use and maintenance of personal protective equipment, the appropriate and responsible servicing of equipment and vehicles, the use of safe manual handling systems, and protection from both noise and dusts.

What environmental requirements relate to planting operations?

Work practices such as the incorporation of organic matter into the soil, the appropriate and responsible disposal of waste materials and trash, and the methods selected for planting.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in planning for planting requires evidence that the plan takes all potential environmental and occupational health & safety impacts into consideration while determining which planting methods might be used, how tillage and trash might be dealt with, and appropriately calculating the resource requirements for the operation.

The skills and knowledge required to plan and monitor planting operations must be transferable to a different work environment. For example, across the range of agricultural crops and associated planting methods that might be used.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- The equipment that is required for a range of tillage methods, and pest and weed control prior to planting
- Equipment servicing requirements
- Integrated pest and weed management techniques
- Environmental controls and codes of practice applicable to the enterprise
- Relevant legislation and regulations relating to occupational health & safety, contractor engagement, chemical use and application, and vehicle and plant use
- Environmental controls and codes of practice applicable to the business and to the planting operations
- Sound management practices and processes to minimise noise, odours, and debris from planting operations.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- Identify the seasonal conditions which affect crop establishment
- Plan and schedule planting including amending plans during the operations
- Calculate resource requirements from the long-term plan
- Prepare written plans and procedures for implementation by others
- Explain, and deliver instructions about, the plans and scheduling of the planting operations to both staff and contractors
- Recognise poor growth and lack of vigour caused by nutrient deficiency and incorrect planting depth
- Observe, identify and react appropriately to environmental implications and occupational health & safety hazards.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function..

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4026A

Unit Descriptor

Supervise agricultural crop harvesting

This competency standard covers the work involved in supervising agricultural crop harvesting operations.

It requires the application of skills and knowledge to estimate crop yield, assess risk and negotiate appropriate insurance, and schedule labour and equipment resources. It also requires an awareness of workplace safety, environmental protection and licensing requirements associated with harvesting operations. The work is likely to be carried out under broad supervision within enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-------------------------------------|---|
| 1. Prepare for harvesting | 1.1 Crop maturity and quality is assessed in readiness for harvesting.
1.2 Pre-harvest treatments for the control and eradication of pests are determined and carried out according to OHS requirements.
1.3 Requirements for licenses or permits are identified and complied with.
1.4 Insurance requirements are assessed and risk management strategies planned and implemented as required. |
| 2. Determine harvest strategy | 2.1 Optimum timing to carry out harvest is estimated and calculated according to crop maturity assessment.
2.2 Resource requirements are assessed giving consideration to the size of the crop and estimated timing of harvest.
2.3 Labour and equipment required to carry out harvesting operations is confirmed and arranged within budgetary constraints.
2.4 Requirements for fire prevention and control are identified and arranged according to OHS requirements. |
| 3. Co-ordinate the harvest strategy | 3.1 Effective communication strategies are implemented to ensure smooth workflow operations and personnel safety.
3.2 Harvesting operations are implemented and adjusted as required according to weather, equipment and staff requirements.
3.3 Equipment operation is co-ordinated for maximum efficiency and monitored for performance effectiveness.
3.4 Existing and potential hazards are identified and controlled according to OHS and enterprise requirements . |

4. Complete harvest operations
 - 4.1 **Storage resources** are located for efficient operations and strategies for drying grain are identified, if necessary according to marketing initiatives.
 - 4.2 Quality of grain is segregated to marketing grades and monitored for moisture content according to classification standards.
 - 4.3 Harvesting operations and outcomes are evaluated against harvest strategy..
 - 4.4 Relevant information is documented for continual analysis and effective planning management.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Information and ideas with regard to aspects of the harvesting operations may be discussed with the full range of field staff, contractors, bulk handling authority, and insurance and stock agents.	3
Collecting analysing and organising information	Information with regard to assessing the crop yield, value and resources may be documented and organised by reports for analysis.	3
Planning and organising activities	Labour and resources may be planned and organised to meet harvesting schedule.	3
Working with others and in teams	In the application of methods and procedures to complete harvesting operations within timeframes.	2
Using mathematical ideas and techniques	Mathematical techniques may be used to evaluate and assess crop yield and quality, and subsequent value.	2
Solving problems	Problems of resources or staffing may be resolved by appropriate adjustments to the harvesting strategy.	3
Using technology	Technology may be used to communicate, calculate and measure during the harvesting operations.	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What agricultural crops are covered by this unit?	Agricultural crops covered by this unit include wheat and coarse grains, cotton, grain legumes, oilseeds, sugar, temperate and tropical pastures.
How may crop maturity be assessed?	Field measurements for crop yield are primarily objective and may include sampling, transects, past records, and visual assessment.
What OHS requirements may be relevant to this standard?	<p>Safe systems and procedures for:</p> <ul style="list-style-type: none"> • the operation and maintenance of machinery and equipment including hydraulics • guarding of exposed moving parts • ensuring loads are secure and within working specifications • the identification and avoidance of obstacles during harvesting operations • working within confined spaces • hazard and risk control • mounting and dismounting • handling including lifting and carrying • manual handling • the application of emergency/defensive driving techniques • handling, application and storage of hazardous substances • outdoor work including protection from solar radiation, noise, organic and other dusts • the protection of people in the workplace • the appropriate use and maintenance of personal protective equipment.
What insurance requirements may be identified?	Crop insurance is likely to cover events such as fire, hail and transport damage.
What equipment may be required to carry out harvesting operations?	This may include trucks, trailers, tractors, field bins and contracted resources.
What fire prevention measures may be arranged?	This may include fire vehicles, fixtures such as dams, tanks, pumps and water mains, communication devices, personal protective equipment and constructions such as firebreaks.

What hazards to health and safety may be applicable to this standard?

Hazards may include dust, working in confined and enclosed spaces, working in the vicinity of pesticide residues, working with, and close to, vehicles and plant and applying pre-harvest chemical treatments.

What enterprise requirements may apply to this standard?

SOP, industry standards, production schedules, MSDS, work notes and plans, product labels, manufacturers specifications, operator's manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), and manager's oral or written instructions.

What storage resources may be arranged?

Storage resources may include temporary storage, field bins, silos, horizontal storage and direct delivery to bulk handling authority.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in managing the harvest requires evidence of the ability to develop and schedule a harvesting plan to meet crop maturity. It requires the ability to plan resources, negotiate resource and labour contracts, value crop yield, plan fire prevention and control, arrange storage and delivery requirements, segregate grain for quality and monitor for moisture content.

The skills and knowledge required to manage the harvest must be transferable to another rural environment. For example, this could include different crops, regions, soil types and enterprise procedures.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- functions and limitations of harvesting equipment
- crop measurement techniques and parameters
- market information and sources
- location and relative skills and abilities of available contractors
- weather conditions which may affect the harvest
- relevant legislation and regulations relating to OHS, contractor engagement, chemical use and application, and vehicle and plant use
- environmental controls and codes of practice applicable to harvesting operations.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- organise and schedule the maintenance of plant and equipment
- establish strategies, procedures and controls for crop harvesting
- prepare written plans and procedures for implementation by others
- estimate and calculate volumes, quantities and maintain budgetary controls
- interpret, analyse and extract information from a range of sources and discussions
- negotiate and arrange contracts and agreements
- explain and deliver instructions with regard to the harvest operations to both staff and contractors
- implement safe workplace and positive environmental practices.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4101A

Unit Descriptor

Carry out stud stable management duties

This competency standard covers the functions involved in managing a stud stable, in particular the successful maintenance of the stud's administrative affairs. It requires the application of skills and knowledge necessary to nominate horses for sale or exhibition in line with established protocols, completion and forwarding of required pedigrees and transfer forms, together with the maintenance of stud records for the property. It also requires that physical records reflect industry practice and are kept up to date.

The work in this standard will be carried out independently within own area of responsibility.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Gather and manage information for managing the stable | 1.1 Work to be undertaken is interpreted from work program where necessary, and confirmed with management.
1.2 Documents within the organisation that detail the requirements of the production program are identified and obtained.
1.3 Record keeping systems in place within the stud are maintained and managed to ensure sound records may be accessed at any time.
1.4 Discussions are held with operational personnel and immediate management to discuss the requirements of them in relation to record keeping and horse identification. |
| 2. Nominate horses for sales or exhibition | 2.1 Appropriate entry forms are obtained, completed and submitted for the specified activity.
2.2 Horses are nominated manually or electronically through established systems and according to organisational procedures .
2.3 Entry fees are paid up prior to the required nomination time. |
| 3. Apply relevant requirements | 3.1 Required pedigrees and histories are obtained from, or supplied to, the controlling agents.
3.2 Horse transfer/ registration forms are completed and forwarded to the relevant controlling body.
3.3 While working around the stud, all OHS procedures and practices are used to minimise risk. |
| 4. Maintain stud records | 4.1 Mares or horses arriving at stud are identified in line with established stud protocols.
4.2 Breeding and operational records are kept accurately either manually or electronically.
4.3 Financial records of both receipts and expenditure are entered in the designated stud or property records. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	In communicating with the stud network and a range of societies and groups.	3
Collecting analysing and organising information	Through the management of stud physical and financial records.	3
Planning and organising activities	By collating information and completing entry requirements.	3
Working with others and in teams	In working with others to achieve overall stud goals.	3
Using mathematical ideas and techniques	In calculating financial aspects of the enterprise.	3
Solving problems	By ensuring timely completion of entries or meeting financial deadlines.	3
Using technology	When calculating and communicating.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What information may be gathered and managed?

An annual calendar of events ,may be compiled for a commercial horse stud, including:

- timing of events and operations throughout the year
- stock affected by the difference events and operations.

Discussions may be held about the management of stock and resources for the year, including:

- classes of stud horses, including mares (wet and dry), maiden and foaling, stallions and teasers, weanlings and yearlings, performance horses, horses entered for sale /events
- staffing
- stabling and yards
- paddock rotation and pasture management equipment.

What relevant information might be recorded and reported?	Dates, times and periods of operation and maintenance, chemicals and other substances used including quantities and methods, and readings from temperature and flow-rate gauges. This information will be recorded in record keeping systems that may be either paper-based or digital, and information will be recorded into logbooks or other records.
Who specifies the relevant requirements for stud entry?	Breed societies, the keeper of the relevant stud book, and/or show committees.
What organisation procedures may apply to this standard?	Work procedures will be based on sound agricultural principles and practices and may include supervisors oral or written instructions, livestock production program, organisation standard operating procedures, specifications, routine maintenance schedules, work notes, product labels and Material Safety Data Sheets, manufacturers service specifications and operators manuals, waste disposal, recycling and re-use guidelines, and OHS procedures.
What administrative procedures are involved in complying with breed society rules when nominating and registering horses?	Horse description and recording of colour and markings, completion of entry forms supplied, recording brands, recording of health and vaccination procedures and stall allocation.
What actions could be taken to eliminate or minimise the OHS risk?	<p>The range of actions are both systematic and run at an operational level. They are listed below:</p> <ul style="list-style-type: none"> • implement OHS policy and procedures • strictly observing manual handling codes of practice • avoiding hazards, such as kicks, bites and crushing from horses • using safe working practices, include the need to communicate proposed actions with horses to all personnel in close proximity to avoid accidents • carrying out all procedures in compliance with the provisions of the Workplace Health and Safety Acts, their regulations and the relevant codes of practice.
What details should accompany mares arriving at stud?	The owners name, address and phone number, last service date, stallion that last covered the mare, approximate foaling date, colour, identifying marks and brands, and gear arriving with the mare.
What may stud operational records include?	Horse histories, veterinary treatments, feeding regimes, breeding histories, relevant pedigrees and family traits.

What returns information may receipts include?	It may include agistment costs, stallion or breeding service costs, and veterinary procedures.
What costs may expenditure include?	It may include wages, professional services, feed costs, veterinary medicine costs, property overhead costs, and operational costs.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in carrying out stud stable management duties requires evidence of the ability to complete appropriate forms and records, manage the nomination of horses for sale and exhibition, maintain operational and breeding records, and supervise financial and business management affairs.

The skills and knowledge required to carry out stud stable management duties must be transferable to a different work environment. For example, if competence is evident in supervision of business management and financial affairs at a stud, it must be transferable to small or large enterprises.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- requirements and procedures laid down by the relevant breed societies or the keeper of the relevant stud book
- the nature of actual stud business in which the individual works, and some understanding of the established processes and protocols
- relevant legislation and regulations relating to waste and environment management, animal health and welfare, and employment of staff and contractors
- appropriate legislative requirements, manufacturers' instructions and enterprise procedures/instructions
- relevant State/Territory legislation, regulations and codes of practice with regard to workplace OHS, and the use and control of machinery and equipment.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- through communication with breed societies and stud book keepers develop a range of procedures that meet their needs
- collate information and report accurately on financial matters
- read and interpret cost sheets, production information, target statistics, quantities of feed and other inputs, and material Safety Data Sheets
- prepare and present production and other information in a manner that is readily accessible for both management and operators.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4102A

Unit Descriptor

Supervise feedlot operations

This competency standard covers the process of recommending the suitability of feedlotting for the organisation, and subsequently preparing rations and monitoring the performance of feedlot cattle. When the requirements of the unit are satisfied, feed conversion efficiency versus growth rate is justified economically, and analyses of cost of grain and net return per head in terms of feed conversion complies with industry expectations for particular groups/classes of cattle.

Controlling feedlot operations is likely to be undertaken without supervision, with only general guidance on progress sought from others. This unit depends upon the application of knowledge including dietary and nutritional requirements of differing livestock classes and the range of methods of achieving them. It requires skills to assess ration performance from indicators such as weight gain, as well as communicating specific and detailed requirements to operators.

Unit Sector No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------------|--|
| 1. Select feedlot cattle | 1.1 Organisational plans and management are consulted regarding the breeds, classes and numbers of cattle to be obtained for feedlotting.
1.2 Cattle for feedlotting are selected and purchased according to management requirements and organisational practice.
1.3 Purchased cattle are inspected on delivery to the organisation for health, form, and quality.
1.4 All records required by the organisation and regulations to be kept are prepared and maintained accurately, and stored appropriately. |
| 2. Prepare rations for feedlot cattle | 2.1 Nutritional need of livestock is identified from information available and class of livestock.
2.2 Expert nutritional advice is sourced from the appropriate government, industry or organisational sources.
2.3 Ingredients are selected that provide for the identified nutritional need of livestock.
2.4 Suppliers of ingredients are selected on the basis of quality and cost of feed.
2.5 Quantities of individual ingredients are determined from the production program in conjunction with advice from other available information and expert/supplier advice.
2.6 Feeding is scheduled and responsibility for feeding allocated in line with the production program and other operations occurring within the shed.
2.7 Method(s) of providing feed to livestock is identified from production plan and confirmed with supplier of ingredients and other expert advice. |

3. Supervise feeding of feedlot cattle
 - 3.1 Mixing of **feed** is organised to suit the needs of the livestock, the identified nutritional requirements, and the equipment available within the organisation.
 - 3.2 Calibration of measuring equipment and calculation of quantities is supervised at regular intervals
 - 3.3 Checks are made to ensure that suitable **personal protective equipment** is selected, used and maintained.
 - 3.4 **OHS** hazards are identified, assessed, and responsible action is taken throughout the preparation and feeding operations.
 - 3.5 Rations are supplied to the livestock according to the production program and schedules devised.
4. Monitor performance of feedlot cattle
 - 4.1 The health and wellbeing of the livestock is **monitored** and any **reaction** to a change in feed or schedules is noted and reported upon.
 - 4.2 Any change in production levels as a direct result of changes to feed types, ingredients or schedules is monitored and reported upon.
 - 4.3 Advice is given to operational staff during the feeding operation when requested, or when the need is observed.
 - 4.4 All waste materials and substances are removed from the site and stored, or disposed of responsibly.
 - 4.5 **Documentation** is collated and stored according to the requirements of the organisation.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	In communicating with feedlot staff and supervisors.	2
Collecting analysing and organising information	In the planning and legislative aspects of the feedlot operation.	3
Planning and organising activities	By planning and organising activities for feedlot operation.	3
Working with others and in teams	By working with others to achieve property production targets.	3
Using mathematical ideas and techniques	When calculating price, quantity, and distance.	2
Solving problems	In dealing with problems of supply or finance.	2
Using technology	When calculating or measuring.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What classes of cattle may be considered for feedlotting?	Classes of cattle may include finishing steer calves, yearling steers, two-year-old, and growing steers.
What are the ingredients of a feed mix?	The mix might consist of prepared and formulated proprietary rations, whole grains, protein additives, and/or vitamins and minerals.
What are the factors that affect the nutrition requirements of cattle in feedlots?	Estimation of metabolisable energy, feed conversion efficiency versus growth rate, economic analysis of cost of gain and net, level of management, return per head in terms of feed conversion, level of use of concentrate, animal health programs, and stock turnover rate.
What should be assessed when considering daily nutritional requirements?	Metabolisable energy (ME), protein, calcium, phosphorous, and dry matter.
Will the feed always be mixed on-site?	Not necessarily. In some organisations it is more common to feed the livestock pre-prepared feed, with occasional additives, but in others there is a preference for feed measured and mixed on-site.
What personal protective equipment may be relevant to this standard?	Boots, hats/hard hats, overalls, gloves, protective eyewear, hearing protection, respirator or face mask, and sun protection (sun hat, sunscreen).

What actions could be taken to eliminate or minimise OHS risk?

The range of actions are both systematic and at an operational level. These are listed below:

Systems should be in place to ensure the safe operation and maintenance of machinery and equipment, including hydraulics and guarding of exposed moving parts, and including pumps, impellers and aeration equipment. Precautions should also be in place to minimise exposure to noise and organics and other dusts. Systems and procedures for harvesting and handling livestock, as well as working with and around electricity, should also be in place.

Fixtures should be in place in all storage sheds, including appropriate access ladders, hand rails and ladder cages,

Personal protective equipment should be selected, used and maintained,

Environmental conditions should be controlled. For example, keeping moisture levels as low as possible will reduce the likelihood of fire. Safe systems should also be in place for storage, handling and transportation of hazardous substances, including flammable and toxic gases,

Procedures should be in place for safe livestock handling, preventing zoonotic infection, tattooing and branding livestock, and safe handling of livestock.

What aspects of production might be monitored?

Protein percentage, fat percentage, calcium, dates of formulation and feed changes, dates of supplying various rations to livestock, correlating mortality/livestock behaviour to ration, and measuring body weight gains. Feed monitoring must be undertaken with herd health monitoring when investigating reasons for poor performance.

What would livestock reaction to feed include?

Development of wet faeces, feed time increases, body weight gain drops, mortality increases, and whole grains seen in faeces.

What actions will require documentation?

All chemical usage should be recorded as well as any necessary recording of vehicle and equipment use in logbooks, for example. Additionally, any assessment of pests and weeds, quality, module weights, breakdowns and yield should be recorded appropriately.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in controlling feedlot operations requires evidence that the ingredients selected for feeding the livestock are appropriate for their health and growth needs, and are supplied at the times and in the methods suited to the particular shed type that is in use.

The skills and knowledge required to control feedlot operations must be transferable to a different work environment. For example, across a range of different livestock classes.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- control of common diseases and preventative measures including the placement of medication in feed
- rationale for a range of feeding techniques and methods
- dietary and nutritional requirements of different livestock classes
- growth and development in livestock
- physiology of digestion and relationship to feed inputs
- appropriate legislative requirements, manufacturers instructions and enterprise procedures/instructions
- organisational and industry guidelines for the preparation of feed and mixes
- relevant State/Territory legislation, regulations and codes of practice with regard to workplace OHS, and the use and control of machinery and equipment
- cleaning and storage of machinery, equipment and materials
- seasonal ingredient variations
- factors adversely affecting meat quality (such as overfat, bruising, stress) are minimised.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- effectively discuss feed and nutritional content with nutritionist and managers
- identify a range of raw ingredients
- assess ration performance used on weight gains, feed times, and make adjustments to ensure required performance parameters are maintained
- diagnose feed toxicities
- apply feed rates to nutritional profiles
- perform basic troubleshooting
- read and interpret manufacturers specifications, work and maintenance plans, and Material Safety Data Sheets
- measure and calculate volumes, consumption and lubrication requirements
- complete the required records of feed use and livestock performance.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4103A**Unit Descriptor****Determine wool classing strategies**

This competency standard covers the process of developing classing strategies to be used for the specific wool clip. This involves accessing all sources of relevant information to allow appropriate decision-making, developing the strategy, communicating the strategy to shed staff and then evaluating the strategy for the clip.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

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|--|--|
| 1. Source information for input to classing strategies | 1.1 Information on last year's clip preparation and sale results is obtained, including classer's specification, test results, skirting ratios, AWEX-ID, sale prices, and any grower or processor feedback.
1.2 Information on growing and management history for the mob(s) over the last twelve months is obtained from the grower.
1.3 Identify current market trends and prices.
1.4 Current recommendations appropriate to the specific wool clip are identified in the Code of Practice for Preparation of Australian Wool Clips.
1.5 Current specific exporter and processor requirements and limitations are obtained and relevant details are recorded
1.6 Marketing and selling methods and end uses for the wool are identified from the marketing plan and their implications on clip preparation are determined.
1.7 Probable prices for specific lines are identified from market information.
1.8 Factors that will influence the classing process in the organisation are identified. |
| 2. Develop strategies for classing this clip | 2.1 Fleece type is identified and suitable fleece, skirting and/or oddment lines are set up according to industry guidelines.
2.2 Clip preparation methods and standards are selected to suit the fleece type and market requirements, in consultation with the manager and other shed personnel.
2.3 Operating procedures that eliminate contamination are selected and adopted.
2.4 Wool-classing procedures, methods, and criteria are selected in line with fleece type, market requirements and industry standards.
2.5 Shed layout and facilities are selected that will permit efficient workflow.
2.6 OHS hazards are identified, risks assessed, and suitable controls are determined.
2.7 Requirements for labelling and placement of bins and containers are selected. |

- | | |
|---|--|
| 3. Communicate classing strategy | 3.1 Clip preparation methods and classing procedures are clearly communicated to the wool handlers, and confirmation of that clear communication is sought. |
| | 3.2 The shed layout, equipment and facilities required are clearly communicated to the wool handlers, and confirmation of that clear communication is sought. |
| 4. Review the success of the strategies for this clip | 4.1 Classing strategy for this clip is evaluated. |
| | 4.2 Classing strategy is modified as required. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	In instructing the wool handlers in the requirements for the classing operation.	2
Collecting analysing and organising information	In gathering and analysing market, organisation and flock information for the classing strategy.	2
Planning and organising activities	In selecting the layout and workflow of the wool room.	2
Working with others and in teams	In providing guidance and instruction to the wool handlers.	1
Using mathematical ideas and techniques	In analysing, classing and measuring wool.	2
Solving problems	In achieving maximum quality of, and therefore maximum return from, the fleece.	2
Using technology	By using and calibrating measuring devices.	1

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

From where might the information about marketing and production plan requirements come?

It may be found in the plans themselves, or through discussion with the owner or manager of the shearing operation.

What parts of the fleece may be included in the clip?	The clip may include fleece, pieces, bellies, locks, crutchings, shanks, topknots, stains, dags, backs, jowls or breeches.
What selling methods might be used?	Wool may be sold through auctions, private sale, forward contracts, tenders, or by commission selling.
What information in the marketing plans would be of use?	These plans will give an indication of the type of wool to be produced by the organisation, where it will be sold, what standards the fleece should attain, for what purpose it will be used, and the prices it is likely to attract. They will also give an indication of the margin that exists between grower costs and returns.
What factors will influence the classing process?	The number of animals to be shorn, number of operators in the shed, and the type of wool to be shorn and classed.
Who might be managing the shearing operation?	The flock owner could be managing the operation, or the owner might delegate this work to a manager, classer or broker.
What is the contamination to be avoided?	Amongst the contaminants are lamb pouches, maggot affected wool, urine stains, dung stains, skin pieces, black fibres, loose woolpack fibres, baling twines, man-made fibres and clothing, dermatitis, branding dyes, dags, grease locks, burrs and vegetable matter, shed debris, and wet wool or water stains.
What might the classing criteria include?	Breed and age of sheep, fibre diameter, tensile strength, character, handle, style, colour, yield, length, and contaminant free.
What OHS requirements may be applicable to this standard?	<p>Safe systems and procedures for:</p> <ul style="list-style-type: none"> • the operation and maintenance of hazard-free facilities and equipment • safe manual handling, including lifting and carrying • protection from electrical hazards, hazardous noise and organic and other dusts • appropriate use of personal protective equipment and clothing. <p>Consideration of OHS issues for this standard may also include consideration of any national codes of practice in the industry.</p>
What equipment might be required for the wool classing process?	Classing tables, lights, calibrated devices, documentation, woolpacks/bags, bale clips, or presses may be used during the process.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in determining wool-classing strategies requires evidence that the strategy selected produces the maximum quality and return from the fleece, and that the classers are sure of the work and standards required of them.

The skills and knowledge required to determine wool-classing strategies must be transferable to a different work environment.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- requirements of the organisations marketing and production plans
- requirements and standards of the national wool processing industry
- clip preparation and analysis processes for the major fine wool types
- criteria for measuring and classing wool to a national standard and the factors that affect it
- methods used for processing wool
- wool brokering services available
- efficient wool room layout
- specifications for classers
- relevant national codes of practice for the industry.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- establish and maintain consistent methods of clip preparation
- lay out a wool room for efficient operation
- accurately assess wool quality and types
- communicate specific and detailed requirements for wool classing to operators
- observe, identify and react appropriately to environmental implications and OHS hazards.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4104A

Unit Descriptor

Develop livestock feeding plans

This competency standard covers the functions required to design and develop feeding plans for livestock.

It requires the application of knowledge and skills to accurately match feed supply to livestock nutritional requirements. It also requires a knowledge of supplementary feeding systems and cost analysis processes. The work in this standard is likely to be carried out independently within own area of responsibility and enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Determine nutritional requirements for livestock | 1.1 Nutritional value of pasture and feedstuffs is determined.
1.2 Livestock production status is identified and assessed according to enterprise requirements .
1.3 Essential requirements for livestock nutrition are determined according to assessed livestock condition . |
| 2. Assess pasture feed | 2.1 Grazing management strategy is determined to ensure the sustainable stocking capacity of pasture.
2.2 Pasture is monitored for quantity and quality to ensure continual and consistent supply of nutrients to livestock.
2.3 Pasture intake is monitored and assessed according to identified nutritional requirements of livestock. |
| 3. Determine supplementary feeding program | 3.1 Economic basis to supplementary feeding is determined according to enterprise requirements.
3.2 Types of supplementary feed are identified and determined for all classes of livestock.
3.3 Supplementary feeding program is determined to satisfy deficiencies in pasture feed or livestock condition. |
| 4. Develop livestock feeding plans | 4.1 Feeding plan is developed and reviewed to ensure it remains responsive to changing conditions.
4.2 Suitable feed conservation methods are identified and carried out in preparation for abnormal conditions .
4.3 A system of feeding is selected that supplies the appropriate amount of feed to the herd/flock to meet condition and growth needs, and that meets production requirements of the business.
4.4 A feed budget is prepared according to the selected system of feeding.
4.5 Data is documented for continual assessment and effective management planning. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Information with regard to pasture availability and supplementary feeding requirements may be discussed with feed suppliers.	2
Collecting analysing and organising information	Information with regard to livestock condition and feeding patterns may be sourced and organised by reports for reference.	2
Planning and organising activities	Supplementary feeding is planned and introduced to livestock feeding routines as required.	2
Working with others and in teams	In the application of methods and procedures to develop effective feeding plans according to enterprise objectives.	2
Using mathematical ideas and techniques	Mathematical techniques to estimate supplementary feed costs within enterprise budgetary parameters.	2
Solving problems	Abnormal conditions may require feed conservation strategies to ensure continual supply of nutrition to livestock.	2
Using technology	Technology to communicate, calculate costings and source analysis.	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What breeds of livestock are relevant to this standard?

This may include sheep, goats and beef cattle.

What factors may be included in an assessment of production status?

This may include stage of pregnancy, lactation, newborn growth and weaner growth.

What enterprise requirements may be applicable?	SOP, industry standards, production schedules, MSDS, work notes and plans, product labels, manufacturers specifications, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), and managers oral or written instructions.
What essential requirements for livestock may be determined?	Essential requirements may include energy, protein, vitamins, water and minerals. An assessment of livestock nutrient requirements may also involve consideration of the use of livestock as an integral part of weed control and land management. Essential requirements may vary due to live weight and body condition, mating, lactation and milking, growth, weather conditions/wind chill, sex and age of livestock, energy concentration of feeds, distance walked for feed, water or shade, pasture digestibility, and disease/health status.
How might livestock condition be assessed?	Livestock condition may be assessed by weighing, condition scoring, body condition, lactation stage, milk yield, and Livestock Market Reporting System (LMRS).
What factors may affect pasture quantity?	Pasture quantity may vary according to pasture yield, type of livestock, time of year, and the stage of production.
What may cause variations in livestock pasture intake?	Pasture intake may vary due to pasture quantity and quality, presence of weeds, weather conditions, pasture height, and the seasonal nature of production cycle.
What determinants may be involved in supplementary feeding systems?	Supplementary feeding may be required to cover seasonal, drought or other feed shortages, and trace element deficiencies of livestock.
What information may be included in feeding plans?	Feeding plans may include target weights, method of feeding, problems associated with purchasing feeds, matching feed supply and demand, and weed control strategy.
What conditions may be identified as abnormal?	Abnormal conditions may include destruction of fodder caused by fire, flood, drought, frost, insects, cyclones, hail and snow.
When a feed budget is prepared, what is taken into consideration?	Aspects of the local area and of the enterprise, including birthing patterns, area of operation (climate, geography, etc.), pasture growth rates, and seasonal influences.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in developing livestock feeding plans requires evidence of the ability to develop feeding plans for all classes of livestock to ensure the continual supply of nutrition in normal and abnormal conditions. It also requires an awareness of the nutritional values of pasture and supplementary feeds, the ability to determine an effective and sustainable grazing management strategy, identify situations where supplementary feeding is justified in terms of benefit cost, determine suitable feed conservation methods, and develop a plan that is sufficiently flexible to adapt to changing conditions. Evidence must also be demonstrated in the application of safe workplace and environmentally responsible practices.

The skills and knowledge required to develop livestock feeding plans must be transferable to a different work environment. For example, if competence is evident in the development of feeding plans for beef cattle, it must also be evident that these skills may be adapted in a feeding plan for sheep and goats.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- nutrient and daily energy requirements of livestock
- water quality and livestock tolerances
- nutritive levels of different feedstuffs
- assessment procedures to ascertain livestock condition
- methods of assessing pastures quality and quantity
- pasture livestock carrying capacity
- relationship between lactation and body reserves, udder development and secretion of milk.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- match feed supply and demand
- collect data and analysis to assess feeding plan alternatives
- communicate written and oral information, and prepare reports for the understanding of staff and management
- estimate feed quantity to meet livestock requirements, and calculate data and manage budgets.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4105A

Unit Descriptor

Escort animals during export

This competency standard covers the process of preparing administration requirements and animals for transport, loading and transporting them and subsequently unloading healthy animals, and completing the transfer process at the port of destination.

Escorting exported animals is likely to be undertaken without supervision, with only general guidance on progress sought from others. This unit depends upon the application of knowledge including dietary and nutritional requirements of differing animal classes and the range of methods of achieving them. It requires skills to care for animals during a journey and to ensure that export documentation is accurately and thoroughly completed.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Carry out administration requirements | <p>1.1 Details of the animals to be exported are obtained from, and clarified with, the exporter or producer.</p> <p>1.2 Effective communication links are established between all parties to the consignment and any relevant organisations or agencies.</p> <p>1.3 Specific details of the vessel/plane are investigated and verified to attain efficiencies in loading and transit operations.</p> <p>1.4 Required certification, permit and invoicing arrangements are completed according to exporter requirements and relevant legislation.</p> <p>1.5 Nutritional and veterinary requirements are estimated and required quantities are ordered according to exporter directions, established industry standards and load specifications.</p> |
| 2. Prepare for animals to be loaded | <p>2.1 Details of the animals to be exported are obtained from, and clarified with, the exporter or producer.</p> <p>2.2 Effective communication links are established between all parties to the consignment and any relevant organisations or agencies.</p> <p>2.3 Specific details of the vessel/plane are investigated and verified to attain efficiencies in loading and transit operations.</p> <p>2.4 Required certification, permit and invoicing arrangements are completed according to exporter requirements and relevant legislation.</p> <p>2.5 Nutritional and veterinary requirements are estimated and required quantities are ordered according to exporter directions, established industry standards and load specifications.</p> |

3. Load and transport accompany animals
 - 3.1 **Workplace health and safety** policies and procedures are observed and followed in line with regulatory and exporter requirements.
 - 3.2 Prepared animals are loaded and secured safely and humanely according to animal welfare, OHS, and exporter requirements.
 - 3.3 Loading densities and conditions are checked and verified in accordance with the loading plan, government **regulations** and exporter specifications.
 - 3.4 Water and feed provision to animals is monitored and recorded, and any abnormalities or variance from feed budgets are reported to the **appropriate party**.
 - 3.5 Regular observation of all animals is carried out to ensure timely and appropriate responses to changes in condition, feed and water intake, or incidence of disease.
 - 3.6 **Injured or diseased** animals are humanely **dealt with** according to exporter policy, relevant health and environmental considerations, and in consideration of customer requirements.
 - 3.7 **Reports** are completed according to exporter and shipping company policy and in accurate observation of shipping conditions.
4. Complete post-shipment procedures
 - 4.1 **Workplace health and safety** policies and procedures are observed and followed in line with regulatory and exporter requirements.
 - 4.2 Prepared animals are loaded and secured safely and humanely according to animal welfare, OHS, and exporter requirements.
 - 4.3 Loading densities and conditions are checked and verified in accordance with the loading plan, government **regulations** and exporter specifications.
 - 4.4 Water and feed provision to animals is monitored and recorded, and any abnormalities or variance from feed budgets are reported to the **appropriate party**.
 - 4.5 Regular observation of all animals is carried out to ensure timely and appropriate responses to changes in condition, feed and water intake, or incidence of disease.
 - 4.6 **Injured or diseased** animals are humanely **dealt with** according to exporter policy, relevant health and environmental considerations, and in consideration of customer requirements.
 - 4.7 **Reports** are completed according to exporter and shipping company policy and in accurate observation of shipping conditions.

KEY COMPETENCIES

Key Competency	Example of Application	Performance Level
Communicating ideas and information	In determining the requirements of the specific job from producer and exporter offices and transport authorities.	2
Collecting analysing and organising information	In relation to loading and the provisions to be taken.	2
Planning and organising activities	For the loading and export of animals by sea or air.	2
Working with others and in teams	In completing specified activities and operations in conjunction with site personnel at both ends of the transport operation.	2
Using mathematical ideas and techniques	In calculating rations and observing loading plans and limits, and in the calculation of time and distance.	1
Solving problems	When dealing with injury or disease outbreaks, animal health, feed and water availability, or adverse flight/sea conditions.	2
Using technology	In operating any necessary equipment, prior to and during the export operation - communication technology, calculating equipment, and measuring and recording equipment.	1

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What animals may be exported?

Animals exported from Australia may include beef and dairy cattle, camels, horses, goats or sheep. Animals may be required for human consumption or for breeding.

Details required of animals to be exported include animal numbers, weight, type, breed, class, origin, transport history, specific nutritional requirements, and/or intended destination.

Who might be the parties to the consignment?

They may include producers, animal transporters, stockmen, livestock agents, insurance agents, vessel masters, ship owners, air-transporters, exporters and buyers.

What organisations or agencies may be liaised with during the preparation for, and conduct of, live animal export?

In Australia, the relevant government departments dealing with foreign affairs, trade, health, and transport may need to be dealt with in some regard. In the country of destination, communication links may include the need to communicate with the Australian Embassy. Agencies dealing with quarantine arrangements, overland animal transport, or government departments dealing in health or food hygiene may also need to be liaised with.

What specific details of the vessel/plane may be investigated?

They may include characteristics such as advice for loading, hot spots, location of slippery decking/flooring, bad corners, location of feed storage, and feeding and watering systems.

What vessel or transport may be used to export animals?

Animals may be shipped by sea or air from Australia. Transporting the animals from the producer to the point of export, however, may be by air, road or rail.

What certification and permits may need to be obtained?

They may include health, vaccination, transport, loading, and export certificates and permits for the exporting port, as well as similar documentation for the port of destination.

What nutritional requirements may be required?

They may include health, vaccination, transport, loading, and export certificates and permits for the exporting port, as well as similar documentation for the port of destination.

What veterinary requirements may be considered?

Veterinary requirements on board may include antibiotics, anti-inflammatory drugs, skin preparations, glucose/mineral injections, sedatives, electrolytes, bloat and diarrhoea remedies, appetite stimulants, internal parasite control compounds, vaccines, and equipment such as syringes, gloves, and appropriate suture kits.

On what parameters is the estimation of nutritional and veterinary requirements made?

It is made on the number, weight, type, breed, class, origin, transport history, and the specific nutritional requirements of the animals and the time to be spent in transit.

What would be included in loading plans?

Such considerations as the times of operation, labour and equipment required for the loading operations, the methods and routes for negotiating the animals into the holding/transit pens, and loading the heaviest animals on the lower decks to maximise stability of the vessel would be included.

What role does the Chief Officer play?

Whilst the Master of a vessel/Captain of the aircraft is ultimately responsible for the safe transport of the animals, the responsibility for loading is delegated to the Chief Officer of the vessel/plane.

What other animal requirements may be loaded at the same time as feed and water rations?

Equipment that is required for animals health maintenance on board may include syringes and needles, post mortem tools and instruments, rope, halters and restraint equipment, vinyl gloves, bloat relief equipment, citric or acetic acid (for ammonia reduction), antiseptics and detergents, examining gloves, captive bolt or firearm (in the custody of the Master or Chief Officer), electric prodders and batteries, "cattle canes", and medications and vaccines.

What is contained in the carriers manifest?

Many of the shipment procedures required will be included in the manifest, and will be the responsibility of the master of the shipping transport.

What aspects of the pens would be examined prior to loading the animals?

Pens would be inspected to ensure that they have been hygienically cleaned between shipments, that they are not in need of repair, that any safety harnesses or similar are in place and in good repair, and that drainage and effluent disposal facilities are effective and in good working order. Facilities for storing and handling feed and veterinary supplies would also be inspected for their hygiene and suitability.

How might animals be prepared for loading?

Pre-shipment procedures may include checks as to the identification marks on the animals and the completion of a range of specific animal health and welfare procedures, including temperature and weight checks and measurements, provision of suitable diets, attention to the water/fluid intake of the animals, vaccination, and provision of dietary supplements.

What actions could be taken to eliminate or minimise the workplace health and safety risk?

All routines for animals must be carried out in line with the provisions of the Workplace Health and Safety Acts and relevant animal codes of welfare.

Clear communication between workers is necessary, especially when working together within a close proximity.

Relevant OHS hazards identification, risk assessment and risk control measures will include safe work systems and procedures:

- to reduce kicks, bites and crushing injuries from animals, this will include using calm and positive actions to avoid alarming stock
- for restraining animals while working with them
- for handling veterinarian products, including vaccines, needles and syringes
- in preventing infection from injured/sick stock
- for the selection, use and maintenance of relevant personal protective equipment
- for outdoor work, including protection from solar radiation
- for safe manual handling.

What government departments might administer transport regulations?

Regulations covering the transport of livestock by sea are administered by the Australian Maritime Safety Authority.

Who is the appropriate party to whom difficulties and abnormalities should be reported?

Regulations covering the transport of livestock by sea are administered by the Australian Maritime Safety Authority.

How may injured or diseased animals be dealt with?

In most instances they may be medicated, treated, or have an aspect of their diet changed. In extreme circumstances they may be destroyed with euthanasia being carried out using a captive bolt pistol, firearm, or administering anaesthetic by a veterinarian.

How often may reports be made, and what would be the subject of the reports?

Reports will be made on a regular basis - which may be daily - and may include animal health and welfare issues such as temperature and humidity, feed consumption, respiratory rate, respiratory character, faeces present, hydration, deck conditions, general comments, sick pen report, mortality, as well as date, day and number of animals.

What diseases may arise during transit?

Common ailments or diseases that should be recognised may include diarrhoea (due to diet or infection), acidosis, bloat, wounds or injuries (to hips, legs or horns), pneumonia, heat stress, "downers" (due to transit tetany or similar), pinkeye, non-eaters (due to ketosis or yellow liver syndrome), or sudden death (predicated by enterotoxaemia or blackleg).

What procedures may be employed when animals are unloaded?

Unloading procedures may include the need to reduce stocking densities in situations of slow or interrupted unloading, and the need for accurate counts and weighing to be carried out and recorded, as required, by company and shippers procedures.

What are the specific animal requirements at unloading?

They may include providing animals with electrolytes or additional feed, or organising weighing, transport or holding facilities.

What will be included in the end of voyage reports?

They may include providing animals with electrolytes or additional feed, or organising weighing, transport or holding facilities.

What post-transport checks may be undertaken?

Checks of unloading requirements which may include checks of transport and conditions for the animals.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in escorting exported animals requires evidence that animals will travel safely to the port of destination with all appropriate administration complete and correct.

The skills and knowledge required to escort exported animals must be transferable to a different work environment. For example, across the range of animals that might be shipped, as well as over the range of transport types and sizes that may be used.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- applicable geography and culture of the importing nation
- needs and care of all classes of animals - including pregnant animals - in transit
- zoonoses applicable to the specific classes and species of animals
- commonly occurring animal disease and parasitic infestation
- on-board procedures and responsibilities
- quarantine and its implementation both for export and import purposes
- the application of a range of treatments under veterinary supervision
- methods of safe animal handling within the code of practice guidelines
- relevant legislation and regulations relating to waste management, animal health and welfare, and employment of staff and contractors
- invoice, receipt and document requirements at both ends of the transport operation.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- quickly and accurately identify signs of ill health and injury, or signs of abnormal or depressed appetite
- competently handle and restrain animals for observation and treatment as required
- effectively oversee the care of animals in transit
- humanely handle, treat and feed animals
- communicate effectively with exporting agents and related agencies, as well as the Master/Captain, officers and seamen on board
- complete animals health and medication records clearly, accurately, and in line with established practice for such records
- accurately complete export documentation including daily records of animal observations and conditions
- maintain and store records, reports and log books
- select, fit and use personal and protective equipment.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4106A**Unit Descriptor****Supervise raising young horses**

This competency standard covers the functions required to supervise raising young horses.

It requires the application of skills and knowledge to monitor foal development from birth to yearling. It also requires skills and knowledge to identify desirable and undesirable characteristics in a foal (assess conformation) and develop action plans to correct conformation problems. The work in this standard is likely to be carried out independently or as part of a team.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|---|
| 1. Monitor foal development from birth to yearling | 1.1 Regular observations are taken to assess foal health and development according to the requirements of the organisation
1.2 Symptoms of ill health, common diseases and developmental disorders are recognised, reported and acted upon
1.3 Foal health and development status is recorded in accordance with enterprise requirements
1.4 Foal welfare status is recorded in accordance with enterprise and legislative requirements
1.5 Vaccination is carried out under instruction as required according to organisation procedures or by a veterinarian
1.6 Occupational health and safety hazards are identified, risk assessed and suitable controls implemented |
| 2. Assess young horse conformation | 2.1 Conformation of foal is assessed using standard conformation terminology
2.2 Desirable conformation of foal is identified using standard conformation terminology |
| 3. Develop plan of corrective action for young horses with development or conformation problems | 3.1 Analysis is conducted between foal conformation and desirable conformation
3.2 Undesirable characteristics are identified and reported
3.3 Corrective action plan is developed to address treatable undesirable characteristics |
| 4. Implement plan of corrective action | 4.1 Corrective action plan is discussed with relevant parties where necessary
4.2 Corrective action plan is implemented according to enterprise guidelines, animal welfare guidelines and OHS procedures |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicate to other team members the corrective action recommended for the foal. Communicate to other team members foal health problems and strategies to overcome these problems	3
Collecting analysing and organising information	Details of foal health including details of administered treatments may be detailed and organised by reports for future reference. Information on horse conformation will be collected, analysed and reported on.	3
Planning and organising activities	Arrangements for the delivery of equipment, materials and health treatments may be planned and organised with the marking team. Activities may be organised as part of the corrective action plan	3
Working with others and in teams	In the solving of both health and conformation problems	3
Using mathematical ideas and techniques	Mathematical techniques may be used to calculate volume and percentages. Measurement will be used in assessing foal conformation.	2
Solving problems	Problems of foal health and conformation.	2
Using technology	Technology may be used to source and communicate information. Also in assessing conformation of the foal	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work contexts.

What practices can influence diseases?

Disease may be influenced by management practices such as hygiene control and status and control strategies can vary between organisations.

What practices can influence developmental disorders?

Developmental disorders may be influenced by management practices such as nutrition, exercise, stabling and control strategies can vary between organisations.

What enterprise requirements may be applicable to this standard?

SOP, industry standards, production schedules, MSDS, work notes and plans, product labels, manufacturers specifications, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines) and reporting procedures.

What OHS requirements may be relevant to this standard?

Safe systems and procedures for:

- animal handling systems and procedures
- manual handling including lifting and carrying
- outdoor work, including protection from solar radiation
- the use and handling of veterinary chemicals
- the use of personal protective equipment.

What characteristics may be assessed when assessing conformation of the foal?

Overall conformation, balance, conformation in relation to purpose, height, head (forehead, eyes, ears, nostrils, jaw, teeth), neck, chest (barrel), back, loin, hindquarters and tail carriage; forelimbs - tendons, wither, shoulder, upper arm, forearm, cannon, pastern; joints of the forelimb - elbow, knee (carpus), fetlock, pastern, coffin; hindlimbs - tendons, femur, gaskin, cannon, pastern; joints of the hindlimb - hip, stifle, hock, fetlock, pastern, coffin; feet, action and way of going, blemishes, vices, limb deviations.

What relevant parties may be included in formulating a corrective action plan?

Veterinarians, farriers, fellow team members

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in this standard requires evidence of the to supervise the raising of young horses. It also requires the ability to determine foal conformation, implement plans of corrective action, maintain effective communication strategies including the conduct of detailed staff briefings with regard to tasks and safety issues, monitor the health and well-being of foals and maintain accurate data records. Evidence must be demonstrated in the implementation of safe workplace and positive environmental practices.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- Relevant legislation and regulations relating to waste and environment management, and animal health
- Relevant occupational health and safety legislation, regulations and codes of practice
- Diseases and common illnesses associated with young horses
- Developmental disorders of young horses
- Desirable and undesirable conformation
- Strategies to address undesirable conformation or characteristics

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- Handle foals from birth - yearlings
- Recognise abnormal behavioural signs and signs of abnormal development
- Maintain accurate data documentation
- Report on foal conformation
- Carry out conformation corrective action plans
- Interpret and apply task instructions, communicate with work team and supervisor, and record and report faults, workplace hazards and accidents
- Communicate effectively with staff, contractors and suppliers
- Document and prepare written plans and reports for the understanding of staff and management

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function, for example:

RTE3148 Assess conformation of horses

RTE2148A Handle young horses

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4107A**Supervise artificial breeding and/or embryo transfer programs****Unit Descriptor**

This competency standard covers the process of supervising artificial breeding and embryo transfer programs. Competency requires the application of knowledge and skills to identify appropriate artificial breeding options and to match them to breeding and livestock management requirements, to schedule and resource insemination and implantation strategies, to match oestrus cycles and resource availability, and to maximise conception rates. Competency also requires the application of skills and knowledge to record and monitor the program, identify when re-insemination is necessary, and to monitor and suggest improvement for future breeding programs. The work is likely to be carried out with no supervision within enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|------------------------------|--|
| 1. Determine breeding method | 1.1 Options for artificial breeding are reviewed to determine most suitable and affordable method according to breeding objectives .
1.2 Artificial breeding option is selected and matched to resources and breeding objectives so as to meet the enterprise's livestock management program .
1.3 Resource implications of breeding programs are identified, sourced and arranged .
1.4 Program schedules are prepared according to available resources.
1.5 Suitable personal protective equipment and clothing for breeding support staff and self according to OHS and enterprise requirements is made readily available. |
| 2. Implement breeding method | 2.1 Genetic material is obtained from reliable and legitimate sources.
2.2 Genetic material is received, checked and stored according to industry codes of practice, and to ensure maximum viability and program outcomes.
2.3 Where embryo transfer is the selected option for artificial breeding, hormone injections are provided to intended recipients at appropriate stages of transfer programs to maximise fertilisation and conception.
2.4 Where embryo transfer is the selected option for artificial breeding, checks are carried out to ensure intended recipients are prepared and correctly scheduled for embryo transfer according to oestrus cycle, animal health and program schedule.
2.5 Where embryo transfer is the selected option for artificial breeding, transfers are conducted according to accepted industry practice |

- 3. Monitor and maintain program
 - 3.1 Need for return to service of intended recipient is monitored through selected methods.
 - 3.2 Appropriate arrangements are made for the care of sick and injured animals.
 - 3.3 Adjustments in genetic material transfer practices are reviewed to enhance success of future programs.
 - 3.4 Data on genetic material transfer programs is documented and maintained according to enterprise requirements.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Insemination and implantation procedures, livestock behaviour (such as oestrus cycles/ovulation), and abnormalities may be observed and accurately communicated to veterinarians and breeding technicians for advice. Instruction may be given to support staff.	3
Collecting analysing and organising information	Details of bloodlines, genetic principles, breeding management, resourcing and scheduling, may be collected, analysed and organised for analysis, and organised by records and reports.	3
Planning and organising activities	Insemination collection and scheduling may be planned and organised around ovulation cycles and resources through the use of breeding support teams to ensure optimum results and high conception rates.	3
Working with others and in teams	Team work may be applied in methods and procedures to collect semen and inseminate livestock, and to maximise conception rates and to limit the need for re-insemination.	3
Using mathematical ideas and techniques	Mathematics may be applied to calculate oestrus cycles/ovulation and optimum time for insemination. It may also be used to calculate dosage and hormone injection levels.	3
Solving problems	Insemination procedures may require remedial action to ensure semen and implant viability, and when re-insemination is necessary.	3
Using technology	To communicate, calculate and record data relating to animal identification and insemination, and to achieve embryo transfer.	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What artificial breeding options exist?	These include artificial insemination either from own stock or sourced externally, embryo transplants, acquisition of teasers, acquisition and use of donor animals or recipient animals.
What needs to be taken into consideration when choosing options for artificial breeding?	Costs involved including extra handling and feeding, reliability of method, estimated breeding values, conception rates, consideration of supplementary feeding costs, whether to use semen or embryos, purchasing/lease of teasers, use or purchase of donor animals, and intended recipients.
What might be breeding objectives?	Increase conception rates, improve quality of stock, increase diversity of stock/breed, and/or meet market specifications.
What might be included in a livestock management program?	Guidelines and stipulations concerning the improvement or maintenance of the quality and size of the herd, mob, flock and their purpose - long or short term herd improvement, resale, breeding or slaughter for export or local consumption markets, and improved fleece/wool.
What are possible resource implications?	Acquisition and use of teasers, training of sires for semen collection, injection of hormones, use of facilities and equipment (sheds, liquid nitrogen containers, collection and dilution equipment for artificial insemination, and animal handling and restraints), re-insemination, natural mating, implantation, sourcing and supply of genetic materials, need for animal preparation such as crutching, monitoring and synchronisation of oestrus cycle, and staffing requirements.
What things need to be considered when preparing program schedules?	Sourcing and supply of genetic materials, teasing, intended sire training, hormone injections, facility use, synchronisation of oestrus cycles, genetic material preparation, preparation of intended recipients, insemination and implantation, re-insemination as required, and staff and equipment resources.
What personal protective equipment and clothing might be used?	Boots, overalls, gloves, and sun protection (sun hat, sunscreen).

What OHS requirements are relevant to this standard?	Safe livestock handling systems and procedures including zoonoses control (Q Fever), identify hazards, assess and report risks, safe manual handling (including lifting) systems and procedures. Safe systems and procedures for the application and storage of hazardous substances (drenches, vaccines), and the handling of veterinary equipment (syringes, needles, vaccines). Safe systems and procedures for outdoor work including protection from solar radiation, and the appropriate use of personal protective equipment.
What could be considered to be genetic material?	Frozen semen, donor mother for embryo transfer, recipient animal, donor sires for fresh semen, and frozen embryos.
What are considered to be reliable and legitimate sources?	Industry recognised suppliers of genetic materials who meet legislative and industry requirements.
What needs to be considered when receiving, checking and storing genetic material?	Materials are received safely and without damage to genetic materials, and are checked against records and requirements and stored to ensure that viability and successful outcomes are maximised.
What animals might be the intended recipients?	Cows, ewes, sows or does.
What intended recipient preparation might need to be checked?	Synchronisation of oestrus cycle, crutching and teasing.
What might be transferred?	Semen transfer by use of pipettes, catheters or straws, or embryo implantation through arranging for a veterinarian to attend.
What selected methods might be used?	Observation of behaviour, use of a teaser and harness, or ultrasound.
How might data be recorded?	In electronic or hard copy.
What might be documented?	Stud and mating records, insemination procedures, abnormalities, and breeding management information.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in supervising artificial breeding and embryo transfer programs requires evidence of the ability to identify the most appropriate artificial breeding methods, examine cost effectiveness and resource requirements, organise resources and scheduling requirements, monitor the preparation, manage the genetic material transfer, identify and implement re-insemination and implantation and record data. In addition it requires the ability to handle livestock humanely and safely and to clean up work areas and equipment and record data.

The skills and knowledge required to supervise artificial breeding and embryo transfer programs must be transferable to another rural workplace. For example, this could include different breeds, enterprises and techniques.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- artificial breeding methods and benefits, and limitations of each method
- anatomy and physiology of the reproductive organs and reproductive process in livestock
- fertilisation and implantation methods
- physical resource requirements and how to safely handle and transport them
- ovulation stimulation and synchronisation
- semen collection and dilution processes
- semen thawing techniques
- knowledge of enterprise's breeding programs
- breeding principles
- pregnancy testing
- animal health and abnormalities
- preparation requirements for artificial insemination
- enterprise and industry identification system for livestock
- relevant State/Territory legislation, regulations and codes of practice with regard to workplace OHS and animal welfare
- legislative and regulatory controls with regard to artificial insemination and embryo implants
- enterprise and industry policies with regard to artificial insemination, and recording and reporting requirements
- identification of veterinary and non-veterinary procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- administer Artificial Insemination (AI)
- arrange for implantation of embryos by a veterinarian
- prepare stock for AI and embryo implantation
- determine AI and embryo implantation timing for livestock
- keep records
- communicate effectively with staff, veterinarians and other personnel.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4108A**Unit Descriptor****Manage horses for stockwork**

This competency standard covers the process of managing horses for stockwork. Competency requires the application of knowledge and skills to assess horse health and condition and facilitate corrective actions, determine nutritional programs, and formulate suitable rations. Competency also requires the ability to oversee all horse work on the property to ensure safety and efficiency of personnel. At the completion of the work described in this standard, the efficiency of horse related operations must be maximised.

The work is likely to be carried out with limited or no supervision within enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|--|--|
| 1. Manage horse condition and health | 1.1 Organisation procedures for maintaining health are developed in consultation with other organisation staff, and using sound animal welfare guidelines.
1.2 Soundness and working condition of organisation horses is assessed, reported and documented .
1.3 Suitable personal protective equipment is selected, used and maintained.
1.4 Unsound or unhealthy horses are identified, and reasons for their condition are established, if necessary, in consultation with available veterinary advice.
1.5 Supplementary feeding requirements are established and supplies are ordered.
1.6 Feeding programs for horses losing condition are identified and feeding programs established. |
| 2. Manage nutritional requirements of horses | 2.1 Daily and seasonal factors affecting the nutritional requirements of horses are determined for the organisation.
2.2 Supplementary feeding programs are provided to organisation horses to ensure that their physical condition and health is optimised for stockwork.
2.3 Work programs for horses are related to, and balanced with, working needs.
2.4 Potential nutritional problems are anticipated and preventative or corrective action taken to ensure minimisation of condition loss. |

3. Supervise horsework of other property personnel
 - 3.1 Horse selection matches rider ability to horse temperament.
 - 3.2 Planned horse activities are scheduled and details are communicated to appropriate staff.
 - 3.3 Horse work and **breaking** by contractors or staff is co-ordinated, and supervision provided to ensure that horses and personnel work within their limitations.
 - 3.4 Work outcomes are monitored and recorded in the organisation record.
 - 3.5 **OHS** hazards are identified, assessed, and planned activities provide for responsible actions by all people working with and around the horses.
 - 3.6 Operational staff and any contractors are communicated with regularly to ensure smooth operation and progress.
 - 3.7 Checks are made to ensure that the OHS and environmental requirements are being observed and followed.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	In explaining the work requirements and the OHS hazards to staff and contractors.	2
Collecting analysing and organising information	In judging and assessing horse health and nutritional requirements for each horse.	3
Planning and organising activities	By arranging a variety of activities for a range of people within a given timeframe.	3
Working with others and in teams	In working with others to ensure the continued healthy condition and sound training of horses.	2
Using mathematical ideas and techniques	In calculating supplementary feed for horses, and in assessing improvements in horse health and training.	2
Solving problems	When dealing with difficult or fractious horses.	3
Using technology	When measuring, communicating and calculating.	1

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What organisation procedures may apply to this standard?	Work procedures will be based on sound agricultural principles and practices and may include supervisors oral or written instructions, livestock production program, organisation standard operating procedures, specifications, routine maintenance schedules, work notes, product labels and Material Safety Data Sheets, manufacturers service specifications and operators manuals, waste disposal, recycling and re-use guidelines, and OHS procedures.
What would the administrative or recordkeeping requirements entail and how might it be documented?	Requirements may relate to the tracking of animals or batches, legislative requirements for quarantine, or animal health requirements. They might also be for industrial or regulatory purposes. Record keeping systems used may be either paper-based or digital, and information will be recorded into logbooks or other records.
What personal protective equipment may be relevant to this standard?	This may include boots, helmet, overalls, gloves, protective eyewear, hearing protection, respirator or face mask, and sun protection (sun hat, sunscreen).
What will estimations of horse health and condition need to include?	Lameness, sore eyes, sore mouth, girth galls, back conditions, mud, caked sweat or vegetable matter, damaged feet or lower limbs, and localised or systemic infections.
What are some of the factors that affect stockhorse nutrition and feeding programs?	Some factors include paddock conditions, the presence of native and introduced species of grasses and legumes, feeding/mastication/teeth problems, hierarchical structures in the mob, the differing demands of age, sex, work, growth and pregnancy, mineral requirements, and availability of roughage, grains, supplements and greenfeed.
What is involved in breaking of horses and who will do it?	Grooming, rugging, shoeing, and riding in confined and open areas, and stock work in confined and open areas. Horse breaking will generally be carried out by specialist breakers.

What actions could be taken to eliminate or minimise the OHS risk?

All working routines for horses must be carried out in line with the provisions of the Workplace Health and Safety Acts and relevant animal codes of welfare

- relevant **OHS** hazards identification, risk assessment and risk control measures
- safe operating procedures
- safe manual handling systems and procedures
- safe systems and procedures for outdoor work, including protection from solar radiation
- selection, use and maintenance of relevant personal protective equipment.

Safety in horse handling depends on the following factors:

- stock (age, sex, breed, weight, presence of foals at foot, stress, training, temperament of the horse)
- the facilities and conditions (state of repair, size and design of yards, and facilities and restraint used)
- the activity being performed
- alertness, clothing, headgear and riding equipment
- planning work procedure sequences
- the competence of the rider/handler.

EVIDENCE GUIDE

Competence in managing horses for stockwork requires evidence of the ability to develop operational procedures to maintain health of livestock, identify ill horses and consult with veterinarians, manage nutritional requirements of horses, and supervise the horse work of other property personnel such as the breaking in by contractors.

The skills and knowledge required to manage natural mating must be transferable to another rural workplace. For example, across a range of terrains and conditions, and where the operators are either employees or contractors.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- care and maintenance of hooves and the lower limb
- relevant legislation and regulations relating to OHS, contractor engagement, chemical use and application, and vehicle and plant use
- environmental controls and codes of practice applicable to the business and to the seeding operations
- sound management practices and processes to minimise noise, odours, and debris.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- handle and ride horses safely
- complete basic hoof care procedures
- groom horses
- care for saddlery and equipment
- co-ordinate operations with a number of people
- explain, and deliver instructions about the plans and scheduling of the operations to both staff and contractors
- recognise poor growth and lack of vigour caused by nutrient deficiency
- observe, identify and react appropriately to environmental implications and OHS hazards.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4109A

Unit Descriptor

Oversee animal marking operations

This competency standard covers the functions required to plan and co-ordinate animal marking operations.

It requires the application of skills and knowledge to assess operational requirements and parameters, and accordingly manage staff and resources to meet objectives effectively and efficiently. Competency requires an awareness of animal welfare legislative requirements. The work in this standard is likely to be carried out independently within own area of responsibility within enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--------------------------------------|--|
| 1. Prepare marking plan | 1.1 Information and instructions with regard to marking operations are obtained and clarified in line with enterprise objectives .
1.2 Animal groupings, marking operations and sequencing are determined.
1.3 Resource requirements are assessed and determined within enterprise budgetary constraints.
1.4 Marking plan is prepared and is sufficiently flexible to adapt to changes during marking operations. |
| 2. Co-ordinate and arrange resources | 2.1 Suitable locations for undertaking marking operations and facilities are located, available and arranged to meet requirements of marking schedules.
2.2 Equipment, materials and health treatments are arranged and provided on site.
2.3 Staff are confirmed and provided with safety, task and operational briefings.
2.4 Safe and hazard-free workplace environment is maintained in line with OHS and enterprise requirements . |
| 3. Monitor marking operations | 3.1 Implementation of marking plan is monitored for efficiency and effectiveness in terms of achieving enterprise objectives.
3.2 Condition and health status of animals is monitored and abnormalities are reported in line with enterprise and animal welfare requirements.
3.3 Effective worksite communication is maintained to ensure efficient workflow and address immediate problems.
3.4 Data with regard to operational processes and outcomes are documented for continual assessment and management planning. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Information with regard to the scheduling of marking operations may be communicated to other property personnel.	2
Collecting analysing and organising information	Details of animal health including details of administered health treatments may be detailed and organised by reports for future reference.	2
Planning and organising activities	Arrangements for the delivery of equipment, materials and health treatments may be planned and organised with the marking team.	2
Working with others and in teams	In the application of methods and procedures to complete marking operations within timeframes and deadlines.	2
Using mathematical ideas and techniques	Mathematical techniques may be used to calculate volume and percentages.	2
Solving problems	Problems of animal mismothering may be resolved with appropriate settling time post-treatment prior to movement.	2
Using technology	Technology may be used to source information, communicate, calculate and monitor weather conditions.	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work contexts.

What guidelines may be outlined in enterprise objectives?

This may be a broad and general outline including the identity and numbers of animals to be marked, marketing and production plans, timeframes and budgetary constraints and parameters.

What animals may be relevant to this standard?

This may include sheep, goats, pigs, horses, and beef and dairy cattle.

What marking operations may be carried out?

Marking includes castrating, tagging, tailing, mulesing, pizzle dropping, notching, vaccinating, tattooing, micro-chipping, branding, dehorning, and trimming eye teeth. It may also include identifying abnormalities or faults and marking animals for culling.

What resources may be arranged to carry out marking operations?

Resources may include staff, equipment, materials and health treatments.

- Equipment and materials: First aid kit, marking knives, marking cradles, drench guns, methylated spirits, portable yards/gates, ear tags, ring applicator and rings, ear marking pliers, grinding stones, vaccinating guns and needles, gas fired docking knife, mulesing shears, portable yards, disbudding equipment, tattooing equipment, and protective clothing.
- Health treatments: Health treatments may include antiseptics (liquid and powder), drenches, vaccines, disinfectants and blowfly powders.

What information may be included in a marking plan?

This may include details of arranged resource allocations including equipment, staff and/or contractors, materials and health treatments. It may also include staff roles and responsibilities, schedules, time frames for completion of the operations, animal groupings and sequencing, marking procedures to be carried out, and details of operational costings.

What features may be considered when determining a suitable marking site for animals?

This may include assessing the disease status of site, vegetation status and drainage, proximity to animals, hygienic nature of site, and available weather protection for animals.

How might staff be sourced to marking operations?

Staffing arrangements may include casual or permanent staff and be sourced through family labour, contractors or neighbours (time trade).

What OHS requirements may be relevant to this standard?

Safe systems and procedures for:

- animal handling systems and procedure including zoonoses control
- manual handling including lifting and carrying
- outdoor work including protection from solar radiation
- the use and handling of veterinary chemicals
- the use of personal protective equipment.

What enterprise requirements may be applicable to this standard?

Standard Operating Procedures (SOPs), industry standards, production schedules, Material Safety Data Sheets, work notes and plans, product labels, manufacturers specifications, operators manuals, enterprise policies and procedures (including quality manuals, waste disposal, recycling and re-use guidelines), and reporting procedures.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in this standard requires evidence of the ability to co-ordinate staff, equipment and resources to carry out animal marking operations within budgetary constraints. It also requires the ability to determine efficient animal grouping and sequencing of operations, prepare and implement a work plan, maintain effective communication strategies including the conduct of detailed staff briefings with regard to tasks and safety issues, monitor the health and well-being of animals, and maintain accurate data records. Evidence must be demonstrated in the implementation of safe workplace and positive environmental practices.

The skills and knowledge required to mark animals must be transferable to a different work environment. For example, if competence is evident in managing beef cattle marking operations, it must also be evident that those skills may be adapted to the management of sheep and goat marking operations.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- management processes and procedures
- cost analysis techniques
- systems and procedures for planning and developing
- marketing and production plans
- codes of practice with regard to animal marking and animal health and welfare
- veterinary medicines and administration
- animal marking methods and procedures
- legislative requirements with regard to OHS
- animal behaviour and nutritional requirements
- environmental codes of practice associated with animal production.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- plan, cost and schedule resource requirements
- develop and implement an operational strategy
- prioritise and schedule marking operations
- determine and allocate staff roles and responsibilities
- manage staff and operations
- manage costs within budgetary constraints
- establish and monitor performance targets
- maintain accurate data documentation
- implement safe and positive environmental workplace policies
- communicate effectively with staff, contractors and suppliers
- document and prepare written plans and reports for the understanding of staff and management
- estimate and calculate resources and operational costings.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4110A

Unit Descriptor

Supervise natural mating of livestock

This competency standard covers the process of supervising natural mating of livestock. Competency requires the application of knowledge and skills to identify appropriate mating plans, the selection of appropriate joining areas and sires, preparing animals including ensuring adequate nutrition and live-weight. Competency also requires the application of skills and knowledge to monitor mating and take remedial action where needed, to record data and monitor and report on the effectiveness of the mating program.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Prepare animals for breeding | 1.1 Joining areas are identified and prepared using a range of selection factors .
1.2 Animals are handled safely and humanely to minimise stress and discomfort.
1.3 Animals are drafted according to mating plan and in appropriate ratios to encourage optimum mating.
1.4 Siring requirements are determined and met in advance of mating.
1.5 Animals are prepared and examined for mating. |
| 2. Implement breeding program and monitor mating | 2.1 Veterinary advice is accessed according to animals needs, enterprise requirements and industry practice.
2.2 Dates and timing of breeding are identified and scheduled
2.3 Physical examination of animals is carried out to evaluate health and welfare status of animal.
2.4 Behaviour of animals during joining is observed to identify necessity of intervention and assistance.
2.5 Assistance is provided as required. |
| 3. Complete breeding program | 3.1 Where required, sires are removed from herd, mob or flock.
3.2 Mating activity is monitored to ensure successful joinings have occurred, to identify problems and to effect remedial action as required.
3.3 Data is recorded and documented to develop history of mating performance and outcomes.
3.4 Industry information of emerging and prevailing practices are researched and compared with enterprise practice to recommend future improvements. |

KEY COMPETENCIES

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Mating plans and resources may be observed and needs accurately communicated to animal suppliers and other property personnel. Instruction may be given to support staff.	2
Collecting analysing and organising information	Information of previous mating and breeding performance may be collected analysed and organised for analysis and organised by records and reports.	2
Planning and organising activities	Teasing, sire introduction and meeting nutrition requirements may be planned and organised around mating schedules ovulation cycles and resources. The co-ordination of breeding support teams to ensure optimum results and high conception rates may also be required.	2
Working with others and in teams	In methods and procedures to join animals, to monitor mating plans to maximise conception rates and to limit the need for re-joining and/or remedial action.	2
Using mathematical ideas and techniques	In calculating oestrus cycles/ovulation and optimum time for joining and mating. It may also be used to score live-weight and condition.	2
Solving problems	In the identification and in determining remedial action to overcome poor conception rates or nutritional deficiencies.	2
Using technology	To communicate, calculate and record data relating to animal identification and mating.	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What selection factors might need to be considered?	Amount and type of feed, aspect, ease of checking on animals, water supplies, topography, paddock size. Estimated breeding value (EBV) of sires and dams.
What animals are covered by this standard?	Sheep, beef and dairy cattle, horses, pigs and goats.
What might be included in a mating plan?	Matching sire to herd/mob/flock, times of joining and duration, identifying sire joining percentages, nutrition of sires and intended recipients prior to mating, breeding and breed selection, individual mating.

How might appropriate ratios be determined?	Matching sire to herd/mob/flock, times of joining and duration, identifying sire joining percentages, nutrition of sires and intended recipients prior to mating, breeding and breed selection, individual mating.
What animals are included as sires in this standard?	Rams, bulls, stallions boars and bucks.
What might be need to determined when working out siring requirements?	Purchase of replacement sires in time to allow adjustment to new environment, any sire health and husbandry operations, test joining and fertility of new sires as appropriate, management of sires environment for optimum mating performance (including level of nutrition and adequate water supply, avoidance of overheating).
How might animals be prepared and examined?	<p>Sires: test joinings for new sires, shearing, crutching, lice and blowfly preventative treatments, foot paring, fitting harness, lice control, vaccinations, feeding supplements, physical examination to check on scrotum, prepuce, feet, teeth, testes, penis, legs, eyes and checking rams and bucks for signs of fly strike.</p> <p>Ewes, Cows, Mares, Sows and Does: drenching for worms, vaccinations, lice control, feeding supplements, checking for critical weight which is the live weight below which there may be significant conception failure and poor embryo survival, use of teasers to promote onset of oestrus, observation of behaviour to identify oestrus cycle, meeting increased nutritional requirements and supplements for identified mating recipients.</p>
What might be checked for in a physical examination?	<p>Sires: test joinings for new sires, shearing, crutching, lice and blowfly preventative treatments, foot paring, fitting harness, lice control, vaccinations, feeding supplements, physical examination to check on scrotum, prepuce, feet, teeth, testes, penis, legs, eyes and checking rams and bucks for signs of fly strike.</p> <p>Ewes, Cows, Mares, Sows and Does: drenching for worms, vaccinations, lice control, feeding supplements, checking for critical weight which is the live weight below which there may be significant conception failure and poor embryo survival, use of teasers to promote onset of oestrus, observation of behaviour to identify oestrus cycle, meeting increased nutritional requirements and supplements for identified mating recipients.</p>
What intervention might occur?	Use of harnesses and assistance in the joining process.

How might activity be monitored?	Visual observation, harness marks on does and ewes.
What problems might lead to poor joining/mating?	Heat, infertility, physical injury, poor nutrition, seasonal conditions, inadequate water supply, irritation or infection from pests and diseases.
What remedial action might be taken?	Extending the joining period, re-joining, replacement sires, control of pests and diseases, supplementary feeding, provision of shade, shelter or water, shearing bucks before joining, treatment for lice.
What data might be recorded?	Joining percentages, date sires joined and removed, health status of animals, paddock records, sire identification, seasonal records (rainfall, temperature), bodyweights and condition scores.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in supervising natural mating requires evidence of the ability to select appropriate joining areas, paddocks, prepare animals for mating, implement mating plans, monitor preparations, identify and implement remedial action as required and record data.

The skills and knowledge required to manage natural mating must be transferable to another rural workplace. For example, if competence is evident in supervising natural mating for sheep it should also be evident for cows and/or goats in both large and small enterprise operations.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- mating behaviour
- anatomy and physiology of the reproductive organs and reproductive process in animals
- live weights and conditions for mating
- environmental influences and their effects on joining
- ovulation stimulation and synchronisation
- enterprise's breeding programs and selection criteria (EBV)
- breeding principles
- pregnancy testing
- animal health and abnormalities
- enterprise and industry identification system for animals
- relevant State/Territory legislation, regulations and Codes of Practice with regard to workplace OHS and animal welfare
- legislative and regulatory controls with regard to breeding programs
- enterprise and industry policies with regard to recording and reporting requirements
- identification of veterinary and non-veterinary procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- prepare animals for joining
- monitor joining activity
- keep records
- communicate effectively with staff, veterinarians, and other personnel.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

RTE4111A

Unit Descriptor

Manage shearing and crutching operations

This competency standard covers the functions required to plan and schedule shearing and crutching operations.

It includes the application of skills and knowledge to prepare and implement a shearing plan, as well as review and evaluate operational performance and outcomes. In addition, it requires the ability to determine and schedule staff and resources, and maintain operational costs within budget constraints. It also requires an awareness of relevant legislative requirements associated with the shearing industry. The tasks in this standard are carried out independently within own area of responsibility.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Plan and implement shearing and crutching operations | 1.1 Flock owner/manager is consulted about requirements and informed of planning issues.
1.2 Order of mobs is determined for shearing and crutching according to enterprise requirements .
1.3 Staffing needs are determined according to legislative requirements and negotiated with grower/contractor.
1.4 Staff are allocated duties and given necessary directions.
1.5 Shed equipment and materials are arranged in accordance with OHS requirements and quality management system.
1.6 Shearing/crutching plan is implemented and adjusted as conditions change. |
| 2. Implement shearing plan and monitor work flow | 2.1 Board is kept clear and fleeces are thrown ready for skirting.
2.2 Non-fleece wools are removed and packed as directed.
2.3 Shed staff are given directions for skirting, and fleece to skirting ratio is monitored.
2.4 Directions are issued for closing off bins and lines for mob cutouts.
2.5 Enterprise requirements with regard to safe workplace and positive environmental practices are complied with according to OHS and quality management system. |
| 3. Supervise wool pressing | 3.1 Wool presser is directed on order for pressing and procedures to minimise contamination.
3.2 Wool presser is consulted to monitor the rate of build-up in lines.
3.3 Pressing instructions are issued which reduce mixed bales, while meeting code of practice requirements for uniformity within lines.
3.4 Bale weights are monitored to ensure efficiencies are achieved for the grower.
3.5 Bales are branded in line with code of practice requirements.
3.6 Wool book is monitored for accuracy, legibility and kept up to date at all times. |

- | | |
|---|--|
| 4. Provide feedback to grower on clip performance and shearing and crutching operations | 4.1 Staff performance in clip preparation is reported on.
4.2 Mob characteristics are related to work flow and clip preparation.
4.3 Possible improvements to wool handling facilities are reported.
4.4 Equipment effectiveness and maintenance requirements are reported.
4.5 Lines made and bale details are related to mob characteristics.
4.6 Lotting advice is explained.
4.7 Wool clip documentation is completed and presented to grower for signature. |
|---|--|

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Information with regard to the shearing plan and its application may be discussed with the shearing team.	2
Collecting analysing and organising information	Information and instructions with regard to enterprise shearing and crutching objectives may be sourced and incorporated into a shearing plan.	2
Planning and organising activities	The preparation, classing and pressing of the clip require all activities to be planned and organised.	3
Working with others and in teams	In the effective application of methods and procedures to co-operatively achieve the shearing plan objectives.	2
Using mathematical ideas and techniques	In the calculation of livestock numbers and shearing personnel, and the estimation of timeframes for work completion.	2
Solving problems	Contingency plans may be implemented in the event of adverse weather conditions or the breakdown of equipment to minimise disruption to shearing schedules.	2
Using technology	To communicate information, and calculate and estimate productivity.	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What enterprise requirements may apply to this standard?	Standard Operating Procedures (SOPs), industry standards, Total Quality Management standards, Code of Practice for the AWEX Quality System, enterprise policies and procedures (including waste disposal, recycling and re-use), and reporting requirements.
What arrangements may be involved in selecting staff?	This may include the negotiation and signing of employment agreements, the arrangement of workers compensation insurance, arranging the provision of appropriate accommodation facilities, the induction of OHS and enterprise policies and procedures, and the identification of workplace hazards.
What legislative requirements may be relevant to this standard?	National Code of Practice for the Shearing Industry (Health, Safety and Welfare standards), and Animal Welfare Act.
What OHS requirements may be applicable to this standard?	Safe systems and procedures for: <ul style="list-style-type: none"> • the operation and maintenance of hazard-free facilities and equipment • handling livestock • the administering of first aid • manual handling, including lifting and carrying • fleece/wool harvesting • the protection from electrical hazards, hazardous noise and organic and other dusts • the handling and storage of hazardous substances • the health and safety of shearing personnel • the appropriate use of personal protective equipment.
What information may be included in a shearing plan?	Information may include operational strategies, shearing team roles and responsibilities, the location and number of livestock to be shorn, pressing instructions, shearing preparation procedures, equipment and resource requirements including personal protective equipment, contingency plan in the event of adverse weather conditions, and relevant enterprise instructions.

What may be involved in shearing and crutching operations?

This may include the conduct of shearing and crutching, the allocation of human and physical resourcing, issuing instructions to shed staff, monitoring clip preparations standards, and of bale details in the wool book. It may also include monitoring weather conditions, the humane handling of livestock, and compliance requirements with relevant animal welfare codes of practice.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in this standard requires the ability to plan, implement and oversee shearing and crutching operations. Evidence must be demonstrated in compliance with relevant industry, enterprise and legislative requirements including the maintenance of a contaminant and hazard-free work environment.

The skills and knowledge required must be transferable to a different work environment. For example, this may include different enterprises, shearing teams and types and breeds of sheep.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- supervisory procedures with regard to operations and personnel
- staff management including team building and conflict resolution
- industry requirements with regard to hygiene and safety for shearing facilities and equipment
- planning and implementation processes
- completing workplace documentation
- employment agreements, processes and requirements
- OHS legislative requirements.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- plan and implement shearing operations
- organise and schedule staff and work tasks
- supervise staff and monitor productivity
- identify and remove potential workplace hazards
- implement risk management strategies
- monitor environmental impacts and implement control measures
- use written and oral information about workplace and legislative requirements
- calculate resources and bale weights for mob cutouts.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4112A

Unit Descriptor

Manage milking shed routines

This competency standard covers the management of the in-shed milking operation including the oversight of routine maintenance procedures and replacement of consumables. It also includes the monitoring of milk quality and the implementation of shed procedures and cow health management to maximise milk quality, and minimise mastitis and other herd health problems.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Manage routine maintenance | <p>1.1 Maintenance schedules are planned in accordance with manufacturers recommendations and industry minimum standards.</p> <p>1.2 The programmed replacement of consumables is implemented in line with recorded usage and replacement schedule.</p> <p>1.3 Worn or unsafe components are identified and replaced as required.</p> <p>1.4 Milking equipment maintenance problems are identified, and strategies for their rectification are implemented.</p> <p>1.5 Specialised services are engaged for non-routine service and repairs.</p> |
| 2. Manage shed milking routines | <p>2.1 Milking shed routines and schedules are determined in line with available labour and resources.</p> <p>2.2 Staff responsibilities are allocated and communicated to maximise labour efficiency and ensure safe systems of work within the milking shed.</p> <p>2.3 Milk production recording procedures are established and implemented.</p> <p>2.4 Industry or supplier quality assurance practices and procedures are utilised in programmed shed routines.</p> |
| 3. Manage procedures for handling cows unsuitable for milking | <p>3.1 Shed procedures for the identification of cow herd health problems are established in line with industry guidelines.</p> <p>3.2 Milk from at risk cows is isolated to maintain overall milk quality.</p> <p>3.3 Appropriate treatments are selected and implemented according to veterinary advice.</p> <p>3.4 Strategies for the isolation or drying off of at risk or mastitis infected cows are determined in consultation with appropriate specialist advice.</p> |

4. Maintain milk quality practices
 - 4.1 **In shed hygiene routines** are determined according to standards for industry best practice.
 - 4.2 **Hygiene procedures** are implemented to minimise cross infection and teat or udder damage.
 - 4.3 **Milk quality** is constantly monitored to comply with specified supplier standards.
 - 4.4 Milk cooling equipment and storage is regularly monitored to maximise milk quality.
 - 4.5 **Environmental implications** of milking operations are identified and actions are put in place to minimise adverse effects.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through effective communication with management, factory field staff, other suppliers and industry service professionals.	2
Collecting analysing and organising information	Milk quality records as well as animal health and production information will be collated as a part of the performance of this unit.	2
Planning and organising activities	Programmed maintenance, service activities, hygiene procedure and quality controls will require planning to ensure that equipment performance is maximised.	2
Working with others and in teams	The conduct of milking operations is a team activity and requires effective participation as a team member.	2
Using mathematical ideas and techniques	Mathematical techniques and numeracy skills are required for the collection and collation of data as well as the calculation of a range of factors associated with milk production.	2
Solving problems	Problems of poor milk quality will require the use of observational as well as problem-solving skills in the performance of this unit.	2
Using technology	A range of technologies will be utilised including the use of testing, performance measuring and communication equipment.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What does using manufacturers recommendations and industry minimum standards mean?

Original equipment manufacturers will specify maintenance intervals and routines. There are also industry minimum standards set by the Australian Milking Machine Trade Association, which provide guidelines for consumables replacement.

What are the components/consumables that require routine or programmed replacement?

Milking equipment components that may be replaced as a part of regular maintenance routines may include:

- rubber ware including liners and tubes
- milk filter socks
- plastic bowls and claws
- 'V' Belts
- milk pump or pulsator diaphragms
- milk line joiners and plugs
- receival can seals.

What sort of milking equipment maintenance problems are likely to be identified?

Maintenance problems may include:

- broken or worn belts
- blocked milk or air lines
- blocked air admission holes
- broken seals
- air or fluid leakages
- thermostat or gauge inaccuracies
- ineffective milk cooling.

What specialised services may be required?

These may include:

- refrigeration mechanics
- electricians
- milking machine technicians
- original equipment manufacturer's representatives
- factory field officers.

What are the safe systems of work in the milking shed?

Maintenance of safe systems of work includes:

- procedures for the identification of OHS hazards
- assessment of risk and effective risk control measures
- safety communication
- worker induction and training.

Actual hazards may include:

- exposed moving parts of machines and equipment such as unguarded belts and pulleys
- gate catches
- moving platforms
- feed augers
- unguarded or slippery steps
- electrical hazards posed by poorly maintained or deteriorated electrical installations
- the risk of zoonoses such as leptospirosis.

What sort of recording procedures are utilised in shed routines?

These may include electronic or manually maintained record of:

- cow identification
- type and date of cow treatments
- withholding periods
- quantity of milk
- quantity of feed
- number of cows.

What are the industry or supplier quality assurance standards?

Quality assurance standards (on-farm milk quality programs) are specified and provided by the dairy factories, for example Murray Goulburn Co-operative Milk Care Program.

What are at-risk cows?

Cattle with clinical mastitis, undergoing antibiotic treatments, or newly calved cows.

What sort of hygiene procedures may be required in the milking shed?

Hygiene procedures and the isolation of milk from at risk cows may include the use of test buckets, flushing of individual claw assemblies, teat sprays and treatments, and the use of appropriate detergents.

What factors may be evidence of poor milk quality?

A deterioration in milk quality may be identified by:

- High Bulk Milk Cell Count (BMCC)
- the presence of high quantities of sediments
- contaminants such as cleaning chemicals, detergents or veterinary chemicals
- High Total Plate Counts (TPC)
- the presence of colostrum
- milk stone.

What are the environmental implications of milking operations?

The effective management of effluent from farm dairies is of prime importance in considering the performance of this unit, as are the impacts of high stock densities with the associated pugging and odour issues.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in management of milking shed routines requires evidence that an individual can effectively manage the daily milk routines. This includes the implementation of regular maintenance and service routines, and the prompt identification of faulty performance and the implementation or the rectification of those faults.

The skills and knowledge required to manage milking shed routines must be transferable to a different work environment. For example, they should be capable of being applied in anything from the smallest walk through shed to the largest rotary installation.

Evidence should include reports of hazard identification, risk assessment and risk controls.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- milking equipment types and their components
- factors that affect milk quality
- how effective and efficient milking operations are carried out
- possible causes of deterioration in milk quality
- components/specification of milk quality assurance programs
- cow health problems that affect milk quality
- cow udder health treatments
- safe work systems in the dairy
- on-farm milk cooling procedures and practice.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- effectively and efficiently oversee the conduct of milking operations
- work in co-operation with dairy factory personnel to implement milk quality procedures
- identify possible causes of declines in milk quality
- oversee the routine maintenance and service of milking equipment and replacement of consumables.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4114A

Plan and monitor intensive production systems

Unit Descriptor

This competency standard covers the process of sourcing relevant information, and then planning for intensive production of livestock. It also covers the management of the production process including production targets, planning for animal welfare needs, as well as environmental and waste management requirements.

This standard is applicable to the production of both pigs and poultry in an intensive production system.

Planning and monitoring intensive production systems may be undertaken without supervision, with only general guidance. This standard includes the application of industry knowledge to receive reports from staff, make judgements and to react effectively to that information whether it is related to production, husbandry or human issues.

When this standard is implemented effectively, organisation outputs are maximised while operating a sustainable system.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Source information for input to production system planning | <p>1.1 Livestock production plan is consulted for details of current period planning, organisation requirements and market expectations.</p> <p>1.2 Key production data is analysed to establish unit performance.</p> <p>1.3 Information regarding the characteristics of the herd/flock under production is accessed and analysed.</p> <p>1.4 Organisation and regulatory requirements that impact on the production system are accessed.</p> <p>1.5 Market information regarding quality, standards and trends is accessed for input to the planning process.</p> |
| 2. Plan for production | <p>2.1 Target unit performance is determined through a comparison with organisation and industry standards.</p> <p>2.2 Production targets are established and confirmed using data and information from its livestock production.</p> <p>2.3 Resources required to achieve production targets are determined in terms of personnel, equipment and materials.</p> <p>2.4 Staff and contractors are organised and/or engaged to suit the production plan and its targets.</p> <p>2.5 Other resources are selected and ordered according to the organisations guidelines.</p> |

- | | |
|---|---|
| 3. Plan for animal welfare needs | <p>3.1 Accommodation requirements are calculated from livestock numbers, market requirements and regulations.</p> <p>3.2 Alternative construction and equipment systems options are evaluated and optimal choice selected.</p> <p>3.3 Materials chosen for construction are selected according to animal welfare needs, cost and efficiency.</p> <p>3.4 Aspects of the internal environment are determined according to all welfare needs, efficiency of systems and market expectations.</p> <p>3.5 Feed requirements are selected based on its end use of the animals, the size of the herd/flock, and the suitability of the range of available products.</p> |
| 4. Plan for environmental and waste management requirements | <p>4.1 Accommodation requirements are calculated from livestock numbers, market requirements and regulations.</p> <p>4.2 Alternative construction and equipment systems options are evaluated and optimal choice selected.</p> <p>4.3 Materials chosen for construction are selected according to animal welfare needs, cost and efficiency.</p> <p>4.4 Aspects of the internal environment are determined according to all welfare needs, efficiency of systems and market expectations.</p> <p>4.5 Feed requirements are selected based on its end use of the animals, the size of the herd/flock, and the suitability of the range of available products.</p> |
| 5. Determine scheduling and key responsibilities | <p>5.1 Scheduling for the production plan is determined taking the range of seasonal, geographic, and resourcing factors into consideration.</p> <p>5.2 Key responsibilities for specific implementation processes are determined.</p> <p>5.3 Record keeping requirements are determined and procedures are put in place to ensure compliance with the range of applicable regulations.</p> <p>5.4 The plan, including scheduling and key responsibilities, is clearly documented.</p> <p>5.5 The plan includes the type, format, frequency and detail of any reporting required by both manager(s) and operators.</p> |
| 6. Monitor and adjust production plan strategies | <p>6.1 The effectiveness of the production plan is evaluated at key points and adjustments made as necessary.</p> <p>6.2 Environmental impacts and OHS hazards relating to the production plan are identified, monitored and assessed throughout the implementation process.</p> <p>6.3 Modifications are made to the plan as and when necessary for environmental, OHS, resourcing, or effectiveness reasons.</p> |

KEY COMPETENCIES

Key Competency	Example of Application	Performance Level
Communicating ideas and information	In allocating and discussing responsibilities with staff and contractors.	2
Collecting analysing and organising information	In tracking, monitoring and analysing production figures.	2
Planning and organising activities	In planning the production system and organising staff, contractors and resources.	3
Working with others and in teams	In monitoring and achieving production targets.	3
Using mathematical ideas and techniques	In analysing and calculating spaces, volumes, targets and times.	3
Solving problems	In resolving disparities between target and achieved production rates.	3
Using technology	In operating any necessary equipment prior to, and during the planning and implementation of the system - communication technology, calculating equipment, measuring equipment, and word processing/spreadsheeting software.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What is the purpose of analysing production data?

Unit performance is constantly improved through analysis of production data and evaluation of alternative systems.

What organisation and regulatory requirements might impact on the production system?

Unit performance is constantly improved through analysis of production data and evaluation of alternative systems.

What elements are included in the accommodation environment?

Pen/cage shape and size, odour, gas and dust concentrations, light and noise, feeding arrangements, facilities planning for pig movement.

How might the internal environments be adjusted?

Through the use of blinds, gas heaters, sprinkler systems and shutters.

What might aspects of the internal environment include?	Aspects such as humidity, light, temperature variations, and exhaust efficiency.
What might make feed products suitable?	Aspects such as humidity, light, temperature variations, and exhaust efficiency.
What are the aspects of effluent management?	Compliance with codes of practice or relevant environmental regulations, and the reuse of effluent in a sustainable manner.
What actions could be taken to eliminate or minimise OHS risk?	<p>The range of actions are both systemic and at an operational level. These are listed below.</p> <p><i>Systems</i> should be in place to ensure the safe operation and maintenance of machinery and equipment, including hydraulics and guarding of moving parts, and including pumps, impellers and aeration equipment. Precautions should also be in place to minimise exposure to noise and organic and other dusts.</p> <p><i>Fixtures</i> should be in place in all storage sheds, including appropriate access ladders, hand rails and ladder cages.</p> <p><i>Personal protective equipment</i> should be selected, used and maintained.</p> <p><i>Environmental</i> conditions should be controlled to provide optimal conditions for herd or flock performance.</p> <p><i>Safe procedures</i> and systems must be in place for safe livestock handling, preventing zoonic infection, safe tattooing and branding of livestock, and safe handling procedures. Safe systems and procedures are necessary for storage, handling and transportation of hazardous substances.</p> <p><i>Record keeping</i> should ensure requirements in relation to accurately and legibly recording production data, properly observing and using product labels and Material Safety Data Sheets sheets, instruction manuals and written organisational procedures.</p>

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in planning and monitoring intensive production systems requires evidence that scheduling and the allocation of responsibilities within the operation are planned effectively to maximise the production output of the organisation.

The skills and knowledge required to plan and monitor intensive production systems must be transferable to a different work environment. For example, across the range of livestock breeds and classes, and of shed types and production systems.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- sustainable effluent management practices
- environmental, welfare and OHS legislation and codes of practice
- livestock husbandry and management practices
- sound management practices and processes to minimise noise, odours and debris from the livestock operations.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- observe, identify and react appropriately to environmental implications and OHS hazards
- prepare written plans and procedures for implementation by others
- interpret, analyse and extract information from such things as professional literature, legal documents, discussions and workshops
- assess, then adopt profitable innovations
- calculate and analyse production outputs for unit and organisation targets.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

RTE4115A

Unit Descriptor

Plan to exhibit livestock or fleece

This competency standard covers the process of planning to exhibit livestock and/or fleece. Competency requires the application of skills and knowledge to select exhibits, identify faults in potential exhibits, supervise preparation of the exhibit, and arrange transport and necessary facilities at the exhibition. Competency also includes the ability to exhibit the livestock/fleece to its best advantage while pursuing/optimising sales and promotional opportunities. This work is likely to be carried out with limited or no supervision within enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

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|---------------------------------------|---|
| 1. Select potential exhibits | 1.1 Selection criteria are determined.
1.2 Potential exhibits are chosen against selection criteria and according to enterprise and industry exhibit expectations.
1.3 Faults in potential exhibits are identified and remedial action taken. |
| 2. Determine preparation requirements | 2.1 Preparation requirements are identified.
2.2 Resources and facilities are identified and organised to allow for adequate preparation prior to exhibition .
2.3 Preparation requirements, including OHS requirements, are communicated clearly and accurately to staff.
2.4 Arrangements are made to ensure necessary resources and facilities at the exhibition are available and will be ready. |
| 3. Supervise preparation | 3.1 Potential exhibits are checked and progress monitored.
3.2 Staff are monitored against established preparation procedures and realistic time-lines.
3.3 Contingency plans are implemented to meet preparation shortfalls as required.
3.4 Staff are advised of any changes in preparation procedures and instructed accordingly. |
| 4. Present exhibit | 4.1 Checks on transport arrangements are made to ensure that transport is suitable and that exhibit will arrive in time.
4.2 Entries meet exhibition schedule requirements and procedural rules .
4.3 Exhibits are displayed to their best advantage and according to exhibition guidelines.
4.4 Promotional and sales opportunities are optimised and pursued as required. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Exhibition and preparations can be discussed with other exhibitors and organisers.	2
Collecting analysing and organising information	Information on exhibition classes, exhibition requirements, resources, fleeces and training methods may be collected, analysed and organised for analysis, and organised by records and reports.	2
Planning and organising activities	The co-ordination of exhibit preparations and transportation may require sequential and logical planning and organising.	2
Working with others and in teams	Team work may be applied to ensure that livestock or fleeces are properly presented and ready for exhibition on time.	2
Using mathematical ideas and techniques	Mathematics may be applied to calculate yield and preparation time.	2
Solving problems	In finding solutions to ensure that livestock or fleece are presented at their best advantage or to remedy preparation problems.	2
Using technology	To communicate and or prepare animals for showing.	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What needs to be considered against selection criteria?

Fleece quality characteristics or conformity to breed characteristics, current requirements of clients, factors of importance to livestock judges, age, sex, and fleece quality characteristics.

What might be potential exhibits?

Sheep, cattle, goats, horses, or fleeces.

What faults might exist?

Undershot jaws, poor conformation, fleece faults, bad feet and legs, or lack of uniformity of fleece(s).

What remedial action might be appropriate?	Corrective treatment, castration, culling or exclusion from further selection.
What preparation requirements might there be?	Feeding plans, establishment of training and leading regimes (halter training, leading, standing), hoof and horn paring/trimming/dressing, and fleece preparation.
What resources and facilities might be required?	<p>Staff, training and handling equipment, feed and feed supplements, pens, yards, boxes, grooming equipment, rugs and veterinary supplies.</p> <p>Exhibition equipment: such as halters/rings, feeding/water troughs, clippers, vacuums, facilities such as boxes yards, exhibition space and accommodation for staff.</p>
Where might livestock and fleece be exhibited?	Agricultural shows, wether trials, ewe trials, doe trials, sales, field days and fleece competitions.
What OHS requirements may be applicable to this standard?	Safe livestock handling systems and procedures including zoonoses (including Q Fever), safe manual handling systems and procedures, application and storage of hazardous substances (drenches, vaccines), safe systems and procedures for outdoor work including protection from solar radiation, and the appropriate selection, use and maintenance of personal protective equipment.
What contingency plans might need to be implemented?	Prioritising preparations, and utilising extra staff.
What transport arrangements might need to be taken into consideration?	Arranging for or checking on collection and delivery in time for market/sale, signing appropriate dispatch documents, completion of quality assurance scheme declarations, checking on pick up time, estimated time of delivery time and delivery point.
What considerations are there in relation to whether transport is suitable?	Livestock type, volume and quality.
What schedule requirements and procedural rules might need to be considered?	Requirements and protocols regarding exhibits and behaviour at show/sale.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in planning to exhibit livestock or fleeces requires evidence of the ability to identify potential exhibits against selection criteria, organise resources and facilities, supervise preparations, deal with contingencies, and exhibit the livestock or fleece to its best advantage. In addition, it requires an ability to arrange and prepare for correct and timely transport and to identify livestock/fleece unfit for exhibition.

The skills and knowledge required to exhibit livestock or fleece must be transferable to another rural workplace. For example, this could include different breeds, exhibitions or shows, and enterprise procedures.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- criteria for competition judging
- preparation procedures
- requirements for entry of competitors
- transportation requirements
- feeding and nutrition requirements
- supervision techniques
- communication styles
- observation methods
- relevant legislative health and OHS requirements, especially as they relate to livestock and fleece exhibitions, and animal transportation, animal welfare and safe livestock handling techniques
- enterprise and industry policies and codes of practice with regard to livestock and fleece exhibitions, sales, livestock transportation, and recording and reporting requirements.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- accurately select livestock and fleece
- prepare animals for exhibition
- present livestock to best advantage
- promote the product to clients
- pursue sales opportunities
- communicate with staff during preparations, exhibit officials and potential customers.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4116A

Implement a feeding strategy for pig production

Unit Descriptor

This competency standard covers the process of selecting the quantities of feed to be used and ensuring that livestock receive adequate food on a regular and timely basis. With completion of the work described in this unit, livestock receive correct diet, nutrition meets the needs of livestock, and optimum performance is maintained.

This standard is applicable to the production of pigs in an intensive production system.

This unit depends upon the application of knowledge including dietary and nutritional requirements of differing livestock classes, and the range of methods of achieving them. It requires skills to assess ration performance from indicators such as weight gain, as well as communicating specific and detailed requirements to operators.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Determine feed rations and schedules | 1.1 Quantities of feed required for livestock are determined from the production program in conjunction with advice from other available information and expert advice.
1.2 The results of any available laboratory testing are taken into consideration when determining the quantities and ration formulation of stockfeed to be used.
1.3 Feeding is scheduled and responsibility for feeding allocated in line with the production program and other operations occurring within the shed.
1.4 Method(s) of providing feed to livestock is identified from production plan and confirmed with supplier of ingredients and other expert advice. |
| 2. Supervise storage of feed | 2.1 Secure and hygienic storage of feed is organised to eliminate contamination and infestation.
2.2 Storage location is selected to ensure safe access.
2.3 Rotation of stock and replacements are organised to arrive at the appropriate time to ensure optimum freshness.
2.4 Feed is organised to suit the needs of various classes and ages of livestock, the identified nutritional requirements, and the equipment available within the organisation.
2.5 Samples of feed are taken, packaged and labelled, and forwarded to the laboratory for testing according to the schedules described in the production program.
2.6 Calibration of measuring equipment and calculation of quantities is supervised at regular intervals.
2.7 Checks are made to ensure that suitable personal protective equipment is selected, used and maintained.
2.8 OHS hazards are identified, assessed, and responsible action is taken throughout the preparation and feeding operations. |

3. Supervise feeding
 - 3.1 Rations are supplied to the livestock according to the production program and schedules devised.
 - 3.2 Potable water is available continuously to the livestock.
 - 3.3 The health and wellbeing of the livestock is **monitored**, and any **reaction** to a change in feed or schedules is noted and reported.
 - 3.4 Any change in production levels as a direct result of changes to feed types, ingredients or schedules is monitored and reported.
 - 3.5 Advice is given to operational staff during the feeding operation when requested, or when the need is observed.
 - 3.6 All waste materials and substances are removed from the site and stored, or disposed of responsibly.
 - 3.7 **Documentation** is collated and stored according to the requirements of the organisation.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicating with nutritionists and feed company personnel regarding formulations and nutrition.	2
Collecting analysing and organising information	In collecting and preparing feed samples for analysis.	2
Planning and organising activities	Planning and organising activities in the collection of feed samples.	2
Working with others and in teams	Working with teams and others in supervising workers to achieve desired outcomes.	2
Using mathematical ideas and techniques	Using mathematical ideas and techniques to analyse and interpret feed data.	2
Solving problems	In the case of suspected toxicities.	2
Using technology	By using augers, feed weighing equipment, feeding systems, communication equipment and calculating equipment.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What does feed laboratory testing include?	Protein, fat, coccidiostat, calcium, phosphorous, trace elements, mycotoxins and medications.
Why might samples of feed mix be sent for testing?	To ensure that the appropriate nutritional value is being delivered to the livestock. Such testing may also be a requirement of any Quality Assurance accreditation.
What personal protective equipment may be relevant to this standard?	Boots, hats/hard hat, overalls, gloves, protective eyewear, hearing protection, respirator or face mask, and sun protection (sun hat, sun screen).
What actions could be taken to eliminate or minimise OHS risk?	<p>The range of actions are both systematic and at an operational level. These are listed below:</p> <p><i>Systems</i> should be in place to ensure the safe operation and maintenance of machinery and equipment, including hydraulics and guarding of exposed moving parts. Precautions should also be in place to minimise exposure to noise and organics and other dusts. Systems and procedures for handling livestock, as well as working with and around electricity should also be in place.</p> <p><i>Fixtures</i> should be in place in all storage sheds including appropriate access ladders, hand rails and ladder cages.</p> <p><i>Personal protective equipment</i> should be selected, used and maintained.</p> <p><i>Environmental</i> conditions should be in place to reduce the likelihood of fire. Safe systems should also be in place for storage, handling and transportation of hazardous substances.</p> <p><i>Procedures</i> should be in place for safe handling systems, especially when handling bags, together with those for handling and storage of stockfeed (particularly feed systems and accessing silos). Selection, use and procedures are also necessary for outdoor work, including protection from solar radiation.</p>
What will be monitored during feed checks?	Feed checks need to ensure the livestock are fed the correct diets and amounts at the right time, with minimum wastage, and that feed is clean and accessible.
What would livestock reaction to feed include?	Development of wet faeces, feed time increases, body weight gain/drops, and increased mortality.

How might information be documented?

Record keeping systems used may be either paper-based or digital, and information will be recorded into logbooks or other records.

What actions will require documentation?

Medicated feed offered to livestock nearing market age/weight. This will ensure withholding periods are adhered to.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in supervising nutrition and feeding in an intensive production system requires evidence that the ingredients selected for feeding the livestock are appropriate for their health and growth needs, and are supplied at the times and in the methods suited to the particular shed type that is in use.

The skills and knowledge required to supervise nutrition and feeding in an intensive production system must be transferable to a different work environment. For example, across a range of different livestock classes.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- control of common diseases and preventative measures including the placement of medications in feed
- growth and development in livestock
- feed delivery systems and equipment
- response to analysis of feed samples
- the organisations sampling requirements and techniques
- appropriate legislative requirements, manufacturers instructions and enterprise procedures/instructions
- silo operations and configuration, machinery and operating practices
- relevant State/Territory legislation, regulations and codes of practice with regard to workplace OHS, and the use and control of machinery and equipment
- cleaning and storage of machinery, equipment and materials
- enterprise recording and reporting procedures
- least-cost diet formulation.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- effectively discuss feed and nutritional content with nutritionist and managers
- identify a range of alternative available stockfeeds and suppliers
- interpret laboratory result data
- operate a range of feeding equipment
- assess adequacy of feed storage and distribution systems
- perform basic trouble shooting
- recognise and rectify minor operational faults
- read and interpret manufacturers specifications, work and maintenance plans, and Material Safety Data Sheets
- interpret and apply task instructions, communicate with work team and supervisor, and record and report faults, workplace hazards and accidents
- measure and calculate volumes, consumption and lubrication requirements
- complete the required records of feed use and livestock performance.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4117A

Unit Descriptor

Implement intensive production systems

This competency standard covers the process of preparing and organising resources for producing pigs or poultry. It includes managing the environment in which they are kept and ensuring that waste is disposed of in an appropriate and environmentally sensitive fashion.

Implementing and monitoring the pig or poultry production system is likely to be undertaken without supervision, with only general guidance. This unit includes the ability to liaise with staff, make judgements and to react effectively to that information be it related to production, husbandry or human issues.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Prepare for production operations | <p>1.1 Documents within the organisation that detail the requirements of the production program are identified and obtained.</p> <p>1.2 The resources required for the production operations are assessed and calculated from the product to be produced, the available timelines, the available resources, and the types of shed used.</p> <p>1.3 Measurable indicators, specifications and targets are determined, based on the production program and type of shed used.</p> <p>1.4 Discussions are held with operational personnel and immediate management to discuss the production program.</p> <p>1.5 Any approvals that are required for the operations are identified, sought and obtained.</p> |
| 2. Intensively produce livestock products | <p>2.1 People, materials and equipment required for the operations are co-ordinated, scheduled and regularly communicated with, according to the prepared plan and to ensure smooth operation and progress.</p> <p>2.2 OHS hazards are identified, assessed, and responsible action taken throughout the production operations.</p> <p>2.3 The procedures and tools to be used, the personal protective equipment to used/worn, the kind of records that are to be taken, and any potential hazards that might be faced are clearly communicated to operational personnel, and confirmation of the clear communication is sought.</p> <p>2.4 Any documentation that is required to be kept by either the organisation or OHS guidelines is completed clearly and accurately.</p> <p>2.5 Advice is given to operational staff and any contractors during the production operations when requested, or when the need is observed.</p> |

- | | |
|---|--|
| 3. Manage environment for livestock | 3.1 Herth/flock and shed conditions are regularly observed for signs of ill health and changes recorded and reported. |
| | 3.2 Dead livestock is examined for evidence of disease through correct post-mortem techniques in line with individual unit standard and veterinary advice. |
| | 3.3 Disease status of unit stock is assessed and evaluated, and serviceman or veterinary assistance notified when required. |
| | 3.4 Components of quarantine procedures are regularly checked for compliance. |
| | 3.5 Aspects of the internal environment are monitored and adjusted in line with the production program. |
| 4. Manage waste and environmental matters | 4.1 Effluent storage and disposal systems are operated according to production program and manufacturers instructions. |
| | 4.2 Volume and type of effluent is calculated, monitored and documented according to the requirements of the production program. |
| | 4.3 All rubbish and used consumables are removed from production site according to the requirements of the production program. |
| | 4.4 Environment maintenance program is ongoing through all seasons where this is required by the organisations management plan. |
| | 4.5 The regulatory and legislative requirements outlined in the production program are monitored and reported on as necessary. |
| 5. Monitor and adjust production operations | 5.1 Monitoring points outlined in the production plan are adhered to. |
| | 5.2 Checks are made to ensure that the OHS requirements are being observed and followed. |
| | 5.3 Checks are made to ensure that the site environmental requirements are being observed and followed. |
| | 5.4 Operational staff and any contractors are communicated with regularly to ensure smooth operation and progress. |
| | 5.5 Checks are made to ensure that the documentation required by the organisation or other regulating bodies, is completed clearly and accurately during the progress of the control operations. |
| | 5.6 Where any corrective action or amendment is required, the action is initiated and taken. |
| | 5.7 Documentation is collated and stored according to the requirements of the organisation. |
| | 5.8 Recommendations for subsequent production programs are prepared, based on the conduct of the operation, the data collected, and the discussions had during the operation. |
| | 5.9 Where it is required, a report on the production operations and throughput is made including the key aspects of the operation. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	In discussing responsibilities, targets and programs with staff, contractors and management.	2
Collecting analysing and organising information	In tracking, monitoring and analysing production figures and effluent output.	2
Planning and organising activities	In planning the organising of staff, contractors and resources to achieve specified goals and targets.	2
Working with others and in teams	In monitoring and achieving production targets.	2
Using mathematical ideas and techniques	In analysing and calculating spaces, volumes, targets and times.	2
Solving problems	In reviewing disparities between actual and achieved production rates.	2
Using technology	In operating any necessary equipment prior to, and during the planning and implementation of the system - communication technology, calculating equipment, measuring equipment, and word processing/spreadsheets software.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

How might information be documented?

Record keeping systems used may be either paper-based or digital, and information will be recorded into logbooks or other records.

What actions could be taken to eliminate or minimise OHS risk?

The range of actions are both systemic and at an operational level. These are listed below.

Systems should be in place to ensure the safe operation and maintenance of machinery and for the storage handling and transportation of hazardous substances. Precautions should also be in place to minimise exposure to noise and organic and other dusts.

Fixtures should be in place in all storage sheds, including appropriate access ladders, hand rails and ladder cages.

Personal protective equipment should be selected, used and maintained.

Environmental conditions should be controlled in order to provide optimal growing conditions.

Procedures should be in place and used for working on moving vehicles. Safe procedures and systems must be in place for safe livestock handling, preventing zoonotic infection (in particular leptospirosis), safe tattooing and branding of livestock, and safe handling procedures. Safe systems and procedures are necessary for storage, handling and transportation of hazardous substances.

Record keeping should ensure requirements in relation to properly observing and using product labels and Material Safety Data Sheets sheets, instruction manuals, and written organisational procedures.

What personal protective clothing and equipment may be relevant to this standard?

Boots, hat/hard hat, overalls, gloves, protective eyewear, hearing protection, respirator or face mask, and sun protection (sun hat, sun screen).

What organisation and regulatory requirements might impact on the production system?

All work should be performed in accordance with enterprise Standard Operating Procedures and with reference to the quality assurance manual. In addition, legislation and regulations covering OHS, animal health and welfare, environmental and waste management, staff and contractor engagement, and water use must be followed.

What conditions are to be considered for livestock?

Livestock density and space, feed space, air capacity, line speed, feed distribution times, and environmental conditions.

When would post mortems be carried out?

They will be carried out as a part of daily unit routines with samples and specialist assistance being called when non-routine symptoms are observed.

What is specific in regard to poultry flocks?	Where laying hens are under production, moulting may be induced to extend productive laying life using appropriate feed and lighting regimes, and is structured to reflect welfare codes of practice.
What common disease conditions may be readily identified?	In pigs, they are scours, mange, pneumonia, erysipelas, Glasser's disease, streptococcus suis and swine dysentery. In chickens and hens they may be fowl pox, Marek's disease, chronic respiratory disease and coccidiosis.
What are the components of the quarantine procedures?	They include perimeter fencing, rodent and wildlife control, visitor policy/showering/clothing, and the control of interactions with feed trucks/market.
What might aspects of the internal environment include?	Aspects such as humidity, light, temperature variations and air quality.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in implementing and monitoring intensive production systems requires evidence that environmentally sensitive effluent disposal systems are in place and being used properly, and that the maximum production output is being achieved while animals are being dealt with in a humane way.

The skills and knowledge required to implement and monitor intensive production systems must be transferable to a different work environment. For example, across the range of breeds and classes of livestock.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- common livestock diseases and clinical signs
- quarantine policies and herd/flock health status
- relevant industry, environmental and quality standards (inc ISO9002:1094)
- animal welfare codes of practice and procedures
- differences between a range of production systems
- types of sheds and production systems
- livestock husbandry and management practices
- environmental controls and codes of practice applicable to the enterprise
- relevant legislation and regulations relating to waste and environment management, animal health and welfare, and employment of staff and contractors
- relevant OHS legislation, regulations and codes of practice.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- calculate and predict effluent volumes and components to manage effluent sustainability
- perform routine hygiene maintenance activities
- observe, identify and react appropriately to environmental implications and OHS hazards
- establish processes/strategies, procedure and controls for livestock production
- interpret, analyse and extract information from such things as professional literature, organisation plans and programs, discussions and workshops
- calculate and analyse production outputs for unit and volume of effluent.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function, for example:

RTE4114A Plan and monitor intensive production systems

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4118A

Develop feeding plans for an intensive production system

Unit Descriptor

This competency standard covers the process of selecting the quantities of feed to be used, supervising the mixing process where this is to be done, and ensuring that livestock receive adequate food on a regular and timely basis. With completion of the work described in this unit, livestock receive correct diet, nutrition meets the needs of livestock, and optimum performance is maintained.

This standard is applicable to the production of livestock in an intensive production system and production of poultry in any production system..

Supervising nutrition and feeding is likely to be undertaken without supervision, with only general guidance. This unit depends upon the application of knowledge including dietary and nutritional requirements of differing livestock classes, and the range of methods of achieving them. It requires skills to assess ration performance from indicators such as weight gain, as well as communicating specific and detailed requirements to operators.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Select ingredients for feed | 1.1 Nutritional need of livestock is identified from information available and class of livestock.
1.2 Nutritional advice is sourced from the appropriate government, industry or organisational sources.
1.3 Ingredients are selected that provide for the identified nutritional need of livestock.
1.4 Suppliers of ingredients are selected on the basis of quality and cost of feed.
1.5 Quantities of individual ingredients are determined from the production program, in conjunction with advice from other available information and expert/supplier advice. |
| 2. Determine feed rations and schedules | 2.1 Quantities of feed required for livestock are determined from the production program, in conjunction with advice from other available information and expert advice.
2.2 The results of any available laboratory testing are taken into consideration when determining the quantities of each ingredient to be used.
2.3 Feeding is scheduled and responsibility for feeding allocated in line with the production program and other operations occurring within the shed.
2.4 Method(s) of providing feed to livestock is identified from production plan and confirmed with supplier of ingredients and other expert advice. |

3. Supervise mixing and storage of feed
 - 3.1 Secure and hygienic storage of feed and ingredients is organised to eliminate contamination and infestation.
 - 3.2 Storage location is selected to ensure safe access.
 - 3.3 Rotation of stock and replacements are organised to arrive at the appropriate time to ensure optimum freshness.
 - 3.4 **Mixing of feed** is organised to suit the needs of the livestock, the identified nutritional requirements and the equipment available within the organisation.
 - 3.5 **Samples of feed** are taken, packaged and labelled, and forwarded to the laboratory for testing according to the schedules described in the production program.
 - 3.6 Calibration of measuring equipment and calculation of quantities is supervised at regular intervals.
 - 3.7 Checks are made to ensure that suitable **personal protective equipment** is selected, used and maintained.
 - 3.8 **OHS** hazards are identified, assessed, and responsible action is taken throughout the preparation and feeding operations.
4. Supervise feeding
 - 4.1 Rations are supplied to the livestock according to the production program and schedules devised.
 - 4.2 Potable **water** is available continuously to the livestock..
 - 4.3 The health and wellbeing of the livestock is **monitored** and any **reaction** to a change in feed or schedules is noted and reported.
 - 4.4 Any change in production levels as a direct result of changes to feed types, ingredients or schedules is monitored and reported.
 - 4.5 Advice is given to operational staff during the feeding operation when requested, or when the need is observed.
 - 4.6 All waste materials and substances are removed from the site and stored, or disposed of responsibly.
 - 4.7 **Documentation** is collated and stored according to the requirements of the organisation.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicating with nutritionists and feed company personnel regarding formulations and nutrition.	2
Collecting analysing and organising information	In collecting and preparing feed samples for analysis.	2
Planning and organising activities	Planning and organising activities in the collection of feed samples.	2
Working with others and in teams	Working with teams and others in supervising workers to achieve desired outcomes.	2
Using mathematical ideas and techniques	Using mathematical ideas and techniques to analyse and interpret feed data.	2
Solving problems	In the case of suspected toxicities.	2
Using technology	By using augers, feed weighing equipment, feeding systems, communication equipment and calculating equipment.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What are the ingredients of a feed mix?	The mix might consist of prepared and formulated proprietary rations, whole grains, protein additives, and/or vitamins and minerals.
What does feed laboratory testing include?	Protein, fat, coccidiostat, calcium, phosphorous, trace elements, mycotoxins, medications and pathogens.
Will the feed always be mixed on-site?	Not necessarily. In some organisations it is more common to feed the livestock pre-prepared feed, with occasional additives, but in others there is a preference for feed measured and mixed on-site.
Why might samples of feed mix be sent for testing?	To ensure that the appropriate nutritional value is being delivered to the livestock. Such testing may also be a requirement of any Quality Assurance accreditation.

What personal protective equipment may be relevant to this standard?	Boots, hats/hard hat, overalls, gloves, protective eyewear, hearing protection, respirator or face mask, and sun protection (sun hat, sun screen).
What actions could be taken to eliminate or minimise OHS risk?	<p>The range of actions are both systematic and at an operational level. These are listed below:</p> <p><i>Systems</i> should be in place to ensure the safe operation and maintenance of machinery and equipment, including hydraulics and guarding of exposed moving parts, and including pumps, impellers and aeration equipment. Precautions should also be in place to minimise exposure to noise and organics and other dusts. Systems and procedures for harvesting and handling livestock, as well as working with and around electricity should also be in place.</p> <p><i>Fixtures</i> should be in place in all storage sheds, including appropriate access ladders, hand rails and ladder cages.</p> <p><i>Personal protective equipment</i> should be selected, used and maintained.</p> <p><i>Environmental</i> conditions should be controlled. For example, keeping moisture levels as low as possible will reduce the likelihood of fire. Safe systems should also be in place for storage, handling and transportation of hazardous substances including flammable and toxic gases.</p> <p><i>Procedures</i> should be in place for safe handling systems, especially when handling bags, together with those for handling and storage of grain (particularly feed systems and accessing silos). Selection, use and procedures are also necessary for outdoor work, including protection from solar radiation. Safety procedures associated with working with silos, mixing, milling and pelleting machinery.</p>
What will be monitored during water supply checks?	Quantity, freshness, salinity levels, temperature and pathogens.
What will be monitored during feed checks?	Feed checks need to ensure the livestock are fed the correct diets and amounts at the right time and with minimum wastage, and that feed is clean and accessible.
What would livestock reaction to feed include?	Development of wet faeces, feed time increases, body weight gain/drops, mortality increases, or whole grains seen in faeces.
How might information be documented?	Recordkeeping systems used may be either paper-based or digital, and information will be recorded into logbooks or other records.

What actions will require documentation?

All chemical usage should be recorded, as well as any necessary recording of vehicle and equipment use in logbooks, for example. Additionally, any assessment of pests and weeds, quality, module weights, breakdowns and yield should be recorded appropriately.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in supervising nutrition and feeding in an intensive production system requires evidence that the ingredients selected for feeding the livestock are appropriate for their health and growth needs, and are supplied at the times and in the methods suited to the particular shed type that is in use.

The skills and knowledge required to supervise nutrition and feeding in an intensive production system must be transferable to a different work environment. For example, across a range of different livestock classes.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- control of common diseases and preventative measures including the placement of medications in feed
- growth and development in livestock
- milling systems
- response to analysis of feed samples
- the organisations sampling requirements and techniques
- appropriate legislative requirements, manufacturers instructions and enterprise procedures/instructions
- silo operations and configuration, machinery and operating practices
- relevant State/Territory legislation, regulations and codes of practice with regard to workplace OHS, and the use and control of machinery and equipment
- cleaning and storage of machinery, equipment and materials
- enterprise recording and reporting procedures
- seasonal ingredient variations.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- effectively discuss feed and nutritional content with nutritionist and managers
- identify a range of raw ingredients
- interpret laboratory result data
- operate a range of feeding equipment
- assess adequacy of feed storage and distribution systems
- perform basic trouble shooting
- recognise and rectify minor operational faults
- read and interpret manufacturers specifications, work and maintenance plans, and Material Safety Data Sheets
- interpret and apply task instructions, communicate with work team and supervisor, and record and report faults, workplace hazards and accidents
- measure and calculate volumes, consumption and lubrication requirements
- complete the required records of feed use and livestock performance.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4119A

Unit Descriptor

Supervise animal health programs

This competency standard covers the functions required to supervise animal health programs.

It requires the application of skills and knowledge to observe animal health status, administer medications and conduct post-mortems. The work in this standard is likely to be carried out independently within own area of responsibility within enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Monitor and assess animal health | 1.1 Regular observations are taken to assess animals health according to the requirements of the organisation.
1.2 Symptoms of ill health and common diseases or parasite infestations are recognised and reported.
1.3 Animal health status is recorded in accordance with enterprise requirements .
1.4 OHS hazards are identified, risk assessed and suitable controls implemented.
1.5 Suitable personal protective clothing and equipment is selected, used and maintained.
1.6 Animal welfare status is recorded in accordance with enterprise and legislative requirements. |
| 2. Administer medication to animals | 2.1 Medications and veterinary chemicals appropriate to the operation are stored and labelled in controlled or refrigerated conditions.
2.2 Killed and live vaccines are stored separately to maintain maximum efficiency of the product.
2.3 Routine prevention procedures for disease or parasite infestation are safely carried out.
2.4 Quantities of medication are accurately measured for administration according to clear organisation instruction and manufacturers instructions.
2.5 Vaccination is carried out under instruction as required according to organisation procedures.
2.6 Vaccinated and non-vaccinated animals are identified in shed records. |
| 3. Conduct post mortem examination of deceased animals | 3.1 Tools and equipment for post-mortems are prepared.
3.2 Deceased animals are dissected for inspection.
3.3 Tissue, organ and/or blood samples are collected and prepared for analysis.
3.4 Samples are prepared and forwarded for analysis where necessary.
3.5 Observations are recorded according to organisational procedures.
3.6 Deceased animals are disposed of according to organisational and environmental policies. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Information with regard to the scheduling of animal health operations may be communicated to other property personnel.	2
Collecting analysing and organising information	Details of animals' health, including details of administered treatments may be detailed and organised by reports for future reference.	2
Planning and organising activities	Arrangements for the delivery of equipment, materials and health treatments may be planned and organised with the marking team.	2
Working with others and in teams	In the application of methods and procedures to complete marking operations within timeframes and deadlines.	2
Using mathematical ideas and techniques	Mathematical techniques may be used to calculate volume and percentages.	2
Solving problems	Problems of animals' health may be resolved with appropriate settling time post-treatment prior to movement.	2
Using technology	Technology may be used to source and communicate information.	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work contexts.

What animals may be relevant to this standard?	This may include sheep, goats, pigs, horses, poultry, and beef and dairy cattle.
What practices can influence diseases?	Disease may be influenced by management practices such as hygiene control and status, and control strategies can vary between organisations.
What enterprise requirements may be applicable to this standard?	SOP, industry standards, production schedules, Material Safety Data Sheets, work notes and plans, product labels, manufacturers specifications, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), and reporting procedures.

What OHS requirements may be relevant to this standard?

Safe systems and procedures for:

- animal handling systems and procedure including zoonoses control
- manual handling including lifting and carrying
- outdoor work, including protection from solar radiation
- the use and handling of veterinary chemicals
- the use of personal protective equipment.

What personal protective clothing and equipment may be relevant to this standard?

Boots, hats/hard hat, overalls, gloves, protective eyewear, hearing protection, respirator or face mask, and sun protection (sun hat, sunscreen).

What forms may vaccination include?

Vaccination is carried out by several methods depending on the disease, including injection, water, spraying and stabbing.

How must vaccines be stored?

Vaccine types change and have critical storage requirements if potency is to be assured. In addition, it should be noted that vaccine schedules are critical in preventing uncontrolled outbreaks.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in this standard requires evidence of the ability to co-ordinate staff, equipment and resources to supervise animal health programs within budgetary constraints. It also requires the ability to determine animals health issues, prepare and implement a work plan, maintain effective communication strategies including the conduct of detailed staff briefings with regard to tasks and safety issues, monitor the health and well-being of animals, and maintain accurate data records. Evidence must be demonstrated in the implementation of safe workplace and positive environmental practices.

The skills and knowledge required to mark animals must be transferable to a different work environment. For example this may include different health issues for different types, breeds or age groups of animals within an enterprise.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- storage conditions for a range of chemicals including veterinary chemicals
- the types of vaccines and how they work
- zoonotic diseases and mode of transmission
- animal anatomy and physiology for post-mortems, and the collection of tissue, organ and blood samples
- environmental controls and codes of practice applicable to the organisation including biosecurity
- sound management practices and processes to minimise noise, odours, and debris from the livestock operations
- relevant legislation and regulations relating to waste and environment management, and animal health
- relevant OHS legislation, regulations and codes of practice.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- detect possibility of disease through parameters such as behaviour or length of time required to eat food
- recognise clinical symptoms (normal vs. abnormal)
- recognise abnormal physiological and behavioural signs in livestock
- undertake post-mortems and collect tissue, organ and blood samples
- administer vaccines and medications to animals
- recognise abnormal behavioural signs
- maintain accurate data documentation
- interpret and apply task instructions, communicate with work team and supervisor, and record and report faults, workplace hazards and accidents
- communicate effectively with staff, contractors and suppliers
- document and prepare written plans and reports for the understanding of staff and management.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4120A**Implement and monitor animal welfare programs****Unit Descriptor**

This competency standard covers the process of implementing and monitoring animal welfare programs within a livestock production enterprise. It requires the ability to provide information to the work group about animal welfare, facilitate the participation of workers in complying with animal welfare guidelines, implement and monitor enterprise programs for animal welfare, dealing with animal welfare emergencies and maintain animal welfare records. Implementing and monitoring the enterprise animal welfare program requires knowledge of animal welfare issues in the industry, relevant animal welfare legislation and codes of practice, and enterprise and industry animal welfare procedures and practices.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|---|
| 1. Provide information about animal welfare | 1.1 Relevant provisions of animal welfare legislation and codes of practice are accurately and clearly explained to the work group.
1.2 Information on enterprise animal welfare policies, procedures and programs is provided in a readily accessible manner and is accurately and clearly explained to the work group.
1.3 Information about identified animal welfare requirements is regularly provided and is accurately and clearly explained to the work group. |
| 2. Facilitate the participation of workers in animal welfare compliance | 2.1 Enterprise procedures for compliance on animal welfare issues are implemented and monitored.
2.2 Procedures whereby workers report animal welfare hazards , risks and action taken to control risks, are clearly described to the work group.
2.3 Issues raised on animal welfare are dealt with and resolved promptly or referred to the appropriate personnel for resolution in accordance with workplace procedures. |
| 3. Implement and monitor enterprise animal welfare procedures | 3.1 Existing and potential hazards to animal welfare which are identified are reported so that effective remedial measures are implemented.
3.2 Work procedures to control animal welfare risks are implemented by the work group and regular monitoring occurs to ensure ongoing adherence and effectiveness of animal practices.
3.3 Inadequacies in allocation of resources to ensure animal welfare are identified and reported to management. |

- | | |
|---|--|
| 4. Implement workplace procedures for dealing with animal welfare emergencies | 4.1 Workplace procedures for dealing with animal welfare emergencies are implemented where necessary to ensure that prompt and effective control action is taken.
4.2 Animal welfare emergencies are reported in accordance with established enterprise procedures.
4.3 Measures to prevent recurrence and minimise risk of animal welfare emergencies are implemented. |
| 5. Implement and monitor enterprise procedures for providing animal welfare training | 5.1 Animal welfare induction and training needs are identified accurately.
5.2 Arrangements are made for meeting identified animal welfare training needs in both on and off-the-job training programs in consultation with relevant parties. |
| 6. Implement and monitor enterprise procedures for maintaining animal welfare records | 6.1 Animal welfare records for work area are accurately and legibly completed in accordance with workplace and legislative requirements for record keeping.
6.2 Aggregate information from animal welfare records is used to identify potential hazards to animal welfare and monitor compliance procedures within work area according to enterprise procedures and within scope of responsibilities. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Provide regular updates on animal welfare compliance.	2
Collecting analysing and organising information	With completion of records in the workplace, implementing relevant animal welfare procedures, and providing accessible information on enterprise animal welfare policies, procedures and programs.	2
Planning and organising activities	By organising meetings to provide updates and provide information on animal welfare to staff.	2
Working with others and in teams	By consulting with staff on animal welfare compliance issues.	2
Using mathematical ideas and techniques	By collecting and recording animal welfare related data/statistics.	2
Solving problems	By determining best possible options to address animal welfare problems as they arise.	2
Using technology	By using word processor/email for communications.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

Which animal welfare requirements may be relevant to this unit?

Animal welfare requirements can include:

- housing and accommodation for livestock
- space allowances and/or stocking densities
- equipment including feeders and waterers, environmental control equipment and back-up systems and alarms in case of equipment failure.
- lighting
- ventilation including fresh air, dust filters, humidity, and noxious gases.
- temperature including cooling and heating, extreme weather conditions
- protection from predators, vermin, fires and floods.
- food with diet containing adequate nutrients
- water including sufficient drinkable water to meet livestock physiological requirements, provision of cool water in summer and checking it is not contaminated or deleterious to health.
- monitoring for signs of ill health or distress, such as reduced food and water intake, reduced production, changes in the nature and level of their activity, abnormal condition or changed physical features or behaviour
- transport of growing and adult livestock
- procedures for the humane destruction of livestock
- proper animal handling techniques.

What hazards may be relevant to this competency standard?

These may include:

- physical hazards where foreign objects are present in animals
- chemical hazards resulting from residues such as antibiotics, pesticides, alkaloids and other substances used in animal production
- biological hazards where contamination from other animals (eg mice, rats, cats), poor housing/transport conditions and dirty water affects animal health and food quality
- animal health hazards resulting from poor handling of animals, unhealthy or diseased animals, extreme weather conditions, poor loading and transport conditions, and time off feed.

What may be included to implement and monitor enterprise procedures?

Supervision of the application of animal welfare principles and compliance with relevant legislation and codes of practice in each state, regular inspections, training records, record analysis including the duties and responsibilities of all parties.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in implementing and monitoring the enterprise animal welfare program requires evidence that knowledge and skills has been applied in the implementation and monitoring of an enterprises animal welfare program as set out in the element and performance criteria of this competency standard and according to enterprise guidelines and relevant acts. The skills and knowledge required to implement and monitor the enterprise animal welfare program must be transferable to a range of work environments and contexts. For example, this could include different workplaces, work teams, livestock types/classes and production systems.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- animal health and welfare requirements, practices and procedures.
- animal physiology.
- relevant animal welfare legislation and codes of practice.
- industry animal health requirements
- animal production processes
- enterprise policies, guidelines and standard operating procedures relating to animal welfare.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- provide information to the work group about animal welfare.
- facilitate the participation of workers in animal welfare compliance
- implement and monitor enterprise animal welfare procedures
- implement workplace procedures for dealing with animal welfare emergencies
- implement and monitor enterprise procedures for providing animal welfare training
- implement and monitor enterprise procedures for maintaining animal welfare records.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4123A**Use individual fleece measurements to prepare wool for sale****Unit Descriptor**

This competency standard covers the process of using individual fleece measurements to prepare wool for sale in accordance with the enterprise classing strategy and marketing plan. It requires the ability to arrange wool room layout, co-ordinate staff, analyse test measurement data, appraise wool, class wool to required standards, and to set and maintain wool lines throughout the classing process.

Using individual fleece measurements to prepare wool for sale requires knowledge of wool characteristics, wool measurement criteria and the principles of classing.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|--|---|
| 1. Gather objectively measured data. | 1.1 Available information is collated.
1.2 Tested sample is assessed to determine its appropriateness as a representative sample.
1.3 Requirements for additional information needed to validate measurements are determined. |
| 2. Analyse collected data | 2.1 Available data is reviewed and evaluated to determine possible lines.
2.2 Comparisons with previous measurements if available are undertaken. |
| 3. Analyse market trends | 3.1 Information produced by industry to determine market trends is reviewed.
3.2 Potential for movement in prices is evaluated against available data.
3.3 Extent to which discounts are applied is determined. |
| 4. Prepare wool to meet requirements of the market | 4.1 The impact on the market of variable quantities is analysed.
4.2 Available information is used to prepare the wool to best advantage.
4.3 Wool is packaged in the most appropriate manner. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through communication of test results and enterprise classing strategy requirements with the owner/manager/testing personnel and wool handling staff.	3
Collecting analysing and organising information	Through gathering and analysing the test results and implementing the enterprise classing strategy in accordance with the marketing plan.	3
Planning and organising activities	According to the enterprise classing strategy to ensure efficient flow of wool and to maximise the quality of product outcome.	3
Working with others and in teams	Through working with, and communicating with, all others at the work site to ensure efficiency of work flow.	3
Using mathematical ideas and techniques	Through analysing test results in planning for classing, setting line breaks, and in planning line sizes for optimum marketing.	3
Solving problems	Through determining and sorting wool lines; co-ordinating staff and product movement; and efficiently preparing marketing documentation and statistical results for the wool owner.	3
Using technology	Through understanding the operation of testing equipment and the available testing methods; and dissemination of test results to maximise wool preparation.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What objectively measured data may be gathered?	Individual fleece measurements for fibre diameter, including average micron, standard deviation and co-efficient of variation, yield and tensile strength, as may be available depending on the measurement equipment and methods used.
What available information should be sourced?	Historical clip preparation test and sale results data and information on the management and wool growth of the flock for the past 12 months may be collected.

What lines may be relevant to this competency standard?

Individual fleece lines according to predetermined micron groupings, tensile strength, staple length and any other identified faults. May be extended to lines of skirtings.

What packaging may be covered by this standard?

Use of industry approved wool packs as a minimum standard, or other approved packaging as required by the enterprise marketing plan.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in using individual fleece measurements to prepare wool for sale requires evidence that the fleece measurement criteria and the enterprise classing strategy have been successfully and appropriately implemented and monitored in the workplace. The skills and knowledge required to use individual fleece measurements to prepare wool for sale must be transferable to a range of work environments and contexts. For example, this could include a range of different wool types wool room layouts and testing equipment and methods.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- wool room layouts which promote efficient wool flow and handling
- breeds of sheep
- inherent wool characteristics , including fibre diameter, staple length and strength, colour, yield, VM type, curvature, comfort factor
- fleece measurement criteria - techniques used to measure wool characteristics.
- interpretation of test results
- principles of classing , including mob/flock concept, variability for fibre diameter and staple length, soundness, defects
- classing scenarios requiring detail of clip break-ups
- clip analysis reports and comparisons.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- arrange wool room layout for efficient operation
- understand and interpret the individual fleece measurements
- class wool to standards in accordance with the Code of Practice, or as required by the enterprise classing strategy and marketing plan
- communicate specific and detailed requirements for wool preparation and classing to wool handling staff
- identify wool of higher and lower market value and make lines which maximise return to woolgrower.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4124A

Unit Descriptor

Pregnancy test animals

This competency standard covers the functions involved in manually testing animals for pregnancy. Competency in this standard includes the assessment of several manually-determined key indicators of pregnancy in animals. Inherent in that competence is a range of underpinning knowledge and skills and an analytical approach to examining a range of factors rather than a single piece of evidence in diagnosing pregnancy. Pregnancy testing may be used as a diagnostic tool as an integral part of a breeding program or where there is a need to accurately establish pregnancy or absence of pregnancy for other purposes such as culling, drying off or prior to the live export of animals.

Work is likely to be under general guidance. Responsibility for some roles and supervision of a team may be required.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Prepare for pregnancy diagnosis procedures | 1.1 Pregnancy testing preparations including the preparation of relevant documentation are completed according to organisation requirements and procedures .
1.2 Animals are mustered, yarded and safely restrained in line with organisation policy.
1.3 Animals to be tested are drafted according to breeding or management program requirements.
1.4 Physical and human resources for pregnancy testing are assembled according to organisation policy. |
| 2. Arrange support for pregnancy testing procedures | 2.1 Pregnancy testing supplies and equipment are assembled for the pregnancy testers use.
2.2 Individual animals are separated and restrained for veterinary treatment or examination.
2.3 All handling and testing of animals is undertaken with strict adherence to the Code of Animal Welfare.
2.4 Records of pregnancy testing operations are completed in line with established procedures and outcomes reported to management as required. |

3. Carry out manual pregnancy diagnosis procedures
 - 3.1 Individual animals are humanely **restrained** for testing and individual breeding records checked.
 - 3.2 **Personal protective equipment**, including appropriate hand protection, is fitted and used according to organisation policy.
 - 3.3 While working with animals, **occupational health & safety hazards** are continually identified, risks assessed and suitable controls implemented.
 - 3.4 Rectal area of animal is cleaned as required prior to examination.
 - 3.5 Rectal examination/palpation is humanely carried out to establish pregnancy or non-pregnancy from a range of **key indicators**.
 - 3.6 Strict hygiene procedures are implemented between individual animals in line with organisation and industry requirements.
 - 3.7 Records are kept and outcomes reported according to organisation requirements.
 - 3.8 Other indicators of animal health are observed and noted for input to **herd health management**.
4. Carry out post pregnancy testing clean up procedures
 - 4.1 Animals diagnosed as pregnant or not pregnant are accurately identified according to the requirements of the organisation.
 - 4.2 All animals are consigned to their destination or returned to paddocks/pens in line with organisation needs.
 - 4.3 Debris and veterinary medicine containers from pregnancy testing operations are disposed of in full consideration of environmental considerations and controls.
 - 4.4 Regular monitoring of animals post testing is carried out to ensure that no **evidence of physical damage** or injury is evident.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	In communicating with veterinarians, fellow employees, and supervisor.	2
Collecting analysing and organising information	In recognising key indicators for pregnancy diagnosis from manually collected evidence and other information.	2
Planning and organising activities	In organising pregnancy diagnosis operations and procedures.	2
Working with others and in teams	When interacting and working safely with producers, veterinarians and other staff.	1
Using mathematical ideas and techniques	When calculating stages of parturition as well as generating reports and information.	1
Solving problems	When dealing with lack of evidence, difficult conditions or unruly animals.	1
Using technology	In calculating and communicating results.	1

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What documentation is required for pregnancy testing?

The documentation prepared for pregnancy testing may include identification of the estimated stage of pregnancy, including the assembly of relevant breeding records.

What animals are covered by this unit?

Animals covered by this process include cattle, sheep, goats, and horse. This standard does not cover testing of pigs.

What organisation work procedures may apply to this standard?

Work procedures will be based on sound agricultural principles and practices and may include supervisors oral or written instructions, animal production program, organisation standard operating procedures, notes, product labels and Material Safety Data Sheets, manufacturers service specifications and operators manuals, waste disposal, recycling and reuse guidelines, and occupational health & safety procedures.

What information might be recorded and reported?	Dates, times and periods of observations, chemicals and other substances used, including quantities and methods, and readings from temperature gauges.
How may animals be restrained?	By such restraints as a mating crush, headstalls or halters.
What personal protective equipment may be relevant to this standard?	This may include boots, hats/hard hat, overalls, gloves, protective eyewear, hearing protections, respirator or face mask, sun protection (sun hat, sun screen), and specialised gloves for conducting large animal examinations.
What actions could be taken to eliminate or minimise the occupational health and safety risk?	<p>All working routines for animals must be carried out in line with the provisions of the Workplace Health and Safety Acts and relevant animal Codes of Welfare. Actions to eliminate or minimise OHS risk should include:</p> <ul style="list-style-type: none">• relevant occupational health and safety hazards identification, risk assessment and risk control measures• safe operating procedures• safe manual handling systems and procedures• safe systems and procedures for outdoor work, including protection from solar radiation• selection, use and maintenance of relevant personal protective equipment.
What are the key indicators of pregnancy?	<p>Key indicators of pregnancy include:</p> <ul style="list-style-type: none">• "bounce" (indicating foetal fluid) in one or both uterine horns• the presence of cotyledons - size/number/shape (indicating the state of pregnancy)• femoral arteries - providing an indication of the stage of foetal development from "pulsing" or "buzzing" and their relative diameter• presence of a developed foetus.
What input to herd health management could be derived from pregnancy testing?	Pregnancy diagnosis may include the identification of unsuccessful matings, for herd nutritional planning and herd management planning.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in testing animals for pregnancy requires evidence that pregnancy is detected through several manually determined key indicators.

The skills and knowledge required to identify pregnancy in animals must be transferable to a different work environment, for example, across a range of animal breeds.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- the physiology of reproduction of the animal
- the stages of parturition in animals
- basic animal reproductive physiology
- animal reproductive systems
- animal embryological development
- relevant zoonoses
- recording and reporting systems used in conjunction with pregnancy diagnosis and animal breeding programs.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- provide empathic care for animals during husbandry operations
- report clearly, accurately and in a timely fashion on the health and welfare of the animals
- accept advice and instruction
- work effectively and safely to accurately carry out manual pregnancy diagnosis with safety and nil damage to animals or personnel.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4125A

Supervise nutrition and feeding in an intensive production system

Unit Descriptor

This competency standard covers the process of selecting the quantities of feed to be used, supervising the mixing process where this is to be done, and ensuring that livestock receive adequate food on a regular and timely basis. With completion of the work described in this unit, livestock receive correct diet, nutrition meets the needs of livestock, and optimum performance is maintained.

This standard is applicable to the production of both pigs and poultry in all production systems.

Supervising nutrition and feeding is likely to be undertaken without supervision, with only general guidance. This unit depends upon the application of knowledge including dietary and nutritional requirements of differing livestock classes, and the range of methods of achieving them. It requires skills to assess ration performance from indicators such as weight gain, as well as communicating specific and detailed requirements to operators.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Select ingredients for feed | 1.1 Nutritional needs of livestock is identified from information available and class of livestock.
1.2 Nutritional advice is sourced from the appropriate government, industry or organisational sources.
1.3 Ingredients are selected that provide for the identified nutritional need of livestock.
1.4 Suppliers of ingredients are selected on the basis of quality and cost of feed.
1.5 Quantities of individual ingredients are determined from the production program, in conjunction with advice from other available information and expert/supplier advice. |
| 2. Determine feed rations and schedules | 2.1 Quantities of feed required for livestock are determined from the production program, in conjunction with advice from other available information and expert advice.
2.2 The results of any available laboratory testing are taken into consideration when determining the quantities of each ingredient to be used.
2.3 Feeding is scheduled and responsibility for feeding allocated in line with the production program and other operations occurring within the shed.
2.4 Method(s) of providing feed to livestock is identified from production plan and confirmed with supplier of ingredients and other expert advice. |

- 3. Supervise mixing and storage of feed
 - 3.1 Secure and hygienic storage of feed and ingredients is organised to eliminate contamination and infestation.
 - 3.2 Storage location is selected to ensure safe access.
 - 3.3 Rotation of stock and replacements are organised to arrive at the appropriate time to ensure optimum freshness.
 - 3.4 **Mixing of feed** is organised to suit the needs of the livestock, the identified nutritional requirements, and the equipment available within the organisation.
 - 3.5 **Samples of feed** are taken, packaged, labelled, and forwarded to the laboratory for testing according to the schedules described in the production program.
 - 3.6 Calibration of measuring equipment and calculation of quantities is supervised at regular intervals.
 - 3.7 Checks are made to ensure that suitable **personal protective equipment** is selected, used and maintained.
 - 3.8 **OHS** hazards are identified, assessed, and responsible action is taken throughout the preparation and feeding operations.
- 4. Supervise feeding
 - 4.1 Rations are supplied to the livestock according to the production program and schedules devised.
 - 4.2 Potable **water** is available continuously to the livestock and is kept free of contamination.
 - 4.3 The health and wellbeing of the livestock is **monitored** and any **reaction** to a change in feed or schedules is noted and reported.
 - 4.4 Any change in production levels as a direct result of changes to feed types, ingredients or schedules is monitored and reported.
 - 4.5 Advice is given to operational staff during the feeding operation when requested, or when the need is observed.
 - 4.6 All waste materials and substances are removed from the site and stored, or disposed of responsibly.
 - 4.7 **Documentation** is collated and stored according to the requirements of the organisation.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicating with nutritionists and feed company personnel regarding formulations and nutrition.	2
Collecting analysing and organising information	In collecting and preparing feed samples for analysis.	2
Planning and organising activities	Planning and organising activities in the collection of feed samples.	2
Working with others and in teams	Working with teams and others in supervising workers to achieve desired outcomes.	2
Using mathematical ideas and techniques	Using mathematical ideas and techniques to analyse and interpret feed data.	2
Solving problems	In the case of suspected toxicities.	2
Using technology	By using augers, feed weighing equipment, feeding systems, communication equipment and calculating equipment.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What are the ingredients of a feed mix?	The mix might consist of prepared and formulated proprietary rations, whole grains, protein additives, and/or vitamins and minerals.
What does feed laboratory testing include?	Protein, fat, coccidiostat, calcium, phosphorous, trace elements, mycotoxins and medications.
Will the feed always be mixed on-site?	Not necessarily. In some organisations it is more common to feed the livestock pre-prepared feed, with occasional additives, but in others there is a preference for feed measured and mixed on-site.
Why might samples of feed mix be sent for testing?	To ensure that the appropriate nutritional value is being delivered to the livestock. Such testing may also be a requirement of any Quality Assurance accreditation.

What personal protective equipment may be relevant to this standard?	Boots, hats/hard hat, overalls, gloves, protective eyewear, hearing protection, respirator or face mask, and sun protection (sun hat, sun screen).
What actions could be taken to eliminate or minimise OHS risk?	<p>The range of actions are both systematic and at an operational level. These are listed below.</p> <p><i>Systems</i> should be in place to ensure the safe operation and maintenance of machinery and equipment, including hydraulics and guarding of exposed moving parts, including pumps, impellers and aeration equipment. Precautions should also be in place to minimise exposure to noise and organics and other dusts. Systems and procedures for harvesting and handling livestock, as well as working with and around electricity, should also be in place.</p> <p><i>Fixtures</i> should be in place in all storage sheds, including appropriate access ladders, hand rails and ladder cages.</p> <p><i>Personal protective equipment</i> should be selected, used and maintained.</p> <p><i>Environmental</i> conditions should be controlled. For example, keeping moisture levels as low as possible will reduce the likelihood of fire. Safe systems should also be in place for storage, handling and transportation of hazardous substances, including flammable and toxic gases.</p> <p><i>Procedures</i> should be in place for safe handling systems, especially when handling bags, together with those for handling and storage of grain (particularly feed systems and accessing silos). Selection, use and procedures are also necessary for outdoor work, including protection from solar radiation. Safety procedures associated with working with silos, mixing, milling and pelleting machinery.</p>
What may be monitored during water supply checks?	Quantity, freshness, salinity levels, temperature and pathogens.
What will be monitored during feed checks?	Feed checks need to ensure the livestock are fed the correct diets and amounts at the right time, with minimum wastage, and that feed is clean and accessible.
What would livestock reaction to feed include?	Development of wet faeces, feed time increases, body weight gain/drops, mortality increases, or whole grains seen in faeces.
How might information be documented?	Record keeping systems used may be either paper-based or digital, and information will be recorded into logbooks or other records.

What actions will require documentation?

All chemical usage should be recorded, as well as any necessary recording of vehicle and equipment use in logbooks, for example. Additionally, any assessment of pests and weeds, quality, module weights, breakdowns and yield should be recorded appropriately.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in supervising nutrition and feeding in an intensive production system requires evidence that the ingredients selected for feeding the livestock are appropriate for their health and growth needs, and are supplied at the times and in the methods suited to the particular shed type that is in use.

The skills and knowledge required to supervise nutrition and feeding in an intensive production system must be transferable to a different work environment. For example, across a range of different livestock classes.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- control of common diseases and preventative measures including the placement of medications in feed
- growth and development in livestock
- milling systems
- response to analysis of feed samples
- the organisations sampling requirements and techniques
- appropriate legislative requirements, manufacturers instructions and enterprise procedures/instructions
- silo operations and configuration, machinery and operating practices
- relevant State/Territory legislation, regulations and codes of practice with regard to workplace OHS, and the use and control of machinery and equipment
- cleaning and storage of machinery, equipment and materials
- enterprise recording and reporting procedures
- seasonal ingredient variations.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- effectively discuss feed and nutritional content with nutritionist and managers
- identify a range of raw ingredients
- interpret laboratory result data
- operate a range of feeding equipment
- assess adequacy of feed storage and distribution systems
- perform basic trouble shooting
- recognise and rectify minor operational faults
- read and interpret manufacturers specifications, work and maintenance plans, and Material Safety Data Sheets
- interpret and apply task instructions, communicate with work team and supervisor, and record and report faults, workplace hazards and accidents
- measure and calculate volumes, consumption and lubrication requirements
- complete the required records of feed use and livestock performance.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4127A

Unit Descriptor

Class wool for special markets

This competency standard covers the process of classing wool for special markets using industry descriptions to meet the requirements of the national quality system, and industry code of practice as a minimum. It requires the ability to arrange layout of bins, equipment and co-ordinate staff, label bins and containers, check wool to ensure freedom from contamination and stain and adequate skirting, assess pigmented wool risk, appraise wool characteristics, class wool to required standards and identify wool of higher and lower market value, and set and maintain lines throughout the classing process. Classing wool requires knowledge of shed layouts, breeds of sheep, wool production areas, wool characteristics, wool measurement criteria, processing methods and principles of classing.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

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|---|--|
| 1. Prepare for classing of designated wool. | 1.1 The layout of the shed, equipment and facilities are arranged according to the determined classing strategy, enterprise requirements, and for efficient wool flow, product quality management and pressing.
1.2 All personal protective equipment and other safety requirements are selected, used and maintained according to instruction and OHS guidelines.
1.3 Bins and containers are placed correctly and clearly labelled according to the classing strategy for the designated special procedures, and the enterprise quality management system.
1.4 Ensure optimum staffing ratio is established and maintained. |
| 2. Carry out classing of designated wool | 2.1 Any bending and lifting that is required is done according to safe working practices and using the available safety equipment.
2.2 Clip is prepared to the standards outlined in the classing strategy.
2.3 Wool is checked to ensure freedom from contamination and stain.
2.4 Wool is checked to ensure adequate and optimum skirting is maintained.
2.5 Pigmented fibre risk is assessed and wool is kept separate as required.
2.6 Wool is appraised for its characteristics.
2.7 Fleece measurement data is assessed and wool separated as required.
2.8 Wool is classed (separated and branded) to standards in accordance to code of practice as a minimum, or as required by the enterprise for the alternative selling methods.
2.9 Wool of higher and lower market value is identified and lines made which maximise return to wool owner. |

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|-------------------------------|--|
| 3. Dispose of designated wool | 3.1 Wool is placed in the correct bins ready for pressing.
3.2 Requirements for pressing, in accordance with the classing strategy, are communicated to the wool presser and monitored.
3.3 All documentation required by the designated wool preparation procedures and alternative selling method is accurately completed.
3.4 Any bending and lifting that is required is done according to safe working practices and using the available safety equipment. |
|-------------------------------|--|

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	With owner/manager/client/supervisor and team (team may include all others at site performing the role of wool preparation or wool harvesting).	2
Collecting analysing and organising information	By receiving, interpreting and following instructions, and determining preparation procedures.	2
Planning and organising activities	To ensure an efficient optimum flow of work and product to maximise the quality of product outcome.	2
Working with others and in teams	In working (communicating) with all others at the work site to ensure an optimum for efficiency of flow of work and product.	2
Using mathematical ideas and techniques	In analysing wool, utilising historical data when planning for classing, pressing and setting line breaks, and in planning flow rates, completion times and line sizes for optimum marketing determination.	2
Solving problems	In sorting wool into lines, negotiating stock presentation to shed, co-ordinating staff and product movement and storage, maximising available materials usage efficiency, and preparing marketing documentation and statistical results for wool owner.	2
Using technology	By using and calibrating measuring devices. Understanding available testing and processing methods and dissemination of results to maximise line and wool preparation, and testing and marketing methods and standards.	1

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

Equipment that might be required for the wool classing process.	Classing tables, brooms and/or wool bats and paddles, lights, calibrated devices, documentation, woolpacks/bags, bale clips, wool hooks, wool bins and wool press may be used during the process. Use of laser or OFTA fleece measuring equipment and/or data may also be required.
What personal protective equipment may be required?	Boots, overalls or protective aprons, gloves, protective eyewear and hearing protection.
What OHS requirements may be applicable to this standard?	<p>Safe systems and procedures for:</p> <ul style="list-style-type: none"> the operation and maintenance of hazard-free facilities and equipment safe manual handling, including lifting and carrying, staff and product flow pathways protection from electrical hazards, hazardous noise and organic and other dusts including spray drift and internal combustion engine fumes appropriate use of personal protective equipment and clothing. <p>Consideration of OHS issues for this standard may also include consideration of any national codes of practice in the industry.</p>
What wool may be included in the clip?	The clip may include fleece, pieces, bellies, locks, crutchings, shanks, topknots, stains, dags, backs, jowls or breeches.
What designated wool may be covered by this standard?	Designated wool includes wool for special markets such as indoor, ultrafine and superfine merino, and carpet wool: wool as identified by characteristics such as SRS? type wool, and Tasmanian Quality Wool.
Contamination to be identified and managed when classing wool for special markets	Amongst the contaminants are lamb pouches, maggot affected wool, urine stains, dung stains, skin pieces, black wool, loose woolpack fibres, baling twines, man-made fibres and clothing, dermatitis, branding dyes, dags and grease locks. Inherent impurities such as burrs, vegetable matter, banded water stain, shed debris and chemical residue. Dog or animal hair, i.e., goat hair. External parasite infestation.
The classing criteria should include.	Breed and age of sheep, fibre diameter, tensile strength, character/style, colour, yield, length, handle, and contamination.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in classing wool requires evidence that the equipment is used appropriately and effectively to class wool according to the given criteria.

The skills and knowledge required to class wool must be transferable to a different work environment. For example, across a range of different shed and wool types.

Specific knowledge is needed to achieve the performance criteria.

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- shed/site layouts which promote efficient wool flow and handling
- breeds of sheep and their characteristics
- wool production areas of Australia
- Inherent Wool characteristics - diameter, length and strength, colour, yield, VM type, curvature and comfort factor
- Fleece Measurement Criteria - techniques used to measure wool characteristics
- processing methods - woollen and worsted, stages of processing
- raw wool characteristics and their effect on processing and final product
- wool growth, skin and fibre biology, and effect of genetics and environment on fibre characteristics
- interpreting test results
- principles of classing (mob/flock concept, variability for fibre diameter and staple length, soundness, defects, etc.)
- classing scenarios requiring detail of clip break-ups
- clip analysis reports and comparisons
- understanding of and preparation of documentation of wool clips
- alternative selling methods for designated wool
- code of practice for the Preparation of Australian Wool Clips and relevant Quality Standards.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- arrange layout of bins and wool table for efficient wool flow and pressing in a variety of sheds
- label bins and containers correctly
- check wool to ensure freedom from contamination and stain
- check wool to ensure optimum and adequate skirting
- assess pigmented fibre risk and separate wool as required
- identify and appraise wool characteristics
- class wool to standards in accordance to code of practice or as required by alternative selling methods
- identify wool of higher and lower market value and lines made which maximise return to grower.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4129A

Unit Descriptor

Apply advanced shearing techniques

This competency standard covers the process of applying advanced shearing techniques under complex and variable conditions. It requires the ability to prepare and set up equipment to optimise shearing output, assess and monitor the shearing conditions and environment, and maintain control, rhythm and output during shearing. Applying advanced shearing techniques requires knowledge of components and functions of shearing equipment and machinery, handling and shearing techniques and positions, OHS and animal welfare legislative requirements, National codes of practice for the shearing industry, and relevant industrial awards.

NB: Chemicals must only be applied by qualified persons outside the workplace.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

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|---|---|
| 1. Prepare and set up equipment to optimise shearing output | 1.1 Range and condition of equipment available for selection meets anticipated shearing conditions.
1.2 Equipment is selected and set up based on the assessment of shearing conditions to ensure the optimum yield and shearing throughput within OHS requirements .
1.3 Equipment performance is monitored and adjustments are initiated to maintain optimum shearing throughput. |
| 2. Assess and monitor the shearing conditions and environment | 2.1 The style and approach adopted for the shear are appropriate to the shearing conditions, and maintain the quality and throughput at a level that meets enterprise requirements .
2.2 Approaches for mitigating adverse shearing conditions are adopted prior to and during the shearing.
2.3 Monitoring and assessment of the shearing environment are undertaken with consideration of the whole wool harvesting operation.
2.4 Potential and existing hazards are identified and resolved to ensure the quality and throughput are at a level that meets grower and contractor expectations.
2.5 Opportunities to support and encourage the performance of other shearers are identified and constructively responded to while maintaining own output. |
| 3. Maintain control, rhythm and output during shearing | 3.1 Personal position and shearing method is adapted to accommodate limitations in equipment performance and set up.
3.2 Timing, length and width of blows optimise selected shearing pattern.
3.3 Blow commencement and finish positions are economical of effort and reflect the shortest route.
3.4 Blow placement, body work and sheep positioning combine to represent sustainable shearing effort and output. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Information with regard to shearing procedures and problems associated with contaminated fleece or problem sheep may be discussed with colleagues and reported to the classer and/or overseer supervisor.	3
Collecting analysing and organising information	Shearing outcomes including information with regard to shorn sheep, problem sheep and contaminated wool may be detailed and tallied, and organised by records and reports.	3
Planning and organising activities	Shearing activities may be planned and co-ordinated with time schedules and numbers of sheep or sequenced as required.	3
Working with others and in teams	Team work may be applied in treating problem sheep, in arranging for the collection of shorn fleece, working with other shearers, experts/technician, wool handlers and classers.	3
Using mathematical ideas and techniques	Mathematics may be applied in the tallying of shorn sheep, mob breaks or cutouts.	3
Solving problems	Contingencies for dealing with problem sheep and contaminated wool may be planned and prepared to minimise disruption to shearing schedules. Alternative planning may also be needed if complications occur when catching or shearing sheep.	3
Using technology	To communicate, record and calculate shearing outcomes and tallies, in using handpieces and shearing equipment and advances in manufacturing machinery and equipment.	3

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What may be included in equipment?

Equipment may include friction cone, downtube assembly, shearing handpiece, combs and cutters.

What OHS requirements may be applicable to this standard?

Safe systems and procedures for:

- safe operation and maintenance of machinery and equipment including guarding of exposed moving parts
- the operation and maintenance of hazard-free facilities and equipment
- the maintenance of accommodation facilities
- handling livestock
- safe manual handling, including lifting and carrying
- safe fleece/wool harvesting
- the protection from electrical hazards, hazardous noise and organic and other dusts
- the health and safety of shearing personnel
- the appropriate use of personal protective clothing and equipment
- animal welfare considerations including disease control.

What adverse shearing conditions may be applicable to this standard?

These may be extreme temperatures, wet or contaminated wool.

What potential and existing hazards may be encountered in the workplace?

Sheep movement and handling, loose boards, obstacles, veterinary chemicals, damaged pens, uneven flooring, poor drag, uncovered belts, and unsafe equipment and machinery.

What range of shearing methods and procedures may be recommended by industry?

This may include detailed procedures for removal of wool from the belly and crutch, first hind leg, wig, first side neck and shoulder, side and back (long blow) second side neck and shoulder last side and last hind leg, positioning of the sheep and shearer in relation to the down tube, use of free hand, safety procedures, how to avoid second cuts and other damage to wool, damage to sensitive and vulnerable parts of the sheep's anatomy.

What sheep might be subject to the shearing operations?

All ages and genders of sheep, including rams, ewes, wethers, lambs, hoggets and stags.

What processes might be involved in moving sheep?

Sheep may be caught and moved from the catching pen to the board using safe handling techniques.

What organisational, industry and animal welfare standards might apply to sheep shearing?

Organisation may include: Standard Operating Procedures, industry standards, production schedules, work notes, work plans, manufacturers specifications, supervisors instructions, and workplace policies and procedures (including recycling, environmental and land management).

Industry and animal welfare standards/requirements might include: National codes of practice for the Shearing Industry (Health, Safety and Welfare standards), Environmental Protection Act, and Animal Welfare Act.

What may be included in personal protective equipment?

Clothing and footwear that prevents feet crushing, skin abrasions and tangles in machinery.

What injury to sheep and damage to wool needs to be avoided?

Injury to the vulnerable areas of the sheep such as teats, pizzles, ears, vulva, wrinkle and skin, eyes, hamstrings, joints, blood vessels and sinewy parts close to the surface. Damage to horns, eartags, second cuts and skin pieces should also be avoided.

What volume expectations might be met?

Expected volume is significantly above the expected average sheep shorn per day for a professional shearer.

When safe handling techniques need to be applied?

For catching, dragging, positioning and releasing sheep.

What contamination might need to be identified?

Amongst the contaminants are lamb pouches, maggot affected wool, urine stains, dung stains, skin pieces, black fibres, loose woolpack fibres, baling twines, man-made fibres and clothing, dermatitis, branding dyes, dags, grease locks, burrs and vegetable matter, shed debris, wet fibre or water stains, towels, and cigarette butts.

How might sheep cuts be treated?

Cuts may be sutured in line with industry standards and animal welfare requirements.

How might flyblown sheep be treated?

Treatment may include the shearing of flyblown wool to skin, marking sheep and informing the owner/classer.

What types of problem sheep might be identified

Wet sheep, diseased sheep, sheep affected by prickly pear, those chemically treated prior to shearing, and other problems as listed in the various pastoral awards.

What shearing grievances and difficulties might occur?

This might relate to responsibilities of owners, overseers and shearers, and just causes and procedures for stopping work as specified within relevant awards.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in maintaining consistent shearing performance under complex and variable conditions requires evidence that shearing has been consistent at the professional shearer level under a range of different and complex conditions. The skills and knowledge required to maintain consistent shearing performance must be transferable to a range of work environments and contexts. For example, this could include different sheds, sheep and wool types and conditions.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- types of shearing sheds, boards and catching pens
- shearing machinery required and their relative functions
- industry agreed shearing techniques, and positions and method of shearing
- safe handling techniques for catching, dragging, shearing and releasing sheep
- anatomy of all types of sheep
- sheep diseases
- animal welfare requirements in relation to sheep
- sheep behaviour
- personal protective clothing and equipment, and when and how it should be used
- Federal Pastoral Industry Award and/or State Shearing Award of Queensland, or Western Australian Shearing Contractors Award
- relevant State/Territory legislation and awards, regulations and codes of practice with regard to workplace OHS and animal welfare.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- prepare and set up equipment to optimise shearing output
- assess and monitor a diverse range of shearing conditions and environments
- maintain control, co-ordination, rhythm, high quality performance and output during shearing
- work in a team as a team member.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4202A**Design livestock handling/accommodation facilities****Unit Descriptor**

This competency standard covers the functions required to plan and design handling and/or accommodation facilities for livestock.

It requires the application of skills and knowledge to identify and incorporate both livestock needs and enterprise objectives into an efficient and cost-effective design. Competency requires an awareness of industry development with respect to handling technologies. The work in this standard is likely to be carried out independently within own area of responsibility.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

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|------------------------------|--|
| 1. Determine requirements | 1.1 Requirements for livestock handling and/or accommodation facilities are assessed and clarified according to enterprise objectives.
1.2 Cost structures and timelines are negotiated and confirmed within enterprise budgetary constraints.
1.3 Plans are obtained for livestock handling facilities from a variety of sources and are assessed in relation to enterprise requirements . |
| 2. Undertake a site analysis | 2.1 Location of new or existing site is inspected and physical elements and features of the site are recorded for assessment of suitability.
2.2 Surveys to be undertaken are specified and tolerances determined according to enterprise requirements.
2.3 Site preparation requirements are assessed and determined according to enterprise policies and site parameters. |
| 3. Prepare a design brief | 3.1 Plans are modified appropriate to the individual site and reflect enterprise objectives.
3.2 Options to modify existing facilities or establish alternative handling operations are assessed and quotes obtained.
3.3 OHS codes of practice and enterprise quality assurance requirements are identified and incorporated into the plan.
3.4 Legal requirements and constraints on development processes are identified.
3.5 Design brief is prepared and consultation is undertaken to establish agreement on options and approaches for development. |
| 4. Develop a final plan | 4.1 Recommendations are prepared based on the analysis of data and enterprise instructions.
4.2 Authorisations and approvals required for implementation of the plan are obtained.
4.3 Detailed plan is produced with consideration for safety, environmental implications and meeting enterprise objectives. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Information and ideas with regard to options for the design of livestock handling facilities may be discussed and sourced from the industry information network.	2
Collecting analysing and organising information	Information with regard to available resources and facilities and enterprise requirements may be collected and organised by reports for analysis.	2
Planning and organising activities	Arrangements for obtaining site analysis data and relevant authorisations may be arranged as part of the co-ordination of the planning process.	3
Working with others and in teams	In the application of methods and procedures to design appropriate livestock handling facilities to meet enterprise objectives.	3
Using mathematical ideas and techniques	Mathematical techniques may be used to calculate capacities and dimensions of handling facilities.	3
Solving problems	Problems of difficult sites may be resolved in alternative plans or modifications.	3
Using technology	Technology may be used to source information, communicate, record and measure and calculate.	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What requirements may be assessed for livestock handling and/or accommodation facilities?

This may include an estimate in relation to numbers of livestock to be handled/accommodated, an assessment of the need for portability, the types of livestock holding operations to be conducted. It may also include an assessment of hazards to health and safety associated with existing facilities for the purpose of eliminating hazards.

What types of livestock may be relevant to this standard?

This may include sheep, goats, horses, pigs, poultry and cattle.

What range of livestock handling facilities may be considered?

This may include fixed and portable yards, drafting gates, livestock dips, laneways, gates, crutching and shearing machinery, mulesing and marking cradles, loading ramps, races, pens, showers, fencing, shearing and crutching sheds, livestock handling equipment, drying sheds, intensive production sheds and pens, cages, and milking sheds.

Where might information and plans with regard to handling facilities be sourced?

Sources of plans may include other livestock producers, breed associations, publications, educational institutions, commercial suppliers, Departments of Agriculture/Primary Industries, consultants, own resources and commercial sources.

What enterprise requirements may be applicable?

Standard operating procedures (SOPs), industry standards, production schedules, MSDS, work notes and plans, manufacturers specifications, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), and managers oral or written instructions.

What physical elements and features of a new or existing site may be assessed?

This may include an assessment of soil, topography, existing vegetation and climatic factors.

What information may be included in a final plan?

Information is relevant and precise and clearly communicates development works to be undertaken. It applies appropriate construction and engineering principles according to industry standards, and any notes and specifications are included to assist in plan interpretation. It may also include any difficulties or issues faced, recommendations for future work, results, cost estimates and data analysis. Cost estimates may include items in Bill of Quantities, labour, and machinery and equipment.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in this standard requires evidence of the ability to develop plans for handling and/or accommodation facilities to maximise efficiency of handling operations. It requires the ability to access and interpret plans, arrange surveys and analyse results, calculate cost structures, obtain legal authorisations for development and provide alternative options. Evidence must also be demonstrated in an awareness of legislative requirements associated with planning and construction activities.

The skills and knowledge required must be transferable to another rural environment. For example, this could include different livestock, handling and/or accommodation requirements and enterprise procedures.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- livestock behaviour and design interactions
- enterprise operations
- costing alternatives
- livestock handling and/or accommodation facilities and their uses
- site analysis and issues
- industry and legislative requirements for the planning and establishment of livestock handling facilities
- OHS issues and legislative requirements
- codes of practice with regard to environmental protection.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- evaluate and recommend alternative options
- identify appropriate safe workplace procedures for livestock and personnel
- regularly access industry information databases to maintain currency with industry developments
- incorporate safety considerations in all aspects of design
- communicate effectively in both verbal and written form to discuss, advise and receive feedback from the enterprise
- read, interpret and prepare detailed reports and plans
- estimate and measure dimensions, and calculate establishment costings.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4203A**Implement and monitor a property improvement plan****Unit Descriptor**

This competency standard covers the process of designing, planning, constructing and monitoring property improvements. It includes the need to act in an environmentally aware manner, and to ensure the safety of workers during the construction phase. It requires the need to analyse the costs and benefits of potential plans, and to estimate and order the materials required for delivery at the appropriate time and place.

Implementing and monitoring a property improvement plan involves responsibility for, and limited organisation of, others. This unit requires a detailed and practical knowledge of some areas such as construction techniques of a variety of improvements, as well as applicable environmental and Occupational Health and Safety (OHS) codes of practice.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

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|---|---|
| 1. Agree on the improvement to be carried out | 1.1 Specific improvements for the planning period are discussed with the relevant people and agreements are made.
1.2 Plans are made, and schedules amended, to construct and maintain the improvements in line with property management plans.
1.3 Allocations are made from the available budget for the planned improvements. |
| 2. Arrange the design and layout of the property improvements | 2.1 Alternative plans and layouts are assessed and selected based on how appropriate they are for the management plan, and environmental and OHS considerations.
2.2 Plans for the improvements are drawn and dimensions are calculated for the agreed improvements. |
| 3. Order materials for property improvements | 3.1 Materials required for the construction of the improvement(s) are calculated from the drawn plans and discussion with relevant colleagues.
3.2 Quotes are obtained from suppliers for the materials and suitable suppliers are selected.
3.3 Orders are placed with the chosen suppliers for the quantities, sizes and types of materials required. |

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| 4. Prepare sites for installation | 4.1 Sites are inspected, key features noted, and suitable sites are chosen for the planned property improvements.
4.2 All relevant people, including neighbours, are informed of the proposed activities where this is appropriate and/or necessary.
4.3 Selected sites are measured and pegged according to the prepared plans.
4.4 The site is prepared to be ready for construction, and precautions are taken to ensure that potential negative environmental impacts are minimised or eliminated.
4.5 OHS hazards are identified, assessed, and responsible action taken throughout the site preparation activities. |
| 5. Supervise installation and operation of property improvements | 5.1 All materials required for each work period are obtained, organised, and on site ready for construction.
5.2 Installation of property improvements is begun according to the drawn plans and the prepared schedules.
5.3 All installation works are undertaken in a manner that ensures that potential negative environmental impacts are minimised or eliminated.
5.4 OHS hazards are identified, assessed, and responsible action taken throughout the installation works.
5.5 Communication is maintained between those working at the site and others.
5.6 The installation works are regularly checked to ensure consistency with the drawn plans, and with environmental and OHS requirements.
5.7 Any waste material or substances are disposed of in full consideration of the environmental implications.
5.8 Where corrective action is required, it is initiated and taken. |
| 6. Carry out and monitor planned maintenance | 6.1 Planned maintenance to the improvements is carried out and monitored according to the guidelines and standards of the property.
6.2 Precautions are taken throughout the maintenance works to ensure that potential negative environmental impacts are minimised or eliminated.
6.3 OHS hazards are identified, assessed, monitored and responsible action taken throughout the maintenance works. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	By preparing drawn and written plans that may be implemented by other people.	3
Collecting analysing and organising information	In assessing different layouts and plans for improvements that may be implemented on the property.	3
Planning and organising activities	In planning for and implementing the construction and maintenance of property improvements.	3
Working with others and in teams	In working with others to construct property improvements according to prepared plans.	3
Using mathematical ideas and techniques	In seeking and comparing quotations provided by suppliers.	2
Solving problems	In recognising where corrective action is required and then implementing the appropriate action.	2
Using technology	In operating any necessary equipment during the construction phase of the improvement - communication technology, calculating equipment, measuring equipment.	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work contexts.

What are the property improvements that might be constructed?

They may be buildings, dairy sheds, shelters, stock yards, stock handling structures, fences, water supply systems, roads and tracks, soil conservation works, irrigation and drainage channels, silage pits, and/or grain and fodder storage.

Who are the people relevant to the discussions and notifications?

The people who may need to be consulted, informed or notified include neighbours, staff, management, government department officials, local council officials, and others who might be affected by the particular type of improvements planned or installed.

What are the potential negative environmental impacts of constructing property improvements?

Any change to the natural lay of the land may affect run-off and drainage to increase erosion or the acidity of the soil, and the way in which effluent is managed to pollute surface and underground catchments. Removal of vegetation and ground cover may affect wind or water erosion and/or an increase in salinity.

How might constructing property improvements compromise the environment?

Construction activity, as well as the improvement itself, might put the local environment at risk of off-site contamination such as the fouling of surface or ground water bodies with solid material, and/or nutrients, including acid discharges from acid sulfate soils.

What are the OHS issues that may result from the construction of property improvements?

Appropriate precautions will need to be taken in the light of the personal protective equipment that should be worn, the machinery that is used, the chemicals and the chemical handling that may be involved, the fire risk that may exist, and the load shifting that may be involved.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in implementing and monitoring property improvement plans requires evidence that any changes to the existing land are considered in the light of their impacts on both the environment and the people who are to construct, use and maintain them. Competence also requires that communication between all the relevant parties is clear, whether in the form of a discussion or the preparation of a drawn and written plan. Overall competence will lead to improved production facilities and equipment, while promoting safe working conditions and environmentally sound practices.

The skills and knowledge required to implement and monitor the plan must be transferable to a different work environment. For example, this could include different types of properties, planning approaches, improvements and enterprise guidelines.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- constructing buildings, fences, and earthworks such as stock yards, yard facilities, grain and fodder storage facilities, irrigation works, and water supply and drainage features
- requirements for grain and fodder storage
- tree planting techniques
- sustainable land and water use principles and practices applicable in the region
- environmental controls and codes of practice applicable to the business and to the improvement works
- the whole property plan
- relevant legislation, regulations and codes of practice relating to soil and water degradation issues, animal health and welfare, chemical use, building construction, and OHS.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills are the ability to:

- plan and implement the construction of physical resources
- organise and schedule the maintenance of physical resources
- analyse and assess the costs and benefits of plans and layouts in the light of all considerations - OHS, financial, environmental, and animal welfare
- observe, identify and react appropriately to environmental implications and OHS hazards
- prepare written plans and procedures for implementation by others
- prepare drawn plans and sketches for implementation by, or notification of, others
- interpret, analyse and extract information from legal documents and discussions.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4301A

Conduct major repair and overhaul of machinery and equipment

Unit Descriptor

This competency standard covers the functions required to prepare and conduct major repairs and the overhaul of machinery and equipment in an agricultural and horticultural context.

It requires the application of skills and knowledge to identify major repairs and overhaul requirements, diagnose complex faults and consult where appropriate. In addition it requires an awareness of safe workplace and positive environmental practices. The work in this standard involves the application of some judgement and discretion and is carried out with no or minimal supervision within enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Prepare to carry out major repairs and overhaul of machinery and equipment | <p>1.1 Major repairs and overhaul requirements for machinery and equipment are identified and resources organised according to manufacturers recommendations and enterprise requirements.</p> <p>1.2 Tools and equipment are identified, accessed and confirmed against job requirements.</p> <p>1.3 Potential and existing hazards in the workplace are risk assessed and controlled according to OHS and enterprise requirements.</p> <p>1.4 Suitable personal protective equipment is used and maintained according to OHS and enterprise requirements.</p> |
| 2. Conduct major repairs and overhaul of machinery and equipment | <p>2.1 Faults and diagnosis of machinery and equipment faults and malfunctions are located and confirmed according to manufacturers specifications.</p> <p>2.2 Repair and replacement process is implemented for major repairs according to enterprise requirements, manufacturers specifications and OHS procedures.</p> <p>2.3 Worn or damaged parts in need of overhaul are identified, removed and overhauled.</p> <p>2.4 Appropriate personnel are consulted as necessary in regard to overhaul requirements and major repairs according to enterprise requirements.</p> |
| 3. Carry out advanced welding repairs and workplace engineering | <p>3.1 Cutting and welding equipment and materials are selected, set-up and started according to industry and OHS standards and enterprise requirements.</p> <p>3.2 Risks are identified, assessed and controlled according to OHS and enterprise requirements.</p> <p>3.3 Cutting and welding is conducted to industry and safety standards and according to enterprise requirements.</p> <p>3.4 Workplace engineering tasks to modify design or manufacture parts are carried out according to enterprise and job requirements.</p> |

- 4. Complete major repairs and overhaul operations
 - 4.1 Tools and equipment are shut down, adjusted, cleaned and stored consistent with manufacturers specifications and enterprise requirements.
 - 4.2 Waste from repair and maintenance activities is collected, treated and disposed or recycled according to enterprise **environmental** requirements.
 - 4.3 **Work areas** are cleaned, returned to operating condition and maintained according to OHS and enterprise requirements.
 - 4.4 Records of breakdowns, major repairs, overhauls, incidents and work conducted is detailed and recorded according to enterprise, industry and legislative requirements.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Information with regard to major repair and overhaul of machinery and equipment and welding repairs and methods may be discussed with the assistants, technical advisers, supervisor, owners, managers and others in the work group.	2
Collecting analysing and organising information	Information with regard to testing, diagnosing and identifying equipment performance, identifying faults and major repair and overhaul requirements may be detailed and monitored for analysis and organised by records and reports.	2
Planning and organising activities	Major repair and overhaul activities may be planned and co-ordinated around work schedules or sequenced as required.	3
Working with others and in teams	Team work may be applied in the communication and co-ordination of tasks to achieve specified work requirements, and to ensure that maintenance and significant repairs are co-ordinated and are cost and time effective.	3
Using mathematical ideas and techniques	Mathematics may be applied in the calculation and measurement of materials and in undertaking maintenance and significant repairs such as machining and welding.	2
Solving problems	Fault diagnosis and identification of best remedies for faults and malfunctions will require the application of problem-solving skills.	3
Using technology	To communicate, troubleshoot performance problems, estimate materials needed and calculate job time frame requirements.	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What types of machinery and equipment may be relevant to this standard?

This may include harvesters, tractors, seeding machines with components such as metering systems, air flow control, blower drives, air system, electronic monitoring systems, hydraulic hoses and couplings, engines, boom spray units, harvesters and associated grain-handling equipment.

What resources might be required to conduct major repairs and overhauls of machinery and equipment?

Resources may include workshop space and staff, component and mechanical parts (including engine and associated engine components), hydraulic parts, basic electrical parts, electrical components and assemblies, communication systems, cane cutting equipment such as elevators, hard face roller chains, pick-up and shoes, base cutters, side walls and choppers and blades.

What enterprise requirements may be applicable to this standard?

Standard operating procedures (SOPs), industry standards, production schedules, MSDS, work notes and plans, product labels, manufacturers specifications, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), and supervisors oral or written instructions.

What tools and equipment might be used?

This may include a range of hand and power tools, welding and oxy cutting equipment, lathes, milling machine, drilling equipment, hydraulic press, grinding equipment, and electrical multimeters.

What potential and existing hazards may be relevant to this standard?

Exposure to loud noise and fumes, solar radiation, dust, and hazardous substances. It may also include ergonomic hazards associated with posture and vibration, mechanical malfunctions and exposed moving parts, working under machinery and equipment, tyre fitting, oil and grease spills, lighting, cutting surfaces, battery safety, and other machinery including hydraulics, welders and grinders.

What OHS requirements may be relevant to this standard?

Safe systems and procedures for:

- operation of tools and equipment, particularly welding equipment
- hazard and risk control
- the transport of repair materials and equipment
- working under and around machinery and equipment
- manual handling including lifting and carrying
- the provision of safety decals and signage
- handling, application and storage of hazardous substances
- outdoor work including protection from solar radiation, dust and noise
- the appropriate use and maintenance of personal protective equipment.

What personal protective equipment may be relevant to this standard?

This may include boots, hat/hard hat, overalls, gloves, protective eyewear, hearing protection, respirator or face mask, and sun protection (sun hat, sun screen).

What types of faults may be identified?

Faults may be mechanical, hydraulic, fluid power, electrical and be relevant to frame and support structures.

What might be included in the diagnostic process?

Diagnosis may include identifying major faults in machinery and equipment and isolating that fault to a component, sub-assembly or major assembly. It may also include the gathering of information, the performance of tests, the analysis of the findings and the drawing of conclusions.

What might be involved in the repair and replacement process for major repairs?

This may involve rectifying major faults and restoring machinery and equipment systems to an acceptable status of operation by replacing worn, failed, faulty or damaged mechanical, hydraulic, basic electrical or frame and support structure parts and components. It may also include carrying out tests and making adjustments, rectifying faults by welding, aligning, tightening, securing or adjusting components that are not a part of normal service operations. Major repairs may require dismantling and assembly operations.

What is involved in the carrying out of an overhaul?

This may involve the complete dismantling and rebuilding of a major assembly involving the replacement or reconditioning of all parts that have been subject to wear or other forms of deterioration so that the components, when installed in the machinery and equipment, operate entirely within manufacturers specifications and have a service life comparable with the original part. The overhaul of assemblies or components can only be carried out when they are removed from the machinery and equipment.

Which appropriate personnel might be consulted?	This may include a licensed tradesperson, enterprise owner or manager and assistants and colleagues.
When might it be necessary to consult with appropriate personnel?	When specialist advice is needed in relation to a major repair or overhaul, when cost and/or time considerations of a major repair or overhaul are an issue, and when instructions need to be given to colleagues and assistants when completing major repairs and overhauls.
What cutting and welding equipment might be used?	Electric welding and oxy-acetylene equipment.
What risks might need to be taken into account?	This may include fire and operational risks when operating welding and other workshop equipment near machinery, crops, and other workplace hazards that may impact upon welding and cutting activities.
What type of cutting and welding might be carried out?	Advanced welding for a range of different metals to include horizontal and down hand position, single and multi rundown hand fillets, vee and butt welds, oxy cutting and grinding, and thermal cutting.
How might parts be modified designed or manufactured using workplace engineering tasks?	Parts may be modified, designed or manufactured to workplace standards and job requirements by use of a lathe, milling machine, drilling equipment, hydraulic press, and grinders and/or welding and oxy-acetylene equipment.
What positive environmental practices may be relevant to this standard?	This may include the reduction of excessive noise and exhaust emissions, the safe use and disposal of maintenance debris including oil and oil containers, fuel and chemical residues. It may also include preventative measures with regard to soil disturbance, dust and increased run-off flows caused by servicing, maintenance and cleaning activities.
What might be considered to be a working area?	This may include an enclosed workshop, field, or area constructed specifically for job requirements.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in this standard requires evidence of the ability to accurately diagnose faults and repair requirements, logically dismantle and reassemble parts and components of machinery and equipment, select and use tools and materials appropriate to the task, and effectively carry out repairs and servicing of a range of machinery and equipment. It also requires the ability to determine appropriate cutting and welding techniques and operating welding equipment safely and effectively. Evidence must be demonstrated in the employment of safe workplace and environmentally responsible practices.

The skills and knowledge required to conduct major repairs and overhaul machinery and equipment must be transferable to a different work environment. For example, this could include different machinery, repair work and enterprises.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- assemblies and components of drive, electrical and hydraulic systems
- operational requirements of machinery and equipment
- OHS legislative requirements
- environmental codes of practice with regard to the operation and maintenance of machinery and equipment.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- recognise and replace deteriorated or worn parts
- plan and meet seasonal deadlines
- identify most effective and economic option in the replacement, repair and overhaul of components
- use and maintain welding and thermal cutting equipment
- read and interpret manufacturers specifications, work and maintenance plans, and MSDS
- effectively convey oral and written information
- estimate, measure and calculate dimensions, volumes and time frames.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4302A

Design and fabricate milking equipment installations

Unit Descriptor

This competency standard covers the process of the design and fabrication of milking equipment installations and sheds including the development or interpretation of plans, and the ordering and assembly of parts and materials. The performance of the unit will be carried out with minimal supervision with only general guidance sought from other industry specialists. Performance may also include works supervision.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Prepare design and installation estimates | <p>1.1 Shed design and installation estimates to suit the application are determined and meet current industry guidelines.</p> <p>1.2 Financial and physical resources that impact on the proposed works are identified and documented.</p> <p>1.3 OHS issues affecting the design and construction of the shed and equipment are identified and addressed in design and construction planning.</p> <p>1.4 Labour and other inputs are calculated and the tender submitted.</p> |
| 2. Plan installation | <p>2.1 Contract for work is completed with the customer including verification of material estimates and costings.</p> <p>2.2 Relevant building and planning permits are obtained in co-operation with the appropriate authorities.</p> <p>2.3 Site planning includes consideration of environmental issues, service connections and alternative power supplies.</p> <p>2.4 Required components are planned to match the proposed installation and sourced from the appropriate original equipment manufacturer.</p> <p>2.5 The installation is planned to create a safe working environment designed to eliminate hazards to people and animals during milking, cleaning or service operations.</p> |
| 3. Facilitate the completion of the installation | <p>3.1 Job scheduling is carried out in consultation with all relevant parties.</p> <p>3.2 Physical and material resources are ordered and delivery facilitated.</p> <p>3.3 Co-ordination of the implementation of the milking machine installation is carried out according to the project plan.</p> <p>3.4 Project management is carried out in line with the scope of the project and contract needs.</p> <p>3.5 Site OHS procedures and policies are established including areas of responsibility for all the project participants and full notification provided.</p> |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Sound communication with equipment suppliers, other industry professionals, farmer or shed manager and dairy factory personnel are essential in the performance of this unit.	2
Collecting analysing and organising information	Information on machine and shed design will be collected and collated in both paper and electronic format.	2
Planning and organising activities	Planning and organising the activities of a range of trades people is integral to the performance of this unit.	3
Working with others and in teams	The design and installation of milking machines to industry standards requires an ability for individuals to work in a team environment and to contribute to team outcomes.	2
Using mathematical ideas and techniques	The calculation of dimension, capacity and performance requires the utilisation of a range of mathematical techniques.	2
Solving problems	Design and installation of milking equipment may pose a series of problems e.g., site, performance, finance or labour and contract difficulties.	2
Using technology	A range of technological aids will be required in the performance of this unit. These are required to measure, calculate, design and communicate.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What are the planning considerations in considering design and installation estimates?

Design and estimation of milking machine installations and sheds may include advice and planning in relation to: herd size and required shed and plant capacity, dairy shed sizing and design, shed yard size and capacity, platform design, pit size, milking machine design, milk vats and storage, vat room, drainage and effluent systems, washdown pump sizing, backing gates, feeding mechanisms, cattle systems, water filtration, cooling towers, tracks and dairy layout.

Design considerations should include everything from effluent and drainage through to milk and milk quality, cleaning and cleaning processes and the people issues such as safe working conditions.

Shed configurations may include conventional walk through, herringbone or rotary shed installations.

What financial and physical resources will impact on the shed design and planning?

A range of physical resources is required including power, adequate water supply, all weather tanker access for milk collection, siting to allow adequate and environmentally safe drainage and ready access for livestock through laneways or other access.

What are the OHS considerations for the design and manufacture of milking equipment installations?

Suppliers and manufacturers have defined responsibilities for the supply of plant and equipment for use in the workplace. Design of new milking machine installations provides the best opportunity to improve milk harvesting safety performance for the future. The hazards associated with the existing and planned installations should be identified and risk assessed, and results incorporated in the new design to improve safety and minimise risk.

Who are the appropriate authorities involved?

Local government as well as state departments of health and safety and the local electricity supply authorities should be consulted as a part of the planning process.

What issues should be considered in creating a safe working environment?

Elimination of projecting ends and sharp points to brackets and pipework. Ensuring that the installation plan makes sure:

- that all potential spillages will drain effectively away from the site
- all pipework jointing is in line with minimum industry recommendations
- belts, pulleys, shafts and couplings are all well guarded to prevent finger or hair coming in contact with moving parts
- all electrical work is in line with industry safety standards and AS 3000
- workplace noise is a prime consideration in installation planning.

Does the design and installation of milking equipment include the shed construction?

Shed design can ensure the effective functioning of milking equipment. Milking equipment technicians do have an involvement in the planning of the building of the dairy shed, but their role is principally confined to milking equipment installations.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in the planning of milking machine installations requires evidence of competence in the design and planning process across a range of full or partial installations.

The skills and knowledge required to design and plan milking machine installations must be transferable to a different work environment. The achievement of these outcomes may also need to be reflected by the on-site or in-a-workshop tasks performed by other people. For example, cans and vessels may be fabricated in the workshop and pipework may be fabricated on-site in the milking shed, but the planning process needs to ensure that all pipe entries are planned and placed to comply with the operating requirements of the plant.

Evidence should include written OHS risk assessment of machines and the installation.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- applicable building regulations and codes of practice
- OHS acts in the relevant state, and specifically regulations relating to plant and machinery and noise
- relevant industry minimum standards for the design and installation of milking equipment
- original equipment manufacturers requirements for milking equipment installation
- the working requirements of milking sheds including the siting of components to ensure efficient shed operation.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- communicate effectively with manufacturers, designers and the dairy farmer
- blend design standards and requirements with practical application and customer needs
- understand construction plans and specifications on machinery and equipment components of dairy installations
- safely utilise hand and power tools in a workshop and field situation.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4304A

Unit Descriptor

Install milking equipment

This competency standard covers the process of the on-site installation of milking equipment to conform to plans and specifications. This includes milking equipment, milk storage and cooling equipment, as well as cleaning in place (CIP) systems. All fabrication and installations will conform to, or exceed industry minimum standards. At the conclusion of the work, the equipment will be commission tested to ensure it conforms to both design specifications and industry standards, and complies with expected performance standards.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Order installation components | 1.1 Contract for work is completed with customer.
1.2 Specified tinware is ordered in line with planned installation.
1.3 Bending and rolling of pipework by external contract are overseen to ensure specifications are met.
1.4 Components are assembled in transportable sections in preparation for transfer to site.
1.5 Specialist advice is sought for non-standard installations. |
| 2. Inspect and prepare installation site | 2.1 Site is checked for correct location, dimensions and levels, etc., utilising appropriate measuring equipment .
2.2 OHS hazards are identified, risk assessed, hazards eliminated or risk controlled and risk assessment recorded.
2.3 Non-compliance with the contract specification is reported and alterations and correction are undertaken in co-operation with the appropriate authorities .
2.4 Installation is measured and layout marked in line with contract plans. |
| 3. Manufacture components in the workshop | 3.1 Vacuum pump guards and stands are manufactured according to specifications.
3.2 Pipelines and vessels are manufactured and assembled according to installation design.
3.3 Electrical components are pre-wired in the workshop.
3.4 Non-milking systems are completed as required in dairy plan.
3.5 OHS hazards are identified, risks assessed and safe systems of work implemented during manufacture. |

- 4. Install equipment
 - 4.1 Machine/equipment components are prepared for correct sequential installation.
 - 4.2 Machine/equipment is installed in accordance with **manufacturers and site specifications** and in co-operation with the dairy farmer and other **trade and building personnel**.
 - 4.3 All work is carried out in accordance with **appropriate legislative requirements** and in compliance with Australian Standards for Milking Equipment Installation and Performance.
 - 4.4 **OHS hazards** are identified, risk assessed and safe systems of work implemented during installation.
 - 4.5 **Routine modifications**/alterations are undertaken to standard operating procedures where required.
 - 4.6 Machine/equipment is levelled, aligned, coupled and connected (excluding electrical components) in accordance with the specification.
- 5. Commission test installed equipment
 - 5.1 Completed equipment is mechanically tested to ensure that it conforms to design specification and performance standards, including OHS standards.
 - 5.2 Equipment performing below standard is brought up to manufacturer's specifications.
 - 5.3 Final work quality and finish complies with established **industry standards**.
 - 5.4 Site is cleaned and cleared of all materials and debris and left in a safe state and in consideration of **environmental and OHS considerations**.
 - 5.5 All alterations/modifications are recorded and/or reported to the appropriate authority.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Effective communication with the members of the dairy equipment network is essential in the performance of this unit.	2
Collecting analysing and organising information	A great deal of information needs to be collected and collated on machine specifications and performance to ensure that design requirements are met.	2
Planning and organising activities	Planning is essential to assemble the required materials and physical resources for milking equipment installation.	3
Working with others and in teams	Machine installation or service work is generally, but not exclusively, undertaken in a team environment.	2
Using mathematical ideas and techniques	A range of mathematical techniques and ideas will need to be applied to calculate performance, plan construction and ensure compliance with the range of applicable standards.	3
Solving problems	The overcoming of problems associated with materials supply and of difficult sites or poor equipment performance will all require a range of problem-solving skill to be utilised.	2
Using technology	A range of technologies will be required to measure and calculate in the installation and in the measurement of equipment performance.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

Would a technician simply install milking equipment or are there other components that would be included in the contract?

Milking equipment installed or serviced may include:

- full shed installations, pipework and vessels, vacuum pumps, regulators, plate coolers, cup removers, cleaning systems, cluster and pulsation systems, releasers and milk transfer systems
- Non-milking systems may include feeding systems, jettors and automatic cup removers.

What would be a typical installation site?	Installations may be completed in new milking sheds or be installed in existing sheds to replace old equipment.
What is appropriate measuring equipment?	Measuring equipment may include the use of dumpy levels, tapes or electronic measuring equipment.
Who are the appropriate authorities that may be consulted?	These may include local government, Workcover or environmental protection authorities and the equipment manufacturers.
What will the equipment manufacturer specify?	Manufacturers specifications may include correct vacuum levels, milkline and airline size and shape, positioning of regulator, receiver and vacuum and milk pumps, and motor speeds.
Will trade and building personnel be employed to assist milking machine technicians in the installation of the milking equipment?	All site preparation work such as foundations, footings, beds and framework will be completed by appropriate tradespeople prior to a milking machine technician commencing installation work.
Are there any appropriate legislative requirements?	All work and work practices will conform to relevant regulatory and legislative requirements including both OHS and environmental standards.
What are the OHS requirements for the installation of milking equipment?	OHS issues may include manual lifting, excessive noise, the use of hand and power tools, and fumes when welding stainless steel. Milking equipment requires the fitting of guards to all pulleys and belts. Consideration should be given to operator health by minimising noise - particularly in the working area, ensuring electrical safety and the installation of personal protection (such as splash-guards) to minimise risk from zoonoses.
What are routine modifications?	Routine modifications and alterations are of a minor nature not requiring specification changes or technical recording and may include fitting of spacers, relocation of brackets and alignment of holes.

Are there any industry standards for installations?

The Australian Milking Machine Trade Association sets down industry minimum standards for workmanship and finish of milking equipment installations. These Industry Minimum Standards also specify performance expectations, materials used, bracketing, jointing, component location, fixing, and geometry of pipelines.

All milking equipment installations must be completed in line with the following International Standards for Milking Installations:

- ISO3918 *Terms and Definitions*
- ISO5707 *Construction and Performance*
- ISO6690 *Mechanical Tests*.

What are the OHS considerations for the installation of milking equipment?

Suppliers and manufacturers have defined responsibilities for the supply and installation of equipment for use in the workplace. OHS hazard identification; risk assessment and risk control measures are key considerations in all installation work and its outcomes. This requires constant vigilance for the occurrence of hazards in the construction and installation of milking equipment, and once identified, the reporting and rectification of these workplace hazards as soon as possible. These include the provision of safety guarding, electrical safety and general structural operator safety in areas like pit entrances and operator/animal interfaces.

What environmental considerations are inherent in the performance of this unit?

The disposal of packing materials, pipe and metal off-cuts, and chemical containers in an environmentally safe manner will ensure that the outcome of the installation does not impact unfavourably on neighbours and property personnel.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in installing milking equipment requires evidence of competence in range of skills and knowledge. This will include the ability to read and interpret plans and use a range of hand and power tools.

The skills and knowledge required to install milking equipment must be transferable to differing work environments. For example, an individual may need to be involved in installations ranging from a large rotary dairy to the smallest walk-through design.

Evidence should include written OHS risk assessment of the installation.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- an appreciation of the function of the full range of the components of milking machines and equipment
- vacuum and the operation of pulsation systems
- international standards for milking equipment and their application in Australia in working sheds
- OHS Acts in the relevant state, and specifically regulations relating to equipment, machinery and noise
- the application of dairy shed design in the field
- the mechanical testing of milking equipment installations
- original equipment manufacturer's requirements for milking equipment installation
- the working requirements of milking sheds including the siting of components to ensure efficient shed operation
- milking equipment installation standards including pipe sizing, friction loss, component size selection, drainage within the equipment, bracketing, waterproofing and safety including practical design criteria for safe operation
- safe working practices in a workshop and building situation. This will include an awareness of safe lifting and manual handling practices, the safe use of hand and power tools, and duty of care to all other personnel on-site.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- communicate with the full range of industry participants
- interpret technical data
- interpret plans and equipment specifications
- ensure that proper equipment and component matching is practised
- understand construction plans and specifications on machinery and equipment components of dairy installations
- safely utilise hand and power tools in a workshop and field situation
- use minimum standard recommendations in the assembly and installation of milking equipment
- safely use a range of hand and power tools
- be resourceful in all aspects of fitting milking equipment
- employ safe working practices and exercise duty of care whilst employed on work-sites.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4305A

Unit Descriptor

Performance test milking machines

This competency standard covers the process of completing industry recognised wet tests which are conducted with a test liquid such as water, and milking-time tests, which are conducted with live animals in situ. A thorough understanding of the milking equipment testing process, evidenced by prior qualification in the mechanical testing of milking machines and reinforced by established workplace experience, provides essential underpinning knowledge to this unit.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Wet test milking equipment | 1.1 Relevant mechanical testing reports and outcomes are collated as the basis for additional tests in consultation with the farmer or adviser.
1.2 Protocols for wet testing are established to suit the individual installation requirements.
1.3 Test equipment is installed at specific locations as required to complete tests in accordance with industry standard methods and procedures.
1.4 Vacuum levels and vacuum drop are measured and recorded and abnormalities identified. |
| 2. Carry out milking-time tests of milking equipment | 2.1 Protocols for the conduct of milking-time tests are established with the farmer and other relevant industry professionals based on a consideration of the previous dry or wet testing outcomes.
2.2 Testing equipment is installed as required to complete agreed tests during milking.
2.3 Milking-time tests are completed according to industry standard procedures in co-operation with the milking personnel and results recorded.
2.4 Written assessment and recommendations are reported to the dairy farmer or manager. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Sound communication with the full range of milk harvesting industry professionals including the dairy farmer or shed manager is crucial in the performance of this unit.	2
Collecting analysing and organising information	The addressing of milk harvesting problems requires the assembly of information on milking performance, herd health and the case history from a range of sources.	2
Planning and organising activities	The conduct of performance testing procedures will need to be organised and conducted at a time that will co-ordinate with daily milking routines.	1
Working with others and in teams	The development of solutions to milk harvesting problems can only be carried out in partnership with other industry specialists and a teamwork approach.	1
Using mathematical ideas and techniques	A wide range of mathematical techniques will need to be utilised to calculate milking machine performance characteristics and indicators.	2
Solving problems	Problem-solving skills are an integral part of this unit in solving problems of poor milking performance or machine function.	2
Using technology	A variety of testing and diagnostic equipment will be utilised to measure and calculate in the performance of this unit.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What measurements are taken during wet testing?

Wet tests may include an evaluation of vacuum level and vacuum drop in clusters, vacuum drop across components, threshold milk flow for automatic cluster removers or measurement of liquid discharge rate from a releaser milk pump.

What sort of problems will necessitate wet testing?	Wet testing procedures will be used as a diagnostic tool in the investigation of problems such as slow milking, excessive cup-slip or clusters falling off.
What testing equipment is required?	Testing equipment may include vacuum recorder, manometer or vacuum gauge, hypodermic needles and a range of rubber tubing and plugs to suit the installation. An artificial udder may also be used for some tests.
What are the standards applicable to the testing of milking equipment?	<p>Performance testing will be carried out in line with industry-established procedures and recorded on test report forms developed by the industry.</p> <p>All milking equipment testing will be carried out in line with the provisions of the ISO Standards for <i>Milking Installations ISO 5707: 1996</i> and <i>Mechanical Tests ISO 6690: 1996</i>.</p> <p>Performance testing of milking equipment will be based on the recommendations of the International Dairy Federation Expert Committee A32: 1999 and the IDF Standing Committee on Farm Management (Guidelines for the test of the flow capacity of the milking unit).</p>
What sort of tests will be carried out with milking-time testing?	<p>Milking-time tests may include:</p> <ul style="list-style-type: none"> • mean vacuum and vacuum fluctuations in the milkline • mean vacuum and vacuum fluctuations in or near the receiver • mean vacuum and vacuum drop in the claw (or in the short milk tube or at teat-end) during peak milk flow while milking a representative sample of cows. <p>Wet tests will be completed under simulated milking conditions, either as a bench test or in a milking shed. An artificial udder may also be used for these tests. Milking-time tests will always be completed in a milking shed while cows are being milked.</p>
Are there industry professionals other than milking machine technicians involved in the performance testing of milking equipment?	The diagnosis and solving of milk harvesting problems and the completion of milking performance investigations may include partnerships between any or all of the following groups: milking machine technicians, veterinarians, dairy factory field officers, herd test personnel, detergent and chemical company representatives, original equipment manufacturers representatives, regulatory authority personnel, dairy farmer or share farmer.
What are the OHS implications inherent in the performance of this unit?	Procedures to identify OHS hazards, assess risks, establish safe systems of work and complete OHS risk assessment records .

What are the environmental implications of the performance of this unit?

None other than the occasional disposal of hypodermic needles used for the connection of vacuum recording equipment to the milking system.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in the performance testing of milking machines requires evidence that an individual is able to carry out performance testing of milking machines in a working environment.

The skills and knowledge required to performance test milking machines must be transferable to differing milking shed environments. For example, they may be utilised as a part of an industry partnership to solve milk-harvesting problems or may simply be carried out to assess milking performance as a part of routine quality assurance processes.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- effects of vacuum changes on milking machine function
- the mechanical testing of milking equipment
- the effects of machine function as they relate to teat health and condition, slow or incomplete milking, or a higher incidence of liner slipping or cluster falling
- milking operation and shed management.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These include the ability to:

- accurately dry test milking machines in accordance with industry standards
- competently use milking equipment testing tools, gauges and equipment
- accurately measure vacuum fluctuation in line with industry standard measuring procedures
- understand and initiate the conduct of milking machine performance testing procedures
- effectively carry out performance testing in line with standard procedures and ISO standards
- act in a team situation to address milk harvesting problems
- communicate effectively with milk harvesting professionals involved in the diagnosis of milk harvesting problems.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4307A**Carry out cleaning time tests of milking machines****Unit Descriptor**

This competency standard covers the process of completing industry recognised cleaning-time tests. Cleaning-time tests are carried out before or during the cleaning of the milking machine or bulk tank and may be carried out when a new cleaning system is installed, cleaning problems occur or milk test results indicate poor quality. A thorough understanding of the milking equipment-testing process, evidenced by prior qualifications in the mechanical and performance testing of milking machines and reinforced with a range of relevant workplace experience, provides the required skills relevant to this unit. A thorough knowledge of cleaning, cleaning chemicals and sanitation processes provides the essential underpinning knowledge required.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|--|
| 1. Prepare for cleaning-time testing | 1.1 Protocols for the conduct of cleaning-time tests are established with the farmer and other relevant advisers based on a consideration of the previous testing outcomes.
1.2 Water quality utilised for the cleaning process is assessed through on-site, factory or laboratory testing and recorded.
1.3 Cleaning chemicals are identified and their suitability and recommended concentrations are established in line with prevailing water quality, factory requirements and equipment manufacturer's recommendations.
1.4 Relevant factory records are accessed to establish bacteriology of the specific plant. |
| 2. Carry out cleaning-time tests of milking equipment | 2.1 Normal cleaning routines and procedures are identified for use whilst testing is carried out and details recorded.
2.2 Testing equipment is installed to measure water and/or airflow velocities in line with testing requirements for the installation.
2.3 Cleaning-time tests are carried out before or during the cleaning of the milking machines or bulk milk tank in accordance with established industry procedures. |
| 3. Report on cleaning-time test results | 3.1 Test results are recorded accurately using industry standard test report forms and collated.
3.2 Test report results are interpreted in line with industry standards and manufacturers recommendations.
3.3 Test results are reported to the farmer or shed manager. |

KEY COMPETENCIES

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Sound communication with the full range of milk harvesting industry professionals including the dairy farmer or shed manager and chemical suppliers is crucial in the performance of this unit.	2
Collecting analysing and organising information	The addressing of cleaning problems requires the assembly of information on water quality, leaning chemical usage and other case history information from a range of sources.	2
Planning and organising activities	The conduct of cleaning-time testing procedures will need to be organised and conducted at a time that will co-ordinate with daily milking routines.	1
Working with others and in teams	The development of solutions to cleaning problems can only be carried out in partnership with other industry specialists and a teamwork approach.	1
Using mathematical ideas and techniques	A range of simple mathematical techniques will need to be utilised to calculate chemical concentrations as well as milking machine performance indicators.	2
Solving problems	Problem-solving skills are an integral part of this unit in solving problems of poor cleaning performance and machine function.	2
Using technology	A variety of testing and diagnostic equipment will be utilised to measure and calculate in the performance of this unit.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

Who carries out cleaning-time testing of milking machines?

Cleaning-time testing may be carried out by a range of industry specialists including count down, down under qualified technicians, cleaning specialists and tanker drivers.

What tests are carried out with cleaning-time testing?

Tests may include chemical concentration, water temperature, water quality, water and air flow velocities and cleaning cycle times.

When is cleaning-time testing carried out?

Cleaning-time tests may be carried out:

- when a new cleaning system is installed
- to investigate cleaning problems or when milk tests indicate poor cleaning efficiency.

What factory records will provide information suitable for cleaning-time testing?

Cleaning-time tests may be carried out:

- when a new cleaning system is installed
- to investigate cleaning problems or when milk tests indicate poor cleaning efficiency.

What sort of tests will be carried out with cleaning-time testing?

Cleaning-time tests may include the measurement of cleaning fluid temperatures, chemical concentrations, water quality, water and air flow velocities, and cleaning cycle times.

What are the OHS implications inherent in the performance of this unit?

Procedures to identify OHS hazards, assess risks, establish safe systems of work and complete OHS risk assessment records .

What are the environmental implications of the performance of this unit?

The environmentally safe disposal of excess veterinary chemicals (in particular cleaning chemicals) and their containers is implicated in this unit.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in carrying out cleaning-time tests of milking machines requires evidence that an individual is able to carry out the tests prescribed in industry endorsed testing regimes and manufacturers guidelines in a milking shed environment.

The skills and knowledge required to carry out cleaning-time tests of milking machines must be transferable to a different work environment. For example, they may be utilised as a part of an industry partnership to solve milk-harvesting problems or may simply be carried out to assess cleaning performance as a part of routine quality assurance processes.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- principles of milking machine function
- the mechanical testing of milking equipment
- milking operation and shed management
- relevant milk quality assurance programs
- dairy factory milk quality assessment procedures
- relevant bacteriology of milking equipment and factory milk quality assurance programs
- cleaning and sanitation processes for milking equipment
- aspects of water quality the affect cleaning chemicals and the cleaning process
- the range of cleaning chemicals and compounds used for cleaning milking equipment and their action.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- accurately carry out mechanical tests of milking machines in accordance with industry standards
- competently use milking equipment testing tools, gauges and equipment
- interpret water quality test results
- accurately interpret cleaning chemical labels and follow label directions
- effectively carry out cleaning-time testing procedures of milking machines in line with standard procedures and ISO standards
- efficiently implement routine cleaning procedures for milking machines
- act in a team situation to address milk quality problems
- communicate effectively with milk harvesting professionals involved in the diagnosis of milk quality problems
- interpret and communicate test results accurately to the farmer or shed manager.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4309A**Design and install on-farm milk cooling and storage****Unit Descriptor**

This competency standard covers the process of identifying the relevant key factors in the design and installation of farm milk cooling and storage equipment to meet year round needs of the dairy, given fluctuating seasonal conditions and inputs. It includes the skills to maintain the cooling and storage system and a demonstrated knowledge of the planning process including the variables that affect the correct selection of this equipment.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|--|--|
| 1. Determine cooling and storage system requirements | 1.1 Available water supply is identified and analysed in line with cooling requirements for quality and quantity.
1.2 Components of the on-farm dairy milk cooling and storage requirements are identified to meet standard industry guidelines and herd and dairy factory needs.
1.3 Design considerations, including the siting of components , are identified and recorded.
1.4 OHS hazards are identified and risks assessed in line with workplace OHS and industry standards and reported to the supervisor. |
| 2. Identify milk pre-cooling requirements | 2.1 Maximum peak flow of milk delivery is measured and recorded.
2.2 Cooling water temperatures and quality are checked against design specifications.
2.3 Available milk cooling equipment is compared to design requirements and suitable equipment selected.
2.4 Relevant legislation including OHS and human health requirements is identified and compliance targets established.
2.5 Water cooling system requirements are identified in line with installed equipment and available resources. |
| 3. Identify milk storage requirements | 3.1 Farm milk production together with projected production increases is estimated in line with the available farm management plan.
3.2 Milk entry temperature and other critical design considerations are established in consultation with the shed manager and available data.
3.3 Vat selection is made meet shed production requirements and bulk milk collection routines . |

4. Install milk cooling and storage equipment
 - 4.1 Plate cooler and other components of the pre-cooling system are installed in line with established system design and industry standards.
 - 4.2 Vat and refrigeration equipment are installed to meet design specifications.
 - 4.3 **Commissioning tests** are completed as required to ensure that the operation of all elements of the cooling and storage equipment complies with performance targets and **milk supply quality standards**.
5. Operate and maintain milk cooling & storage equipment
 - 5.1 **Routine maintenance program** requirements are completed in line with manufacturers' recommendations.
 - 5.2 Repair and service requirements including **operational faults** are identified as a structured part of maintenance routines.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through interview of relevant industry specialists and written recommendations	1
Collecting analysing and organising information	Through the accessing of relevant manufacturer's specifications, industry minimum standards recommendations and personal interview with the shed manager.	2
Planning and organising activities	Through the organisation of meetings with relevant parties and suppliers.	2
Working with others and in teams	The assembly of information and its collation requires a team approach.	2
Using mathematical ideas and techniques	The use of relevant formulae in the calculation of capacities, flows and cooling and storage requirements	2
Solving problems	Through the effective identification of performance faults and the application of industry guidelines to determine the best possible installation alternatives.	2
Using technology	Through the use of measuring and calculation equipment and through the use of suitable hand and power tools.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What analysis is required of the water supply to cooling systems?

Water supply analysis may include :

- an assessment of the year round temperatures of the supply water
- water quality assessment for sediment as well as bacterial and contaminant levels
- an assessment of foaming characteristics
- supply pressures and volumes
- available water cooling facilities and equipment

What components of farm milk cooling and storage systems that need to be considered?

Components may include cooling water storage and circulation systems, tanks, pumps, plate coolers and refrigerated vats.

What standard industry guidelines are adopted in estimating milk cooling requirements?

Industry standard guidelines that need to be considered for milk cooling and storage are provided by the dairy processors and original equipment manufacturers and may include:

- the need to reduce milk to 4 0C within specified period
- preferred temperature ranges for cooling water
- construction standards in line with industry minimum standard recommendations.

What industry standards are used?

Standards for milking equipment installation are provided in the ISO standard 5707 and practical interpretations are provided in industry guidelines provided by the dairy factories and the Australian Milking Machine Trade Association. Milk vats need to comply with the Australian Standard AS1187.

Will design considerations include the correct siting of components?

Farm requirements for milk cooling systems design may include consideration of the siting of components to meet milk collection requirements as well as the location of components to meet industry installation standards.

What are the OHS hazards associated with storage and cooling equipment?

OHS hazards include: hazards of plant and machines, hot water, noise, electrical and ergonomic hazards. An awareness of the human health issues associated with the operation of cooling towers should also be considered.

What are the human health requirements?

All operations concerned with the human food chain need to undertake reasonable duty of care with regard to human health. State Health Legislation will provide guidance for the design and construction of cooling towers.

Does vat selection need to consider any additional factors apart from size?

Selection needs to consider milk entry temperature (including pre-cooling conditions such as temperature and flow-rate of cooling water) as well as other **critical design considerations** such as the refrigeration system for milk once it is in the vat.

Will bulk milk collections be made very day or should consideration be given to vat capacities to cater for more than a day's milking?

Vat selection may include the need to consider the requirements for daily or skip-a-day milk collections.

Is a commissioning test always required for the cooling system?

A milk cooling system commissioning test may be a mandatory requirement by the dairy factory to provide both the dairy farmer and the manufacturer of the operating efficiency of the system.

What milk supply quality standards are used?

Milk quality assurance is specified and monitored through regular audit by the dairy factories.

What sort of routine maintenance is required?

Routine maintenance programs may include service and cleaning of fans and fins on refrigeration units together with the checking and replacement of drive belts, the servicing of compressors and ensuring correct thermostat settings and operation.

What sort of operational faults will require attention during maintenance routines?

Problems with cooling units may include dirty or blocked plates, problems with restricted or incorrect water flow. Refrigeration units may suffer from problems with airflow caused through dirt, dust or oil or simply a restriction to airflow caused through incorrect siting or other causes.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in the identification and selection of farm milk cooling and storage requires evidence that the knowledge and skills have been applied to select the optimum installation to suit the specific dairy installation.

The skills and knowledge required to identify and select farm milk cooling and storage must be transferable to differing work environments. For example they need to be applied with equal effectiveness across both large and small dairies and to suit a range of water and environmental requirements.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- the components of on-farm milk pre-cooling, cooling and storage systems
- how milk is cooled on farm
- the effect of cooling on milk quality
- available milk cooling and storage equipment
- the requirements of factory based milk quality assurance programs
- industry recognised milking equipment minimum standards
- relevant OHS issues relating to cooling and storage of milk on farm
- relevant legislation relating to milk cooling and storage
- applicable human health standards requirements.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- recognise and rectify operational faults in milk cooling and storage equipment
- perform tests on cooling towers
- install and commission equipment.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4310A**Conduct equipment experting for machine shearing****Unit Descriptor**

This competency standard covers the process of experting equipment for machine shearing. It requires the ability to trim and finish combs, scallop combs, and work as part of a team and recognise and report OHS hazards. Conducting equipment experting for machine shearing requires knowledge of types of combs and cutters, experting techniques, tools and equipment used in experting, scalloping techniques, and assessing the relationship of comb preparation to shearing performance.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|--------------------------|--|
| 1. Trim and finish combs | 1.1 Signs of non-optimal equipment performance are identified and acted upon.
1.2 The trim and finish meet the requirements of the current shearing task.
1.3 Control of comb and tools is maintained throughout the experting process in accordance with OHS requirements .
1.4 Comb is adapted in a form that meets individual shearing style. |
| 2. Scallop combs | 2.1 The principles and method of scalloping are recognised and applied.
2.2 The interrelationship between correctly scalloped combs and shearing performance is determined in terms of density of wool, time of year, and breed.
2.3 Combs are scalloped to meet the shearing style of individual shearers. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through recognising and reporting OHS hazards to the appropriate person, and through verbal communications with shearing teams.	2
Collecting analysing and organising information	Through visual checking of worn combs and dressings according to OHS and industry standards.	2
Planning and organising activities	According to manufacturers recommendations and/industrial awards.	2
Working with others and in teams	In supporting shearers through experting work.	3
Using mathematical ideas and techniques	N/A	-
Solving problems	Through dealing with non-optimal equipment performance.	2
Using technology	In the use of experting equipment.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What variations might be used for combs?

Combs vary in bevel and the consistency of the teeth in length, shape, thickness, and steel temper.

What OHS requirements may be applicable to this standard?

Safe systems and procedures for:

- operating shearing and crutching equipment
- manual handling including lifting and carrying
- protection from organic and other dusts
- protection against electrical hazards
- controlling and removing hazards
- protection from hazardous noise
- appropriate use of personal protective clothing and equipment.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in conducting equipment experting for machine shearing requires evidence that experting work has been successfully undertaken according to the above standards. The skills and knowledge required to conduct equipment experting for machine shearing must be transferable to a range of work environments and contexts. For example, this could include different enterprises, workplaces, shearing teams and sheep breeds and conditions.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- types of combs and cutters
- trimming and finishing techniques
- tools and equipment used in experting
- OHS policies and practices related to experting
- scalloping techniques
- assessing relationship of comb preparation to shearing performance.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- trim and finish combs
- scallop combs
- recognise and report OHS hazards to the appropriate person.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4401A

Control weeds, pests and/or diseases in crops

Unit Descriptor

This competency standard covers the process of planning for the control of weed, pests and/or disease, including first assessing the extent of the infestations impact on the crop. It includes implementing the control operations according to pre-determined strategies, and using contract or staff personnel. It requires the need to monitor and adjust the plan in response to changing situations, and to subsequently evaluate, and report on the outcomes of the weed, pest and/or disease control measures taken.

Controlling weeds, pests and/or diseases is likely to be undertaken without supervision, with only general guidance sought from others. This unit involves the application of extensive knowledge, including measurement techniques for assessing the impact of weeds, pests and/or diseases on crops, and alternative methods for treating infestations.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

1. Prepare for implementation

- 1.1 **Documents** within the organisation that detail the requirements of the integrated pest management program are identified and obtained.
- 1.2 The frequency of assessment, the size of any sample area, the available budgets for operations, and the target species for assessment are identified from the organisations weed, pest and/or disease control plans.
- 1.3 The method(s) of assessment/measurement and of control for each target species is identified from the organisations weed, pest and/or disease control plans.
- 1.4 The resources required for the assessment and control operations are assessed and calculated from the area to be assessed, the available timelines, the available resources, and the methods of control required.
- 1.5 Measurable indicators, specifications and targets are determined, based on the target species and the potential impacts on production.
- 1.6 A plan to implement the integrated pest management program is developed, and clearly describes its scheduling, resources, responsibilities, target species, specific location(s) and performance targets for both the assessment and the control phases.
- 1.7 Discussions are held with operational personnel and immediate management to discuss the implementation plan.
- 1.8 Any **approvals** that are required for the control operations are identified, sought and obtained.
- 1.9 The implementation plan is clearly articulated and documented, as required, by the organisations policies and procedures.

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|---|--|
| 2. Assess weed, pest and/or disease infestations | <p>2.1 People, materials and equipment required for the assessment are co-ordinated and scheduled according to the prepared plan.</p> <p>2.2 The procedures and tools to be used, the kind of records that are to be taken, and any potential hazards that might be faced are clearly communicated to operational personnel.</p> <p>2.3 Observations are made and data collected according to the requirements of the implementation plan.</p> <p>2.4 The size and scope of any infestations, and the potential impact on crop production are assessed and calculated.</p> <p>2.5 Treatments for the infestation are selected from the options detailed in the integrated pest management plan.</p> |
| 3. Implement weed, pest and/or disease control strategies | <p>3.1 People, materials and equipment required for the implementation of the selected control strategies are co-ordinated and scheduled according to the prepared plan.</p> <p>3.2 All control operations are undertaken in a manner which ensures that potential negative environmental impacts are minimised or eliminated, including the proper disposal of containers and drums.</p> <p>3.3 OHS hazards are identified, assessed, and responsible action taken throughout the control operations.</p> <p>3.4 The procedures and tools to be used, the kind of records that are to be taken, and any potential hazards that might be faced are clearly communicated to operational personnel, and confirmation of the clear communication is sought.</p> <p>3.5 Any documentation that is required to be kept by either the organisation or OHS guidelines is completed clearly and accurately.</p> <p>3.6 Operational staff and any contractors are communicated with regularly to ensure smooth operation and progress.</p> <p>3.7 Advice is given to operational staff and any contractors during the control operations when requested, or when the need is identified.</p> |
| 4. Monitor weed, pest and/or disease control operations | <p>4.1 Monitoring points outlined in the implementation plan are adhered to.</p> <p>4.2 Checks are made to ensure that the OHS requirements are being observed and followed.</p> <p>4.3 Checks are made to ensure that the site environmental requirements are being observed and followed.</p> <p>4.4 Operational staff and any contractors are communicated with regularly to ensure smooth operation and progress.</p> <p>4.5 Checks are made to ensure that the documentation required by the organisation, or other regulating bodies, is completed clearly and accurately during the progress of the control operations.</p> <p>4.6 Where any corrective action or amendment to the implementation plan is required, the action is initiated and taken.</p> |

5. Complete weed, pest and/or disease control operations
- 5.1 All waste materials and substances are removed from site and stored or disposed of responsibly.
 - 5.2 Documentation is collated and stored according to the requirements of the organization.
 - 5.3 Recommendations for future control operations are prepared based on the conduct of the operation, the data collected, and the discussions had during the operation.
 - 5.4 Where it is required, a report on the conduct of the assessment and control operations is made including the **key aspects** of the operation.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	By clearly explaining to staff, and/or contractors, the purpose, requirements and processes to be used during the operation.	3
Collecting analysing and organising information	In gathering and analysing the organisations long-term plans for weed, pest and/or disease control as input to the implementation plan.	2
Planning and organising activities	By scheduling for the people, materials and equipment to be in the right place at the right time.	3
Working with others and in teams	In co-ordinating and supervising the operation.	3
Using mathematical ideas and techniques	In calculating the resource requirements for the control operations from the plan.	3
Solving problems	In recognising where and when amendment is required to the plans.	2
Using technology	In operating any necessary equipment prior to, and during the control operations - communication technology, calculating equipment, measuring equipment, and word processing/spreadsheets software.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What documents would be examined in preparation for the control operations?

The documents that outline the organisations policy in regard to weed, pest and/or disease infestations and their control, those that outline the policies and procedures in relation to chemical handling and OHS, as well as the way in which potential environmental impacts should be approached.

What approvals might be required, and from where might they be obtained?

The approvals may be those that are required by the Environment Protection Act, environmental agencies regulations, duty of care, isolation procedures, OHS legislation, site regulations and procedures, Australian Standards, manufacturers specifications and recommendations, statutory requirements, or traditional land owners requirements. Such approvals may be obtained from the various authorities that implement the associated regulations, or agencies that operate on their behalf.

What types of weed and pest might be targeted in the long-term control strategy?

Such pests as insects, weeds, pathogens, vertebrates, nematodes and molluscs; weeds may be those which are annual, perennial, broad leaf, narrow leaf, or grasses.

Invertebrate pests may be thrips, mites, nematodes, locusts or caterpillars, whereas vertebrate pests might include rabbits, rats, mice, macropods and birds.

What are the diseases that may be at issue?

They may be foliar pathogens, e.g. rusts, chocolate spot, Ascochyta, mildew, septaria, seferotina, soil borne pathogens (for example, take-all, cereal cyst nematodes), rhizoctonia, pythium, fusarium, or phytophthora.

What observations would be made during the assessment?

Such things as visible symptoms, colour of the crop, and the extent of the infestation.

What are the potential negative environmental impacts of controlling weed, pest and/or disease infestations?

Any inappropriate disposal of containers or chemicals can contaminate soils, crops and water bodies.

What might be covered by control strategies?

Control strategies may include the use of herbicides. Herbicides used may be pre- or post-emergence and may be root/foliar absorbed. They may be used selectively or non-selectively, or combinations of these.

Physical or alternative control measures such as rotations (for example, wheat, other grains, lupins, pulses, pasture and fallow), hay making and grazing may be used. They may also include changing the rotations.

What are the impacts that might be considered when determining long-term strategies?

The impacts may be those that cause financial, environmental, labour, OHS, and opportunity costs to the organisation.

What are the methods that might be used in controlling weeds and vertebrate and invertebrate pests?

Amongst the invertebrate pest control methods that may be used are insecticides, biological agents, crop rotation and fallowing. Vertebrate pest control methods may include physical barriers, baiting methods, shooting, fumigation of burrows, trapping, netting, and biological control.

In the instance of weed infestations, the selection of herbicides might involve the collection of information, evaluation of alternatives, purchasing arrangements, safe storage, degree of risk to user and environment, proper application and disposal of residues, manufacturers recommendations, legislative, and end user requirements.

What might affect the scheduling of treatments?

Timing of treatments is planned to suit seasonal influences, irrigation timing, weather and weather forecasts, as well as the local geography and the organisations resourcing situation.

How might records be stored in the organisation?

Records may be created and stored either manually or electronically. They may also be in the form of samples of weeds or pests, photographs or sketches.

What are the OHS issues that impact on managing weed, pest and/or disease control?

They include safe systems and procedures for storage, handling and transportation of hazardous substances, chemicals selected taking into account toxicity levels and environmental effects; systems and procedures for the safe operation and maintenance of machinery and equipment, including hydraulics and guarding of exposed moving parts; safe manual handling systems and procedures; safe systems and procedures for outdoor work, including protection from solar radiation; selection, use and maintenance of relevant personal protective clothing and equipment; and fire risks.

Which key aspects of the assessment and control operation would be included in a report?

In compiling a report on the implementation of the weed, pest and/or disease control plan, maps or plans produced or amended through the process would be included, along with the data recorded, any difficulties or issues faced, any recommendations for future operations, the results, and the costs of the operation.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in controlling weeds, pests and/or diseases requires evidence that weed, pest and/or disease treatments are applied effectively, safely, and with clear precautions taken to ensure that negative environmental impacts are minimised.

The skills and knowledge required to control weeds, pests and/or diseases must be transferable to a different work environment. For example, across a range of crop types and in both agricultural and horticultural environments.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- pest and weed species, including their life cycles and reproduction/multiplication capability
- integrated pest and weed management techniques
- the effects on crops of weeds, pests and/or diseases, including competitive effects on crop yield; threshold levels; and the effects of alternative methods of control
- environmental controls and codes of practice applicable to the enterprise
- relevant legislation and regulations relating to OHS, contractor engagement, chemical use and application, and vehicle and plant use
- environmental controls and codes of practice applicable to the business and to the weed, pest and/or disease control operations
- sound management practices and processes to minimise noise, odours, and debris from weed, pest and/or disease control operations.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- interpret monitored information on pest and weed numbers, density and control
- plan and schedule weed, pest and/or disease control including amending plans during the operations
- calculate resource requirements from the long-term plan
- prepare written plans and procedures for implementation by others
- explain, and deliver instructions about, the plans and scheduling of the weed, pest and/or disease control operations to both staff and contractors
- recognise poor growth and lack of vigour caused by nutrient deficiency
- observe, identify and react appropriately to environmental implications and OHS hazards
- prepare a written report on the conduct and results of the operation.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4511A**Unit Descriptor****Develop a soil use map for a property**

This competency standard covers the process of determining soil characteristics and developing soil maps to illustrate the characteristics of a property in order to identify any areas of concern, and to assist in making decisions about plants/crops, irrigation and drainage. This is usually without supervision but with general guidance on progress. It requires knowledge of soil testing, the environmental impact of irrigating and the ability to use soil and water testing techniques. The outcomes of this process will inform decisions relating to whole farm planning.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|---|
| 1. Collect information for soil mapping | 1.1 Confirm soil samples were collected for off-site assessment by soil testing agencies using recommended procedures.
1.2 The information on the physical characteristics of the soil is collected.
1.3 The information on the chemical characteristics of the soil is collected.
1.4 The information about biological characteristics of the soil is collected.
1.5 The acceptable soil parameters for specified plants are determined from published data and historical records.
1.6 Information about areas of cultural significance and habitats of biodiversity on the property is collected.
1.7 Research outcomes are collated in accordance with enterprise record keeping procedures. |
| 2. Analyse soil information | 2.1 The soil types of the sample area are classified according to standards for soil classification .
2.2 Collected results are compared with established parameters for actual or proposed land use and production.
2.3 Soil characteristics are evaluated to determine whether they can be altered to meet land use needs.
2.4 The Readily Available Water (RAW) values for irrigation sites are determined in line with industry standards. |

3. Plot topography and soil survey data on property map
 - 3.1 Interpreted results are mapped in an established format according to enterprise guidelines.
 - 3.2 Potential uses of the soil for purposes of land classing, land capability, areas of cultural significance and habitats of biodiversity are identified.
 - 3.3 Property boundaries and property features are defined.
 - 3.4 Paddocks or irrigation areas are identified.
 - 3.5 Contour or spot level information is plotted.
 - 3.6 Soil sampling sites are plotted on map.
 - 3.7 Soil profile and irrigation characteristics for each sampling site and/or irrigation area are described and indexed to the map.
 - 3.8 The Readily Available Water (RAW) values for irrigation sites are indexed to the map.
 - 3.9 **Areas of specific concern** are plotted on the map and descriptions are indexed to the map.

KEY COMPETENCIES

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Documenting soil sampling data.	2
Collecting analysing and organising information	Collecting and analysing soil sampling data.	2
Planning and organising activities	Developing soil use maps.	2
Working with others and in teams	Using off-site assessment of samples.	2
Using mathematical ideas and techniques	Calculating RAW values, topographical data, and analysing comparative statistical data.	2
Solving problems	Identifying and analysing areas of concern on a property.	2
Using technology	Using electronic testing equipment.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What soil may be relevant to this standard? Soils may include field sites and specialist growing media.

What equipment might be used for a soil sampling?	Equipment may include hand auger, back hoe, equipment for pH testing such as soil test kits or electronic pH testing device, hand held salinity/EC meter, tape measure, sample bags, plastic overlays, aerial photographs, and charts and tables of soil characteristics.
What soil testing agencies might be used?	Soil testing agencies may be government, commercial or private consultants.
What physical characteristics of the soil might be identified?	Physical characteristics may include colour, texture, structure, depth of root zone, and depth of water table.
What chemical characteristics of the soil might be identified?	Chemical characteristics may include pH, salinity and carbonate content and nutrient (both macro and micro) availability.
What biological characteristics of a soil might be identified?	Characteristics such as decaying plant material, humus content, microbiotic content (fungi, bacteria and protozoa), and macrobiotic content (worms, insects and nematodes).
What particular type of soil classification system will be used?	Soils may be classified according to Unified Soil Classification System.
What soil survey data might be plotted on the property map?	These may include topsoil types, soil profiles and Readily Available Water (RAW).
What maps may be developed?	These may include contour maps and aerial photomaps, and may include the use of overlays to indicate various categories of data.
What areas of concern might be plotted on the map?	These may include saline patches, leaking channels, acid soils, weed infestation, lack of shelter from prevailing winds, awkward paddock size or design, high water table, access problems, herbicide resistance, animal/plant disease problems, and water and wind erosion.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in developing soil survey maps requires evidence that a person can perform a soil survey, analyse survey results, determine soil characteristics, and plot topography and soil survey data on a property map.

The skills and knowledge required to develop soil survey maps must be transferable to a different work environment. For example, this could include different soil types, environments, and enterprise procedures.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- methods and techniques of soil sampling
- relevant enterprise OHS and environmental requirements including the use of personal protective equipment
- environmental impacts of irrigation, using water from any ground or underground source
- soil types and profiles
- physical and chemical properties of soils
- nutrient availability in soils
- soil analyses results
- biodiversity habitats
- cultural sites
- soil quality factors
- soil water retention testing techniques
- water table and salinity
- Readily Available Water (RAW).

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- collect and analyse data
- read and apply testing agency procedures
- label information for off-site testing
- interpret soil analyses results
- identify adverse environmental impacts of irrigation activities and appropriate remedial action
- interpret published data and historical records to identify acceptable soil parameters
- plot information on a map
- use soil and water testing techniques
- follow relevant enterprise OHS and environmental procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4601A**Acquire resources for irrigation installation and construction****Unit Descriptor**

This competency standard covers the process of acquiring resources for irrigation installation and construction, including completion of formalities for commencing work - such as fees, insurance and other statutory requirements, organising accommodation, plant, labour and materials, and the connection of temporary services. Resource procurement and acquisition will be carried out without supervision but with general guidance on progress.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|--|
| 1. Notify client, authorities and agencies of the schedule of works | 1.1 All fees due are paid and parking restrictions arranged as appropriate.
1.2 Insurance cover is established and provision for security made.
1.3 Irrigation installation and construction date is confirmed with client.
1.4 All authorities requiring formal notification of commencement of work are contacted. |
| 2. Organise delivery of site accommodation | 2.1 Site facilities are delivered and positioned on site.
2.2 Site signage is erected to comply with local government regulations. |
| 3. Organise delivery of plant | 3.1 On-site plant delivery dates are confirmed.
3.2 Rubbish removal facility is set up. |
| 4. Arrange connection of temporary services | 4.1 Temporary power and water connections are arranged with service providers, as required.
4.2 Temporary site access and egress is authorised by local authority, as required. |
| 5. Organise on-site labour | 5.1 Construction work supervisor is engaged/appointed.
5.2 OHS and industrial relation matters are addressed as required.
5.3 Appropriate installation/construction workers are employed according to contract. |
| 6. Order materials | 6.1 Orders for materials are placed and site delivery dates organised using approved enterprise procedures and documentation.
6.2 Final pre-construction adjustments are made to satisfy the schedule as required by contract. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Negotiating with suppliers and client.	2
Collecting analysing and organising information	Reading and interpreting plans and determining resources.	2
Planning and organising activities	Arranging delivery of materials.	2
Working with others and in teams	Co-ordinating ordering and delivery activities.	2
Using mathematical ideas and techniques	Ordering and checking quantities and volumes.	2
Solving problems	Determining delivery dates with project schedule.	2
Using technology	Using relevant materials ordering technology.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

To which systems does irrigation installation and construction relate?

These may include gravity fed and pressurised systems.

What OHS requirements may be relevant to this standard?

OHS procedures may include identification and reporting of hazards to health and safety, risk assessment procedures and implementation of risk control measures, safe operation of machinery and equipment, safe manual handling procedures, selection, use and maintenance of relevant personal protective clothing and equipment, safe procedures for working at heights and for outdoor work, including protection from solar radiation, dust and noise.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in procuring and acquiring resources for irrigation installation and construction requires evidence that a person can complete formalities for commencing work, such as fees, insurance and other statutory requirements, organise accommodation, plant, labour and materials, and the connection of temporary services.

The skills and knowledge required to procure and acquire resources for irrigation installation and construction must be transferable to a different work environment. For example, this could include different irrigation systems, reasons for irrigation, environments and enterprises.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- requirements of statutory authorities and agencies
- local government regulations
- project resources budget
- ordering procedures
- labour hiring requirements and procedures
- environmental impacts of irrigation system installation using water from any ground or underground source
- relevant enterprise OHS and industrial relations requirements.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- use the project schedule to organise a sequence of pre-construction operations making allowances for any constraints
- place and check orders for materials
- negotiate start dates and manage resources to minimise delays and down-time
- identify adverse environmental impacts of irrigation activities and appropriate remedial action
- follow relevant enterprise OHS and environmental procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4602A**Determine hydraulic parameters for an irrigation system****Unit Descriptor**

This competency standard covers the process of determining hydraulic parameters for an irrigation system without supervision, but with general guidance on progress. It includes confirmation of water delivery requirements, determining the pressures needed to deliver a required amount of water over a specified area, determining pressure losses through the system, and selecting system components for efficient water delivery.

The unit does not deal with soil/plant/water relationships, as this is dealt with in relevant horticulture and crop production competency units.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

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|---|---|
| 1. Confirm water delivery specifications for irrigation system | 1.1 Soil characteristics are confirmed and hydraulic properties determined.
1.2 Plant/crop water requirements are gathered for various stages of growth.
1.3 Peak water requirements are determined for each area to be irrigated. |
| 2. Determine pressures required to deliver required amount of water over specified area | 2.1 Static pressures between water source and delivery points are determined.
2.2 Dynamic pressure necessary to achieve required water volume is calculated. |
| 3. Analyse technical drawings to determine pressure losses through system | 3.1 Losses resulting from fittings, laterals and elevation differences are calculated.
3.2 Losses resulting from flow through canals, culverts and pipes of varying sizes and diameters within a system, are determined.
3.3 Total friction loss is calculated.
3.4 Hydraulic parameters for system are determined |
| 4. Select system components to deliver water efficiently | 4.1 Water delivery components are selected to achieve the most efficient delivery rate and pressure.
4.2 Flow direction and control components are selected to be compatible with pipes and to achieve minimal friction losses. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Documenting system specifications and parameters.	2
Collecting analysing and organising information	Analysing crop, soil and system data.	2
Planning and organising activities	Selecting system components to deliver water efficiently.	2
Working with others and in teams	Confirming plant/crop requirements and soil characteristics.	2
Using mathematical ideas and techniques	Calculating pressures, losses, velocities, flows, and determining hydraulic parameters for an irrigation system.	2
Solving problems	Selecting water delivery components to achieve the most efficient delivery rate and pressure.	2
Using technology	Using equipment to test hydraulic parameters.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What irrigation systems might be relevant to this standard?

These may be pressurised irrigation systems such as micro-irrigation systems and spray irrigation systems, or gravity fed irrigation systems.

Micro-irrigation systems include mains pressure, low pressure, below or above ground, sprays systems, drip emitter trickle, t-tape, mini-sprinklers, capillary, ebb and flow, and flood systems.

Spray irrigation systems include travelling irrigators (soft hose, hard hose boom type), centre pivot, linear move, powered side roll hand shift permanent (installed), and bike shift/easy shift.

Gravity fed irrigation systems include border check, contour irrigation, furrow irrigation, hillside flooding, and basin irrigation. Border check systems may be either permanent or temporary earth, plastic or concrete devices for insertion in a drain for reticulating water, contour banks used to collect and distribute water along the perimeter of an irrigation plot, contour banks within a plot to collect/distribute water, or larger scale systems to stop water exiting one area to another.

Irrigation systems may range from manual operation and monitoring to fully automated with computer control and monitoring.

What water delivery components might be selected to deliver water efficiently?

These may include channels, canals, contours, furrows and pipes (polythene, mild steel, UPVC, stainless steel, nylon, copper, aluminium).

What flow direction and control components might be selected to deliver water efficiently?

These components may include fittings (tees, elbows, nipples) and valves (gate, float, ball, foot valves, non-return valves, pressure limiting valves).

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in determining hydraulic parameters for an irrigation system requires evidence that a person can confirm water delivery specifications, determine the pressures needed to deliver a required amount of water over a specified area, analyse technical drawings to determine pressure losses through the system, and select system components for efficient water delivery.

The skills and knowledge required to determine hydraulic parameters for an irrigation system must be transferable to a different work environment. For example, if hydraulic parameters are determined for a manual, gravity fed irrigation system, it should be evident that parameters could be determined for a pressurised irrigation system that is fully automated with computer control and monitoring.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- intermediate hydraulic principles such as static and dynamic pressure, pressure loss, friction loss, flow rate and velocity, effect of gradient on flow rate, contact time and drainage
- irrigation system components
- types and pressure ratings for pipes, fittings and outlets
- environmental impacts of irrigation, using water from any ground or underground source
- enterprise and environmental requirements.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- read contour maps and interpret elevations and distances
- calculate pressures, flows, velocities and friction losses
- determine efficiency of the system with varying system components
- identify adverse environmental impacts of irrigation activities and appropriate remedial action
- apply hydraulic principles to manual and computerised irrigation systems
- follow relevant enterprise OHS and environmental procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4603A**Implement an irrigation-related environmental protection program****Unit Descriptor**

This competency standard covers the process of implementing procedures to reduce the impacts of irrigation and drainage systems on the environment, and responding to potential and actual environmental pollution events. It requires the ability to apply and comply with environmental requirements, provide and explain information on the irrigation and drainage environmental plan, explain and demonstrate enterprise environmental record systems and procedures, and calculate stormwater control requirements. Implementing an irrigation-related environmental protection program requires knowledge of environmental legislation, regulations and guidelines, environmental impacts of irrigation, using water from any ground or underground source, and OHS procedures.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|---|
| 1. Provide information to workers involved in irrigation and related work | 1.1 Information on the irrigation and drainage environmental plan is provided and explained to all workers involved in irrigation and related work.
1.2 Relevant codes of practice, legislation and regulations and their application are explained to all workers involved in irrigation and related work.
1.3 Information about known risks to the environment and work practices associated with enterprise irrigation practices and related activities are explained and demonstrated.
1.4 Enterprise environmental record systems and procedures are explained and demonstrated.
1.5 Environmental protection induction and training needs are identified and arrangements made to fulfil those needs. |
| 2. Implement and monitor procedures for identifying risks to the environment and maintaining effective control measures | 2.1 Risks to the environment are identified and reported so that adequate risk assessment and control measures are implemented.
2.2 Work procedures to control risks to the environment are implemented, and regular monitoring occurs to ensure ongoing adherence and effectiveness of risk control.
2.3 Inadequacies in existing risk control measures are identified, and measures to reduce exposure to environmental pollution events through improved work processes and procedures are raised with the owner/manager.
2.4 Inadequacies in allocation of resources to ensure environmental protection are identified and reported to the owner/manager. |

- | | |
|---|---|
| 3. Implement procedures for responding to potential and actual environmental pollution events | 3.1 Procedures for responding to potential and actual pollution events are implemented, where necessary, to ensure that prompt and effective control action is taken.
3.2 Pollution events are investigated and reported to identify their cause according to established investigation procedures and OHS requirements .
3.3 Stormwater control requirements are calculated, as necessary, according to environmental protection authority requirements.
3.4 Suitable measures to prevent recurrence and minimise risk of pollution events are discussed with the owner/manager, and revised procedures implemented as necessary. |
| 4. Implement and monitor procedures for maintaining environmental protection records | 4.1 Environmental protection records are kept according to enterprise and legal requirements. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Disseminating and explaining policies and procedures with personnel.	3
Collecting analysing and organising information	Monitoring the environment and the impacts of irrigation practices.	2
Planning and organising activities	Co-ordinating responses to potential and actual pollution events.	3
Working with others and in teams	Collaborating with personnel when implementing procedures.	2
Using mathematical ideas and techniques	Quantifying environmental risks and calculating stormwater requirements.	2
Solving problems	Identifying and assessing environmental risks.	2
Using technology	Recording and documenting environmental information.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What irrigation systems might be relevant to this standard?

These may be pressurised irrigation systems such as micro-irrigation systems and spray irrigation systems, or gravity fed irrigation systems.

Micro-irrigation systems include mains pressure, low pressure, below or above ground, sprays systems, drip emitter trickle, t-tape, mini-sprinklers, capillary, ebb and flow, and flood systems.

Spray irrigation systems include travelling irrigators (soft hose, hard hose boom type), centre pivot, linear move, powered side roll hand shift permanent (installed), and bike shift/easy shift.

Gravity fed irrigation systems include border check, contour irrigation, furrow irrigation, hillside flooding, and basin irrigation. Border check systems may be either permanent or temporary earth, plastic or concrete devices for insertion in a drain for reticulating water, contour banks used to collect and distribute water along the perimeter of an irrigation plot, contour banks within a plot to collect/distribute water, or larger scale systems to stop water exiting one area to another.

Irrigation systems may range from manual operation and monitoring to fully automated with computer control and monitoring.

Risks are explained for which irrigation practices?

These may include implementation of irrigation schedules and shifts, and routine and seasonal maintenance activities.

Risks are explained for which irrigation related activities?

Irrigation related activities may include installation and construction of irrigation systems and components.

What environmental pollution events may be relevant to this standard?

Pollution events may include backflow from the irrigation system into potable water supply, contamination of waterways by tailwater drainage, breakout of contaminated water from drainage system overload, system overload from storm water, contamination of stormwater run off with waste water, and aerial drift of chemical sprays.

What OHS requirements may be relevant to this standard?

OHS requirements may include safe systems and procedures for handling, transporting and storing hazardous substances; selection, use and maintenance of personal protective clothing and equipment; protection against chemical residues, including that in/on foliage, water, soil and other items; and safe systems and procedures for outdoor work, including protection from solar radiation, dust and noise.

What might stormwater control include?

Stormwater control may include pumping systems and gravity drainage systems.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in implementing an irrigation-related environmental protection program requires evidence that a person can implement procedures to reduce the impacts of irrigation and drainage systems on the environment, and respond to potential and actual environmental pollution events.

The skills and knowledge required to implement an irrigation-related environmental protection program must be transferable to a different work environment. For example, this could include different irrigation systems, environmental parameters and issues, and enterprise procedures.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- environmental legislation, regulations and guidelines
- environmental impacts of irrigation, using water from any ground or underground source
- OHS procedures relating to investigation of irrigation-related hazards and implementation of an environmental protection program.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- identify adverse environmental impacts of irrigation activities and appropriate remedial action
- apply and comply with environmental requirements
- provide and explain information on the irrigation and drainage environmental plan
- explain and demonstrate enterprise environmental record systems and procedures
- calculate stormwater control requirements
- follow relevant enterprise OHS and environmental procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4604A**Determine seasonal irrigation scheduling tasks****Unit Descriptor**

This competency standard covers the process of implementing watering shifts, monitoring factors that influence water requirements and adjusting the irrigation schedule to accommodate changes in those factors, without supervision but with general guidance on progress. It requires the ability to use enterprise monitoring equipment, access irrigation data, plot and read graphic data, measure and interpret environmental data, estimate water availability for plants/crops, and read and apply map data to property features. Implementing monitoring and adjusting irrigation schedules requires a knowledge of crop and plant health, weather patterns, irrigation monitoring procedures, soil water retention testing techniques, monitoring irrigation surface runoff and infiltration due to soil type and terrain, water quality monitoring methods and techniques, and water authority standards and procedures.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|--|---|
| 1. Determine irrigation shifts | 1.1 The irrigated area is subdivided into the smallest units capable of individual irrigation and area, and irrigation equipment characteristics are noted for each.
1.2 Each unit is defined for its soil irrigation capability.
1.3 The crop/plant water requirement is defined for each unit.
1.4 Units requiring similar irrigation are combined to form a shift that does not exceed the water delivery capacity of the property irrigation infrastructure. |
| 2. Check water supply and availability | 2.1 Water volume required to meet irrigation needs over specified period is determined.
2.2 Water is ordered, if necessary, according to water management authority standards and procedures.
2.3 Sufficient notice of water order is given, if necessary, to ensure water is available when required. |
| 3. Implement irrigation shifts | 3.1 Resources are co-ordinated and personnel briefed to deliver requirements.
3.2 Agreed irrigation schedule is implemented. |
| 4. Evaluate effectiveness of irrigation activities | 4.1 Plant or crop environment is monitored according to enterprise policy and procedures.
4.2 Plants and crops are inspected for signs of stress. |

RTE4604A Determine seasonal irrigation scheduling tasks

- | | |
|---|--|
| 5. Monitor irrigation system process as specified by enterprise policy and procedures | 5.1 Frequency of irrigation is recorded.
5.2 Water usage is measured and recorded, and does not exceed water allocation for a given period.
5.3 Differences between estimated water use and actual water used are calculated.
5.4 Water quality is measured according to enterprise OHS policy and procedures.
5.5 Plant or crop growth and water use efficiency is assessed.
5.6 Soil chemical characteristics are measured and soil moisture is assessed.
5.7 Labour performance is measured.
5.8 Climate and weather conditions are recorded. |
| 6. Record irrigation information and activities as specified by enterprise policy | 6.1 Plant or crop environment data is recorded .
6.2 Water orders and water usage is recorded.
6.3 Irrigation shifts are recorded.
6.4 System process data are recorded. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Briefing personnel on the irrigation schedule.	2
Collecting analysing and organising information	Collecting and interpreting data to adjust irrigation schedule.	2
Planning and organising activities	Organising and monitoring irrigation activities.	2
Working with others and in teams	Implementing the irrigation schedule.	2
Using mathematical ideas and techniques	Measuring and interpreting environmental data, plotting and reading graphic data, and estimating water availability for plants/crops.	2
Solving problems	Determining irrigation requirements in response environmental conditions.	2
Using technology	Recording and accessing data electronically.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What external factors in the environment might affect irrigation requirements?	These may be pests and vermin (tortoises, yabbies, ants, spiders, snails, rabbits, hares, foxes, wasps, rose weevil, earwigs, snakes, carp, pigs, wallabies, eels, rats, mice, kangaroos, dogs, cats, parrots), organic (leaves, slime, weeds, algae, sticks, crop residue), weather, channel regulators (if applicable), fire, mechanical damage (if applicable), power spikes, power failures, storm run off, or system breakage.
What environmental factors may be monitored?	These may include drainage, soil moisture, water table levels, soil salinity, rainfall, air temperature, frost risk, water quality, plant/crop and soil nutrient deficiencies, and irrigation system maintenance requirements.
What might be measured to determine water quality?	Measurements may include salinity (ground water and surface water), pH level, and nutrient concentration.
What OHS requirements may be relevant to this standard?	OHS requirements may include systems and procedures for outdoor work including protection from solar radiation, dust and noise, the operation of machinery and equipment, selection and use of relevant personal protective clothing and equipment, and protection against chemical residues including that in/on foliage, water, soil and other items.
What chemical characteristics of the soil might be measured?	Chemical characteristics may include pH, salinity and carbonate content.
How might data be collected?	This may include direct methods such as physical appearance/texture and rain gauge, or indirect methods such as tensiometers, neutron probes, laboratory tests, weather reports and forecasts.
How might data be recorded?	Data may be recorded on graphs and charts, on paper and/or electronically.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in implementing, monitoring and adjusting an irrigation schedule requires evidence that a person can implement watering shifts, monitor factors that influence water requirements, and adjust the irrigation schedule to accommodate changes in those factors.

The skills and knowledge required to implement, monitor and adjust an irrigation schedule must be transferable to a different work environment. For example, if an irrigation schedule is implemented for a particular plant or crop in one type of soil, it should be evident that a schedule could be implemented for different plants in another type of soil.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- crop and plant health
- weather patterns
- irrigation monitoring procedures
- environmental impacts of irrigation, using water from any ground or underground source
- soil water retention testing techniques
- monitoring irrigation surface runoff and infiltration due to soil type and terrain.
- water quality monitoring methods and techniques of potable and recyclable water
- water allocation
- water authority standards and procedures
- purchasing procedures, budget restrictions and limits
- enterprise policies and procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- use enterprise monitoring equipment
- identify adverse environmental impacts of irrigation activities and appropriate remedial action
- access irrigation data
- plot and read graphic data
- measure and interpret environmental data
- estimate water availability for plants/crops
- read and apply map data to property features
- implement and follow relevant enterprise OHS and environmental policies and procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4605A

Unit Descriptor

Schedule irrigations

This competency standard covers the process of determining the timing and amount of each irrigation to meet crop or plant needs and environmental requirements. It requires the ability to use and maintain in-field equipment that monitors the plant environment, incorporate data from monitoring sources into scheduling systems, monitor crop/plant water use, assess efficacy of irrigation, record irrigation and scheduling parameters, and plan for extremes of weather.

Scheduling irrigation requires knowledge of inter-relationship between plant, soil and the aerial environments in the determination of water budgets, plant responses to moisture stress, possible adverse impacts on the crop and environment from inefficient scheduling or unpredictable weather effects, recognition of moisture stress effects, physical soil characteristics, and weather forecasting.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

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| 1. Monitor crop/plant water use | 1.1 Water use is measured or estimated from one or more systems.
1.2 Water is accumulated as a soil water deficit in the root zone. |
| 2. Apply a measured amount of water | 2.1 A pre-determined deficit is predicted using a scheduling system(s).
2.2 Irrigation is applied to partly or fully replace the deficit.
2.3 Where appropriate, water quantities are increased to ensure dilution and transport of toxic solutes below the root zone. |
| 3. Assess efficacy of irrigation and repeat cycles of irrigation | 3.1 Effectiveness of irrigation application with in-field equipment is measured.
3.2 The estimated soil moisture level in scheduling system is adjusted to match that measured.
3.3 Where necessary, the scheduling system(s) is recalibrated.
3.4 Cycles of irrigation are repeated until schedule is correctly established. |
| 4. Record irrigation and scheduling parameters | 4.1 Each irrigation and significant rainfall event, plus other appropriate parameters used in scheduling system, are recorded.
4.2 Drainage amount below root zone at each irrigation is estimated and recorded.
4.3 System performance data is recorded. |

5. Plan for extremes of weather
- 5.1 Estimated deficits are modified to cater for any prolonged saturation following heavy rainfall.
 - 5.2 Shift areas, and where applicable, application rates, are altered to suit appropriate irrigation schedules that minimise frost damage.
 - 5.3 Strategies involving prioritising of plants/crops and intermittent irrigation are implemented at times of extreme heat.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Documenting irrigation schedules.	2
Collecting analysing and organising information	Gathering and analysing crop, soil and irrigation information.	2
Planning and organising activities	Scheduling irrigation shifts.	2
Working with others and in teams	Documenting irrigation schedules for others.	2
Using mathematical ideas and techniques	Interpreting data and performing moderately complex calculations to determine irrigation units or areas.	2
Solving problems	Using raw data to determine irrigation shifts.	2
Using technology	Using software and irrigation technology where necessary.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What crop/plant water might be monitored?

These may include growth phase, evapotranspiration, variety, rootstock, plant vigour, plant size, crop load and stress.

What irrigation distribution systems might be relevant to this standard?

Micro-irrigation systems may include those with emitters of any type that are external to the tubing, low pressure sprinklers that are fitted to stakes and/or tubing, droplines with integrated emitters whether thin, medium or thick wall products, droplines for sub-surface applications, together with foggers and misting spays

Spray irrigation systems may include permanent overhead, semi-permanent, as well as travelling irrigators (soft hose, hard hose boom type), centre pivot, linear move, powered side roll hand shift permanent (installed), and bike shift/easy shift.

Surface irrigation systems may include border check, contour irrigation, furrow irrigation, hillside flooding, and basin irrigation. Border check systems may be either permanent or temporary earth, plastic or concrete devices for insertion in a drain for reticulating water, contour banks used to collect and distribute water along the perimeter of an irrigation plot, contour banks within a plot to collect/distribute water, or larger scale systems to stop water exiting one area to another. Systems may range from manual operation and monitoring to fully automated with computer control and monitoring.

What performance data might be recorded on the irrigation system?

Data may include pressures, flow rates, distribution uniformity, depth of irrigation, and soil moisture at root zone. Data may be recorded on graphs and charts on paper and/or electronically.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in scheduling irrigations requires evidence that a person can determine water budgets and irrigation units or areas, and schedule irrigation shifts to meet crop or plant needs and environmental requirements.

The skills and knowledge required to schedule irrigations must be transferable to a different work environment. For example, if irrigations are scheduled for spray irrigation of a crop, it should be evident that irrigations could be scheduled for gravity fed irrigation systems for a different crop in a different location.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- inter-relationship between plant, soil and the aerial environments in the determination of water budgets
- plant/crop response to moisture stress at different stages of growth
- possible adverse impacts on the crop and environment from inefficient scheduling or unpredictable weather effects
- recognition of moisture stress effects (sometimes desired) on plants
- physical soil characteristics such as infiltration rate, water holding capacity and wetted volume in the root zone
- weather forecasting of extreme weather events such as heat waves, frosts and storms, and appropriate contingency tactics to minimise impacts
- in-field irrigation reticulation performance and its capacity limits
- water quality monitoring methods and acceptable quality limits
- water authority standards and procedures
- enterprise and environmental policies and procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- use and maintain in-field equipment that monitors the plant environment
- incorporate data from monitoring sources (such as in-field equipment and remote sources) into scheduling systems that compute irrigation requirement
- monitor crop/plant water use
- apply a measured amount of water
- assess efficacy of irrigation and repeat cycles of irrigation
- record irrigation and scheduling parameters
- plan for extremes of weather
- follow relevant enterprise and environmental procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4606A**Supervise on-site irrigation installation and construction work****Unit Descriptor**

This competency standard covers the process of supervising on-site irrigation installation and construction work, which includes organising the supply and installation of materials and equipment, supervising on-site operations, and administering progress claims/payments. Effective communication with on-site labour, suppliers and the client, and the implementation and monitoring of relevant OHS and risk management procedures are also required.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

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|--|---|
| 1. Implement effective communication | 1.1 Site instructions for irrigation installation and construction work are recorded to comply with quality management requirements.
1.2 Dates, times and personnel to attend site meetings are organised. |
| 2. Implement and monitor OHS and risk management procedures | 2.1 First aid facilities are established as necessary.
2.2 Plant and equipment requiring certificated operators are identified to comply with risk management procedures.
2.3 Likely hazards are identified and precautions taken.
2.4 Role of Construction Safety Supervisor is identified.
2.5 Documentation for safety reporting is instigated. |
| 3. Organise the supply and installation of materials and equipment | 3.1 Material orders are placed according to appropriate schedule.
3.2 Equipment is hired according to planned schedule.
3.3 Maintenance procedures are established for equipment. |
| 4. Supervise on-site operations | 4.1 Operations are implemented according to appropriate schedule and contract.
4.2 Sub-contractor operations are co-ordinated and monitored, including all aspects of materials used and standards of workmanship.
4.3 Problems and delays are addressed as they arise and action recorded.
4.4 Industrial relations are monitored continuously and issues resolved to minimise impact on job progress.
4.5 Revisions are made to project schedule, when required, and variations documented to comply with quality management procedures.
4.6 Quality management procedures are applied continuously as per adopted standards for job.
4.7 Safety procedures are monitored continuously, reports analysed and procedures reviewed as required.
4.8 Reports on current project status are prepared for management.
4.9 Supervision of multiple projects is planned. |

- | | |
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| 5. Administer progress claims/payments | 5.1 Summary records are prepared for progress claims. |
| | 5.2 Actual expenditure and earnings are checked against scheduled projected costs. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communicating with on-site labour, client and suppliers.	2
Collecting analysing and organising information	Reading and interpreting plans and schedules.	2
Planning and organising activities	Co-ordinating installation and construction activities.	2
Working with others and in teams	Co-ordinating on-site labour.	2
Using mathematical ideas and techniques	Monitoring schedules, work progress and materials consumption.	2
Solving problems	Responding to unforeseen circumstances on site.	2
Using technology	Using relevant materials ordering technology.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

To which systems does irrigation installation and construction relate?	These may include gravity fed and pressurised systems.
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How might site instructions be recorded?	Instructions may be recorded using a diary, telephone log and/or memos.
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What OHS requirements may be relevant to this standard?

OHS procedures may include identification and reporting of hazards to health and safety, risk assessment procedures and implementation of risk control measures, safe operation of machinery and equipment, safe manual handling procedures, selection, use and maintenance of relevant personal protective clothing and equipment, safe procedures for working at heights and for outdoor work, including protection from solar radiation, dust and noise.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in supervising on site irrigation installation and construction work requires evidence that a person can organise the supply and installation of materials and equipment, supervise on-site operations, and administer progress claims/payments. They must also communicate effectively with on-site labour, suppliers and the client, and implement and monitor relevant OHS and risk management procedures.

The skills and knowledge required to supervise on site irrigation installation and construction work must be transferable to a different work environment. For example, this could include different irrigation systems, reasons for irrigation, environments and enterprise procedures.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- communication procedures for on site labour and authorities
- safety procedures and quality assurance programs
- local government regulations
- on-site contract provisions
- projected costs
- environmental impacts of irrigation system installation using water from any ground or underground source
- relevant enterprise OHS procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- communicate effectively on site
- read plans and specifications
- order materials and equipment to meet schedule
- administer the contract on site
- supervise construction operations in the most efficient sequence
- identify adverse environmental impacts of irrigation installation activities and take appropriate remedial action
- comply with statutory requirements
- follow relevant enterprise OHS and environmental procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4607A**Plan on-site irrigation system installation and construction work****Unit Descriptor**

Include checklist for excavation in relation to aspects such as landfill or heritage constraints and legislation.

Ref to working with main soil types both excavation and irrigation applicator type selection.

This competency standard covers the process of appraising contract documentation for irrigation installation and translating this into operational requirements, developing strategies for implementing construction, preparing a project schedule and dilapidation report, and determining all the required resources for the work. Planning on-site installation and construction usually occurs without supervision but with general guidance on progress.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

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|--|--|
| 1. Appraise contract documentation and translate into operational requirements | 1.1 Copy of building approval and conditions is obtained as required.
1.2 Contract documentation is reviewed for any unusual aspects of construction, use of materials and penalties.
1.3 Availability of sub-contractors is ascertained and selected to suit job requirements.
1.4 Availability of materials is checked with suppliers.
1.5 Site access limitations are assessed.
1.6 Relevant authorities controlling construction work advised of commencement date for project as required. |
| 2. Develop strategies for implementing the construction operations | 2.1 Procedures for controlling and recording site deliveries are established.
2.2 Procedures for recording the hire of plant and equipment are determined.
2.3 OHS procedures are established, including hazard/risk management.
2.4 Procedures are established for dealing with environmental issues associated with irrigation construction work.
2.5 Procedures required for the control of multiple projects are determined. |
| 3. Prepare project schedule for irrigation installation and construction | 3.1 Construction operations are prepared in sequence.
3.2 Operations are entered into a manually prepared schedule or computer based software package.
3.3 'Critical path' is identified and schedule revised with new activities/projects, as needed, and documented.
3.4 Timeframe is adjusted to take account of anticipated delays. |
| 4. Determine all the required resources for project | 4.1 Temporary services and site accommodation is determined as required.
4.2 Plant requirements and dates are selected and accessed.
4.3 On site labour requirements are determined. |

5. Prepare dilapidation report
- 5.1 Records are made of the condition of existing building(s) to be retained and structures on the adjacent site boundaries.
 - 5.2 Copies of reports are submitted to adjacent building owners prior to commencing construction.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Developing project schedules and disseminating information on on-site processes.	2
Collecting analysing and organising information	Reading and interpreting plans and determining resources.	2
Planning and organising activities	Sequencing installation and construction processes.	2
Working with others and in teams	Co-ordinating activities with installation and construction teams.	2
Using mathematical ideas and techniques	Developing schedules and estimating resource requirements.	2
Solving problems	Analysing project plans, developing schedules and analysing resource requirements.	2
Using technology	Using relevant project scheduling and resource management technology.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What OHS procedures may be relevant to this standard?

OHS procedures may include identification and reporting of hazards to health and safety, risk assessment procedures and implementation of risk control measures, safe operation of machinery and equipment, safe manual handling procedures, selection, use and maintenance of relevant personal protective clothing and equipment, safe procedures for working at heights, and for outdoor work including protection from solar radiation, dust and noise.

What environmental issues may be associated with irrigation construction work?	Environmental issues include excavation work such as dealing with landfill, heritage constraints and legislation, removal of existing services, and using hazardous materials. Reference should be made to Environment Protection Agencies and respective legislation where environmental issues are encountered.
To which systems does irrigation installation and construction relate?	These may include gravity fed and pressurised systems.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in planning on-site irrigation system installation and construction work requires evidence that a person can appraise contract documentation and translate this into operational requirements, develop strategies for implementing construction operations, prepare a project schedule and dilapidation report, and determine all the required resources for the project.

The skills and knowledge required to plan on-site irrigation system installation and construction work must be transferable to a different work environment. For example, this could include different irrigation systems, crops and enterprise procedures.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- installation and construction processes for on-site irrigation systems
- logical construction sequence for the system
- analysis of the required project resources
- environmental impacts of irrigation using water from any ground or underground source
- relevant enterprise OHS and environmental procedures
- relevant Australian Standards (e.g. AS3500)
- effect of main soil types on approach to excavation work and installation of irrigation components.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- analyse contract conditions
- develop strategies
- schedule projects
- determine resources
- identify adverse environmental impacts of irrigation activities and appropriate remedial/preventative action
- follow relevant enterprise OHS and environmental procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4608A**Plan and co-ordinate gravity-fed irrigation systems****Unit Descriptor**

This competency standard covers the process of planning and co-ordinating gravity-fed irrigation systems for an allocated set of fields using gravity fed irrigation systems, and involves responsibility for monitoring and directing work crews as necessary. It requires the ability to operate gravity fed irrigation systems, apply enterprise monitoring procedures, brief, monitor and direct work crews, identify adverse environmental impacts, and co-ordinate a range of activities and procedures. Planning and co-ordinating gravity-fed irrigation systems requires knowledge of soil/plant/water relationships, environmental impacts of irrigation, irrigation system components, and common operational problems.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|--------------------------------------|--|
| 1. Plan irrigation activities | 1.1 Work crews are briefed to carry out the required gravity fed irrigation activities in accordance with enterprise, environmental and OHS requirements .
1.2 Sufficient irrigation equipment is checked and available for the allocated fields to be irrigated.
1.3 Water availability is checked.
1.4 Pumps, bores and other water delivery mechanisms are checked for serviceability.
1.5 Irrigation sequence is determined. |
| 2. Co-ordinate irrigation activities | 2.1 Crew activities are monitored for efficient team work, and direction provided as necessary.
2.2 Water levels in ditches and channels are monitored and maintained to provide sufficient head.
2.3 Pumps and other mechanical equipment are monitored, and operating problems identified and corrected as necessary. |
| 3. Record irrigation activities | 3.1 Personnel hours and activities are recorded in accordance with enterprise practice.
3.2 Irrigation start and finish times are recorded in accordance with enterprise practice.
3.3 Water storage levels are recorded in accordance with enterprise practice.
3.4 Monitoring activities and data are recorded in accordance with enterprise practice.
3.5 Recommendations for service and maintenance activities are recorded in accordance with enterprise practice. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Briefing and directing crews.	2
Collecting analysing and organising information	Collecting and recording monitoring data.	3
Planning and organising activities	Planning irrigation activities.	3
Working with others and in teams	Co-ordinating and monitoring crew activities for efficient team work.	2
Using mathematical ideas and techniques	Estimating times for irrigation shifts and monitoring water levels.	2
Solving problems	Identifying and correcting operating problems.	2
Using technology	Reporting activities and using equipment.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What gravity fed irrigation systems may be relevant to this standard?

Flood irrigation systems may include border check, contour irrigation, furrow irrigation, hillside flooding, and basin irrigation. Border check systems may be either permanent or temporary earth, plastic or concrete devices for insertion in a drain for reticulating water, contour banks used to collect and distribute water along the perimeter of an irrigation plot, contour banks within a plot to collect/distribute water, or larger scale systems to stop water exiting one area to another. Gravity fed systems may range from manual operation and monitoring to fully automated with computer control and monitoring.

What environmental considerations relate to this standard?

Environmental considerations may include efficient operation of the system to conserve water by identifying and repairing leaks, avoidance of over watering, and even distribution of water to targeted areas with minimal wastage and run-off.

What OHS requirements are relevant to this standard?	These may include systems and procedures for the safe operation of irrigation equipment and to ensure protection against injury when working with pumps, outlets and other system equipment, the prevention of electrical type injury, manual handling, and procedures for working outdoors including protection from solar radiation, dust and noise.
What monitoring activities might be relevant to this standard?	Monitoring activities may include, but not be limited to, drainage, rainfall, air temperature, frost risk, water quality, and irrigation system maintenance requirements.
How might data be collected?	Data collection may include, but not be limited to, direct methods (e.g. physical appearance and feel, rain gauge), or indirect methods (e.g.. tensiometers, neutron probes, laboratory tests, weather reports and forecasts). Data may be recorded on graphs and charts, on paper and/or electronically.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in conducting gravity fed irrigation of a set of fields requires evidence that a person can plan and co-ordinate irrigation activities, brief, monitor and direct irrigation work crews, and record irrigation activities, including personnel hours and activities.

The skills and knowledge required to conduct gravity fed irrigation of a set of fields must be transferable to a different work environment. For example, if gravity fed irrigation of a set of fields is conducted with a furrow irrigation system with one crop, it should be evident that gravity fed irrigation could be conducted using a basin irrigation system for a different set of fields with a different crop.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- soil/plant/water relationships
- environmental impacts of irrigation using water from any ground or underground source
- irrigation system components
- common operational problems
- enterprise, OHS and environmental policies and procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- operate gravity fed irrigation systems
- apply enterprise monitoring procedures
- brief, monitor and direct work crews
- identify adverse environmental impacts of irrigation activities and take appropriate remedial action
- co-ordinate a range of activities and procedures
- implement and follow relevant enterprise, OHS and environmental policies and procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4609A**Implement, monitor and adjust irrigation schedules****Unit Descriptor**

This competency standard covers the process of implementing watering shifts, monitoring factors that influence water requirements and adjusting the irrigation schedule to accommodate changes in those factors, without supervision but with general guidance on progress. It requires the ability to use enterprise monitoring equipment, access irrigation data, plot and read graphic data, measure and interpret environmental data, estimate water availability for plants/crops, and read and apply map data to property features. Implementing, monitoring and adjusting irrigation schedules requires a knowledge of crop and plant health, weather patterns, irrigation monitoring procedures, soil water retention testing techniques, monitoring irrigation surface runoff and infiltration due to soil type and terrain, water quality monitoring methods and techniques, and water authority standards and procedures.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|--|
| 1. Monitor plant or crop environment for irrigation requirement | 1.1 Plant or crop environment is monitored and results are interpreted according to enterprise policy and procedures.
1.2 Plants or crops are inspected for signs of stress.
1.3 Changes to irrigation shifts are recommended according to environmental conditions and plant or crop requirements. |
| 2. Check water supply and availability | 2.1 Water volume required to meet irrigation needs over specified period is determined.
2.2 Water is ordered, if necessary, according to water management authority standards and procedures.
2.3 Sufficient notice of water order is given, if necessary, to ensure water is available when required. |
| 3. Implement irrigation shifts | 3.1 Resources are co-ordinated and personnel briefed to deliver requirements.
3.2 Agreed irrigation schedule is implemented. |
| 4. Evaluate effectiveness of irrigation activities | 4.1 Plant or crop environment is monitored according to enterprise policy and procedures.
4.2 Plants and crops are inspected for signs of stress. |

- | | |
|---|---|
| 5. Monitor irrigation system process as specified by enterprise policy and procedures | 5.1 Frequency of irrigation is recorded.
5.2 Water usage is measured and recorded and does not exceed water allocation for a given period.
5.3 Differences between estimated water use and actual water used are calculated.
5.4 Water quality is measured according to enterprise OHS policy and procedures.
5.5 Plant or crop growth and water use efficiency is assessed.
5.6 Soil chemical characteristics are measured and soil moisture is assessed.
5.7 Labour performance is measured.
5.8 Climate and weather conditions are recorded. |
| 6. Record irrigation information and activities as specified by enterprise policy | 6.1 Plant or crop environment data is recorded .
6.2 Water orders and water usage is recorded.
6.3 Irrigation shifts are recorded.
6.4 System process data are recorded. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Briefing personnel on the irrigation schedule.	2
Collecting analysing and organising information	Collecting and interpreting data to adjust irrigation schedule.	2
Planning and organising activities	Organising and monitoring irrigation activities.	2
Working with others and in teams	Implementing the irrigation schedule.	2
Using mathematical ideas and techniques	Measuring and interpreting environmental data, plotting and reading graphic data, and estimating water availability for plants/crops.	2
Solving problems	Determining irrigation requirements in response environmental conditions.	2
Using technology	Recording and accessing data electronically.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What external factors in the environment might affect irrigation requirements?	These may be pests and vermin (tortoises, yabbies, ants, spiders, snails, rabbits, hares, foxes, wasps, rose weevil, earwigs, snakes, carp, pigs, wallabies, eels, rats, mice, kangaroos, dogs, cats, parrots), organic (leaves, slime, weeds, algae, sticks, crop residue), weather, channel regulators (if applicable), fire, mechanical damage (if applicable), power spikes, power failures, storm run off, or system breakage.
What environmental factors may be monitored?	These may include drainage, soil moisture, water table levels, soil salinity, rainfall, air temperature, frost risk, water quality, plant/crop and soil nutrient deficiencies, and irrigation system maintenance requirements.
What might be measured to determine water quality?	Measurements may include salinity (ground water and surface water), pH level, and nutrient concentration.
What OHS requirements may be relevant to this standard?	OHS requirements may include systems and procedures for outdoor work including protection from solar radiation, dust and noise, the operation of machinery and equipment, selection and use of relevant personal protective clothing and equipment, and protection against chemical residues including that in/on foliage, water, soil and other items.
What chemical characteristics of the soil might be measured?	Chemical characteristics may include pH, salinity and carbonate content.
How might data be collected?	This may include direct methods such as physical appearance/texture and rain gauge, or indirect methods such as tensiometers, neutron probes, laboratory tests, weather reports and forecasts.
How might data be recorded?	Data may be recorded on graphs and charts, on paper and/or electronically.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in implementing, monitoring and adjusting an irrigation schedule requires evidence that a person can implement watering shifts, monitor factors that influence water requirements, and adjust the irrigation schedule to accommodate changes in those factors.

The skills and knowledge required to implement, monitor and adjust an irrigation schedule must be transferable to a different work environment. For example, if an irrigation schedule is implemented for a particular plant or crop in one type of soil, it should be evident that a schedule could be implemented for different plants in another type of soil.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- crop and plant health
- weather patterns
- irrigation monitoring procedures
- environmental impacts of irrigation using water from any ground or underground source
- soil water retention testing techniques
- monitoring irrigation surface runoff and infiltration due to soil type and terrain
- water quality monitoring methods and techniques of potable and recyclable water
- water allocation
- water authority standards and procedures
- purchasing procedures, budget restrictions and limits
- enterprise policies and procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- use enterprise monitoring equipment
- identify adverse environmental impacts of irrigation activities and appropriate remedial action
- access irrigation data
- plot and read graphic data
- measure and interpret environmental data
- estimate water availability for plants/crops
- read and apply map data to property features
- implement and follow relevant enterprise OHS and environmental policies and procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4801A

Unit Descriptor

Provide information on marketing the clip

This competency standard covers the process of providing information on marketing wool clips. It requires the ability to respond to a request for information on marketing wool clips and to ensure that the information meets the request, document information and maintain currency of information on wool marketing. Providing information on marketing the clip requires knowledge of approaches to giving, presenting and communicating information on wool clip preparation, Total Quality Management (TQM), industry codes of practice, wool room layout and design principles, clip analysis reports and procedures involved in fleece measurement.

Unit Sector

No sector assigned

ELEMENT	PERFORMANCE CRITERIA
1. Respond to a request for information on marketing wool clip	<p>1.1 Appropriate response methods and format are researched and identified.</p> <p>1.2 Relevant sources and locations of information are identified and researched.</p> <p>1.3 Where requests are unclear or difficult to understand, clarification and assistance is sought.</p>
2. Ensure information meets request	<p>2.1 Information is assessed for its currency, accuracy, validity and reliability.</p> <p>2.2 Where available information is inadequate, additional information is obtained and provided.</p> <p>2.3 Different types of information are combined, where appropriate, to provide a response to a request.</p>
3. Document information	<p>3.1 Information is formatted into a report or correspondence document that meets the needs of the client</p> <p>3.2 Report/correspondence is written using clear and concise language.</p> <p>3.3 Spelling, punctuation and grammar is checked and errors are amended.</p> <p>3.4 Report/correspondence is formatted according to enterprise policies and procedures.</p> <p>3.5 Report/correspondence is checked for accuracy and to ensure that its intended meaning is readily understood by recipient.</p>
4. Maintain currency of information on wool marketing	<p>4.1 Sources that provide updates on marketing information are identified.</p> <p>4.2 Updated information relevant to wool marketing is regularly researched and extracted.</p> <p>4.3 Copies of extracted information are made and sources are documented.</p>

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through preparation of reports/correspondence.	3
Collecting analysing and organising information	Through extracting and filing of information and data.	3
Planning and organising activities	In response to requests for information and established processes and timelines.	2
Working with others and in teams	Co-operation and collaboration in researching, extracting and reporting information.	2
Using mathematical ideas and techniques	Assembling calculations based on data on wool clip marketing.	2
Solving problems	In dealing with unforeseen marketing situations and changes.	2
Using technology	Through use of computers and communication systems.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

Where may request for information come from?

Owners and managers.

What sources of information may be relevant to this standard?

Personal files, government reports, relevant legislation, codes of practice, statistics, local knowledge, original research, media (television, video, audio), articles (academic, on-line, newspaper, journal), specialist texts, letters, internal correspondence, and libraries.

What formats may be included in this unit?

Photocopies, preparation of original documents and completion of proforma.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in providing information on environmental issues and policies requires a report/correspondence to be prepared detailing local, regional and national environmental issues and policies as requested by the client. The skills and knowledge required to provide information on environmental issues and policies must be transferable to a range of work environments and contexts. For example, this could include different environmental issues and policies, client groups and pertaining to different regions and areas.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- approaches to giving, presenting and communicating information
- wool clip preparation
- TQM systems for wool
- industry codes of practice
- wool room layout and design principles
- wool brokering services and operations
- marketing/selling options
- reports to growers
- clip analysis reports
- procedures involved in fleece measurement.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- respond to a request for information on marketing wool clip
- ensure information meets request
- document information
- maintain currency of information on wool marketing methods to locate information.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4812A

Co-ordinate customer service and networking activities

Unit Descriptor

This competency standard covers the skills and knowledge required to implement customer service policies and procedures. This unit might be appropriate for merchandise or department managers who have responsibility for customer service delivery by others in an agricultural or horticultural setting.

This unit is a combination of unit GCST05A Co-ordinate customer service activities and element 3 is element S20 from the Customer Service Generic Guideline competencies. This unit still achieves the outcome of GCST05A but includes an additional element on networking.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Contribute to quality customer standards | <p>1.1 Customer service standards are accessed, interpreted, applied and monitored in the workplace in accordance with enterprise policies and procedures.</p> <p>1.2 Contributions are made to the development, refinement and improvement of service policies, standards and processes.</p> |
| 2. Implement customer service systems | <p>2.1 All personnel are encouraged to consistently implement customer service systems.</p> <p>2.2 Customer feedback is reviewed in consultation with appropriate personnel and is analysed when improving work practices.</p> <p>2.3 Customer service complaints are identified and adjustments made to ensure continued service quality.</p> <p>2.4 Adjustments are communicated to all those involved in service delivery within appropriate time frames.</p> <p>2.5 Delivery of services/products is co-ordinated and managed to ensure they effectively and efficiently meet agreed quality standards.</p> |
| 3. Manage networks to ensure customer needs are addressed | <p>3.1 Effective regular communication is established with customers.</p> <p>3.2 Relevant networks are established, maintained and expanded to ensure appropriate referral of customers to products/services from within and outside the organization.</p> <p>3.3 Procedures are put in place to ensure that decisions about targeting of customer services are based on up-to-date information about the customer and the products/services available.</p> <p>3.4 Procedures are put in place to ensure that referrals are based on the matching of the assessment of customer needs and availability of products/services.</p> <p>3.5 Records of customer interaction are maintained in accordance with organisational procedures.</p> |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	By informing customers of products and services.	2
Collecting analysing and organising information	By monitoring customer feedback and adjusting customer service standards in response to it.	2
Planning and organising activities	By implementing a continuous quality improvement program.	2
Working with others and in teams	Working with other staff or family members to co-ordinate customer service.	2
Using mathematical ideas and techniques	Pricing and refund policies.	1
Solving problems	To be able to manage contingencies.	2
Using technology	Database for recording customer contact details and analysing feedback.	1

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

Who may be a customer?	Customers may be either internal or external, and may include, but are not limited to customers with routine or special requests, regular and new customers, people from a range of social, cultural or ethnic backgrounds, people with varying physical and mental abilities.
What may be included in customer service standards?	Personal presentation requirements, response times/delivery times, protocols, quality specifications, pricing and refund policies, complaints procedures, referrals, customer feedback, quality assurance processes, stock control and record keeping requirements.
What may be included in enterprise policy and procedures?	Procedural manuals, product/service manuals, labels, instructions, quality systems, standards and guidelines.

What sort of customer complaints might arise?	Product quality or misunderstanding of its purpose, damaged goods, service dissatisfaction, price or quantity errors, incorrect invoices, delivery issues, product not delivered on time, manufacturers warranty or service.
What sort of networks may be relevant in this industry?	Relevant agricultural or horticultural manufacturers and suppliers, industry associations, internal and external customers, government agencies and departments, specific interest or support groups, advisory committees, lobby groups, and research bodies.
How may communication be maintained with customers?	Newsletters, special purchase offers, email, telephone, website, customer satisfaction surveys, reminder notices, demonstration of new equipment and/or materials, personal visits, workshops, promotional materials, exhibition of products at agricultural or horticultural shows.
What type of referrals may be made?	Supervisor, manufacturer/supplier or technical expert within or external to the enterprise.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in co-ordinating customer service and networking activities requires evidence of the ability to identify the customer service requirements and to ensure they are delivered to standard and in an appropriate time frame, contribute to the development and implementation of improved procedures, and develop and maintain networks to ensure the delivery of quality customer service.

The skills and knowledge required to co-ordinating customer service and networking activities must be transferable to a different work environment. This competency may be expected to apply to a person who is a merchandise manager or department manager who has some responsibility for the implementation of customer service systems and procedures within an agricultural or horticultural merchandise setting. These settings could be urban and/or rural work environments in small, medium or large multi purpose or specialist businesses.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- legislative and regulatory requirements may include but are not limited to: Consumer Law, Environmental Law, OHS, Privacy Legislation, Codes of Conducts, Discrimination/Equal Employment Opportunity, Harassment and other laws specific to local government, State and Federal legislation
- the organisation's business structure, products and services
- customer service systems/procedures including the continuous quality improvement framework, together with some knowledge of the customer population and how the system applies to delivering customer service to that customer population
- the principles of customer service
- the principles of effective communication in relation to listening, questioning and non-verbal communication
- the individual's role in delivering customer service
- techniques for dealing with customers with special needs
- techniques for building relationships of trust and mutually acceptable outcomes
- related organisations, agencies and networks
- the principles and operations of networks.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required.

Effective communication techniques may include but are not limited to:

- active listening
- using open and/or closed questions
- speaking clearly and concisely
- using appropriate language and tone of voice
- giving customers full attention
- maintaining eye-contact (for face-to-face interactions)
- non-verbal communication e.g., body language, personal presentation (for face-to-face interactions)
- negotiation skills to achieve mutually acceptable outcomes
- interpersonal skills to relate to people from a range of social, cultural and ethnic backgrounds
- clear, legible writing
- language skills which allow for adequate communication with customer and all relevant personnel
- literacy skills to the level required to read and write procedures and reports
- numeracy skills to the level required to develop and implement customer service procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

This unit requires significant interactions with others in the workplace and so it may be appropriate to assess it in conjunction with appropriate teamwork, team leading and/or interpersonal skills units of competency.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

Where practical, this unit should be assessed in an integrated fashion with other appropriate units.

This unit has skill and knowledge components and it is expected that assessment will be a combination of practical assessment (i.e. workplace-based or by simulation), supported by questioning to assess knowledge, or alternatively 'project' type assessment may be valid.

Practical assessment will frequently be in the workplace or a suitable similar environment. Access to such an environment will be required. Questioning may occur in the work environment, or other suitable room such as an office, classroom or lunchroom.

Where questions, case studies/scenarios form part of the assessment, a bank of relevant material will be required.

Generally no other special resources will be required.

RTE4813A**Provide information and advice on wool preparation****Unit Descriptor**

This competency standard covers the process of providing information and advice on wool preparation. It includes gathering/collating information, examining it for benefits to the profitability of the operation, and then communicating the advice to the grower in the form and at the time it is required.

Providing information on wool preparation is likely to be carried out independently within own area of responsibility. The provision of sound advice toward wool harvesting assists in the overall efficiency and grower returns of the industry.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|--|
| 1. Source information for input to wool preparation recommendations | <p>1.1 Workflow, systems, and procedures are observed before and during wool shed/room operations to gather information for recommendations.</p> <p>1.2 Product and quality of the operations and the wool itself are examined during wool shed/room operations to gather information.</p> <p>1.3 OHS hazards and risks in the workplace and in work practices are observed for input to recommendations.</p> <p>1.4 Animal handling procedures are observed for input to recommendations.</p> <p>1.5 Equipment used during wool shed/room operations is observed for input to recommendations.</p> <p>1.6 Records and documentation are examined during and after wool shed/room operations to determine clarity, accuracy and completeness.</p> <p>1.7 Discussions are held with wool shed/room workers and supervisors to gather their input and perspective to procedures, workflow, product and equipment in the wool shed/room.</p> |
| 2. Analyse and compare information | <p>2.1 Information gathered is analysed for potential gains in returns for the grower.</p> <p>2.2 Procedures, workflow, product and equipment information are compared with quality management standards in use in the industry.</p> <p>2.3 Recommendations on changes in operations, product or equipment are formulated ready for communication/advice to the grower.</p> |
| 3. Communicate information | <p>3.1 Recommendations are given to the grower at the time requested by the grower.</p> <p>3.2 Recommendations for change are communicated clearly and in a format that will suit the grower.</p> <p>3.3 Reasons for the recommendations for change are clearly articulated, and include the potential gains in returns, efficiency, and safety.</p> |

KEY COMPETENCIES

Key Competency	Example of Application	Performance Level
Communicating ideas and information	In providing verbal and written advice to growers.	2
Collecting analysing and organising information	By collecting and analysing information about wool sheds, equipment and practices.	2
Planning and organising activities	In making observations and recommendations associated with improvements in performance and procedures.	3
Working with others and in teams	By working with shed hands, shearers and the supervisor.	3
Using mathematical ideas and techniques	In sifting through and analysing information that might have an impact on the returns to the grower.	1
Solving problems	In identifying issues, inefficiencies and providing advice.	2
Using technology	In using any necessary equipment during the information collection and analysis phase - communication technology, calculating equipment, measuring equipment, spreadsheets, word-processed documents.	1

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What are the wool shed/room operations that might be observed?

These are the usual operations that take place in and around the wool shed(s) at shearing time, such as penning up the sheep, shearing, preparing the clip, classing the wool, moving the sheep, fleeces and bales around, pressing the wool, and recording all the relevant information.

What information might be gathered?

Information regarding efficiencies and inefficiencies in processes.

What procedures are observed?

These are the procedures that are undertaken by all the workers in the wool room. Included is the adherence to the range of organisational and industry standards that are applicable.

What are the results of wool shed/room operations?

The continuity of sheep fed to the shearers, the shorn sheep, the prepared fleeces, the classed wool, the pressed and stacked bales, and the completed documents.

Which wool products and quality are examined?	The shorn and prepared fleeces, the marketability of the off-cut sections (skirts, bellies etc.), individual and aggregate clip analysis, flock presentation, the lack of contamination in the fleece, and the consistency, including consistent weight, of the bales.
What OHS hazards and risks might be observed in the wool shed/room?	<p>These include:</p> <ul style="list-style-type: none">• the operation and maintenance of hazard-free facilities and equipment• the maintenance of accommodation facilities• handling livestock• the administering of first aid• safe manual handling, including lifting and carrying• safe fleece/wool harvesting• the protection from electrical hazards, hazardous noise, and organic and other dusts• the handling and storage of hazardous substances• the health and safety of shearing personnel• outdoor work including protection from solar radiation• the appropriate use of personal protective clothing and equipment.
What will the animal handling procedures be analysed against?	The organisation will have recognised procedures for the handling of animals during shearing operations, as will the industry nationally and the applicable regulations.
What equipment is used during the wool shed/room operations?	Amongst the equipment used may be wool presses, shearing equipment, lifting devices, tables, calibrated measuring equipment, scales, classing tables, lights, woolpacks/bags, bale clips, and recording devices.
What records and documentation may be required to be kept?	Records and documentation may be kept in a manual or digital system and may cover tallying, volumes, weights, advice notes, waybills, classers specifications, wool clip specifications, and contractors wages statements.
What might the quality management standards relate to?	They may relate to OHS standards, workflow and efficiency rates, and Total Quality Management standards.
What advice may be given on clip preparation and quality management?	Advice on the proportion of wool to be skirted from fleeces, the mixing (or separation) of pieces from different mobs may be provided.

What issues might be covered by the recommendations?

They might cover advice on improving safety and controlling hazards in and around the shed, flock presentation, shed layout, clip preparation, work flow, the way in which tools or equipment are used or machinery set up, the use of digital technologies, sources of contamination and down-grading of wool arising from sheep husbandry and management, and other issues or sequencing in the shearing plan. Wool types may also be provided for matching to sale price information.

In what format might the information be given to the grower?

They might cover advice on improving safety and controlling hazards in and around the shed, flock presentation, shed layout, clip preparation, work flow, the way in which tools or equipment are used or machinery set up, the use of digital technologies, sources of contamination and down-grading of wool arising from sheep husbandry and management, and other issues or sequencing in the shearing plan. Wool types may also be provided for matching to sale price information.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in providing information on wool preparation requires evidence that salient and timely advice on opportunities to enhance the woolgrower's return is provided in a clear and acceptable manner.

The skills and knowledge required to provide information on wool preparation must be transferable to a different work environment. For example, across all the functions performed in the wool room/wool shed and across a range of breeds and shed types.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts. and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

A basic working knowledge of

- what to give advice on, and how to present that advice
- procedures involved in the measurement of wool
- requirements and standards of the National Wool Processing Industry
- clip preparation and analysis processes for the major wool types
- criteria for measuring and classing wool to a National standard and the factors that affect it
- methods used for processing wool
- efficient wool room layout and design principles
- relevant national codes of practice for the industry
- requirements of the organisations marketing and production plans.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- collect, store, and analyse information on wool shed/wool room practices
- communicate complex and detailed information to the grower to clearly underline the key points
- observe, identify and react appropriately to environmental implications and OHS hazards.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4901A**Administer finance, insurance and legal requirements****Unit Descriptor**

This competency standard describes the administrative processes relating to the financial, insurance and legislative requirements of primary production businesses. It includes the collection of information, evaluation of options, and the processing and storage of related documentation. The management team would make decisions on the financial, insurance and legal requirements of the business.

Work performed at this level requires a full range of well-developed skills where some discretion and judgement is required. One will take responsibility for own outputs and limited responsibility for the output of others.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|---|
| 1. Administer the legal requirements of the business | 1.1 Legislative requirements are identified, monitored and processed to ensure compliance.
1.2 Legal documents are identified, maintained and stored in accordance with organisational requirements.
1.3 Legislative requirements are reviewed regularly in accordance with organisational requirements. |
| 2. Process and maintain the insurance requirements for the business | 2.1 Insurance requirements are identified and assessed in consultation with the management team .
2.2 Suitable insurers or insurance brokers are identified and quotations obtained.
2.3 Adequate insurance policies and cover are acquired in consultation with management team.
2.4 Legislative requirements and insurance cover are reviewed regularly in accordance with organisational requirements.
2.5 Documentation filed is in accordance with organisational requirements to ensure security and accessibility. |
| 3. Identify sources, types and cost of finance | 3.1 Research is conducted on the different types of finance available to primary production-based businesses.
3.2 Costs associated with different forms of finance are determined.
3.3 Re-payment structures for finance options are assessed in consultation with the management team. |
| 4. Prepare application for finance or investment | 4.1 Farm business and financial data are accessed and an application for finance or investment prepared.
4.2 Overview of the finance application is checked by the management team and submitted to the relevant body.
4.3 Documentation is maintained and stored in accordance with organisational requirements. |

KEY COMPETENCIES

Key Competency	Example of Application	Performance Level
Communicating ideas and information	By researching information and presenting it in a logical and coherent manner.	2
Collecting analysing and organising information	Information must be recorded and stored in accordance with legal and organisational requirements.	2
Planning and organising activities	By scheduling and processing payments to meet compliance requirements.	2
Working with others and in teams	By delegating tasks to others.	1
Using mathematical ideas and techniques	By calculating loan repayments and interpreting financial data for the business.	2
Solving problems	By analysing finance options for the business and recommending an approach.	2
Using technology	By using equipment such as computers, internet, calculators, appropriate software and telephones to gather, collate and analyse information.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What type of legal requirements would be relevant to an agricultural or horticulture business?

Legal requirements may include obligations imposed by the choice of the business structure, marketing the business in accordance with consumer legislation, operating with a duty of care (Law of Torts). Relevant legislation from all levels of government that affect business operations, especially OHS, environmental, award and enterprise agreements, equal opportunity and anti-discrimination.

What legal documents would be required for the business?

Legal documents may include partnership agreements, statutory books for companies (Register of Members, Register of Directors, Minute Books), Certificate of Incorporation, Certificate of Registration of a Business, Family Trust Deed, and wills.

What type of insurance requirements would be relevant to an agricultural or horticulture business?

Insurance requirements may include workers' compensation, public liability, superannuation, life, personal accident and sickness, buildings, plant, crops, and vehicles.

Who might be members of the management team?	The management team may consist of oneself, family members, fellow managers, employees, professional advisors, partners, and mentors.
What is meant by insurers and insurance brokers in this industry context?	<p>Insurance companies have policies available across areas such as general (vehicles, property, buildings, commercial, plant, crops), life (personal accident and sickness) and superannuation.</p> <p>Insurance brokers work on behalf of the client and seek the best policies and premiums from insurance companies for their client.</p>
What sources, types and cost of finance are available in this industry?	<p>Sources of finance may include banks, merchant banks, building societies, credit unions, co-operatives, finance companies, solicitors, accountants, and private treaty.</p> <p>Types of finance may include loan, overdraft, hire purchase, lease or credit.</p> <p>Costs associated with securing finance include interest rate, term of the loan, establishment fees, charges, government fees, and level of security required.</p>
What is meant by a repayment structure?	The terms and conditions for each source of finance can be calculated for the length of the loan or credit facility. This would allow for comparisons to be made between financing options.
What business and financial data would be required in preparing a finance application?	Business and financial data to be included in an application for finance may include balance sheets, profit and loss statements, production yields, sales, income, security, assets and liabilities, and cash flow performance.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in administering legislative, insurance and financial requirements requires evidence that the processes have been performed and monitored as stated in the elements and performance criteria. Knowledge is required of the legislative, insurance and finance requirements for the business and the ability to prepare an application for finance.

The skills and knowledge required to administer legislative, insurance and financial requirements must be transferable to a different work environment. For example, this could include agricultural and horticultural businesses ranging in size (micro, small, medium large) and location (regional, rural, remote, urban).

What specific knowledge is needed to achieve the performance criteria?	Business and financial data to be included in an application for finance may include balance sheets, profit and loss statements, production yields, sales, income, security, assets and liabilities, and cash flow performance.
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What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- effectively communicate with a wide range of people from diverse backgrounds
- work independently
- research information using technology
- calculate cost of finance
- interpret financial reports and farm business data
- maintain basic accounts
- prepare applications for finance and/or investment.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

RTE4902A**Support and review business structures and relationships****Unit Descriptor**

This competency standard covers the process of identifying and assisting in the establishment of the primary production business and communicating, in particular, the roles and responsibilities of family members within such a business. It also covers the recognition of changing roles as part of succession and estate planning, internal and external stress factors, the development of a stress management strategy and the ability to identify and utilise rural networks and support groups.

Work performed at this level requires a full range of well-developed skills where some discretion and judgement is required. Responsibility is taken for one's own output with limited responsibility for the output of others.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|--|
| 1. Identify and assist in establishing/reviewing a rural business structure | 1.1 Options for the business structure are identified and legal and taxation ramifications assessed.
1.2 Administrative procedures are followed to ensure full compliance with the chosen structure. |
| 2. Identify and assist in the review of roles and responsibilities within the business unit | 2.1 Business organisational structure is established/reviewed in consultation with members of the business unit.
2.2 Roles and responsibilities within the business are clearly communicated to members of the business unit.
2.3 Roles and responsibilities of family members are reviewed regularly in accordance with succession and estate planning requirements .
2.4 Wills are prepared, updated and stored in accordance with organisational requirements. |
| 3. Assist in the development and implementation of stress management strategies | 3.1 Potential causes of stress within a rural business environment are identified.
3.2 Stress management strategies are developed in consultation with family and other employees.
3.3 Strategies are implemented to minimise stress within the family and the workplace.
3.4 Stress management strategies are reviewed regularly in accordance with organisational requirements. |
| 4. Access rural networks and support groups | 4.1 Relevant rural networks and support groups are identified.
4.2 Appropriate interpersonal skills are used to facilitate and promote positive relations.
4.3 Relationships are developed and maintained to promote the rural business in accordance with organisational goals and objectives.
4.4 Networking opportunities are identified and accessed in accordance with organisational requirements. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	By clearly explaining to family members and staff the purpose of defining roles and responsibilities within the business.	2
Collecting analysing and organising information	In gathering information on the role and function of external support bodies and making this available in a logical ordered manner.	2
Planning and organising activities	By developing a plan, which includes strategies for reducing stress.	2
Working with others and in teams	By all staff and family members encouraged to participate in activities.	2
Using mathematical ideas and techniques	In calculating exposure to risk.	2
Solving problems	By identifying the potential stress factors on individuals and the business as a whole and developing strategies to minimise their impact.	2
Using technology	By sourcing information and networking on the internet, and recording outcomes electronically.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What type of business structure is found in this industry?

Business structures may include sole trader, partnership, company, and family trust.

What taxation requirements would be relevant?

Australian Business Number, Tax File Number, GST registration, PAYG and withholding arrangements as well as relevant taxation requirements for the business structure.

What sort of administrative procedures would be relevant?

Administrative procedures may include record keeping, compliance requirements diary/register, confidentiality and security of information.

Who may be a member of the business unit?	Members may include owners, managers, employees, operators, family members and partners.
How might the roles and responsibilities be communicated?	Communication may include verbal presentations in a language appropriate to the audience, written formats within organisational procedures and guidelines, and diagrammatically as part of the organisational chart.
What is meant by succession and estate planning within this industry context?	Succession and estate planning may include determining who takes on particular roles within the family rural business in the event of death, retirement, departure, disability, and illness. These events may also require the distribution of assets and a re-structuring of the business.
What sort of stress management strategies might be used to reduce stress?	Strategies may include personal health and fitness programs, relaxation techniques, time management techniques, allocated discussion time with family members, planned breaks from the farm business, informal and formal training, networking, and seeking advice from rural support groups.
In the rural industry what are potential causes of stress?	<p>Causes of stress may include external factors such as falling product prices, interest rate rises, overall farm indebtedness, impact of overseas trade policies, and natural disasters including environmental issues.</p> <p>Internal factors may include relationship breakdown, illness, death, and product failure.</p>
What rural networks and support groups are relevant to this industry?	<p>Rural networks include the National Farmers Federation (NFF), which is made up of State farm organizations, commodity councils, and associate and affiliate members. Commodity Councils include Australian Cane Growers Association, Australian Council of Egg Producers, and Australian Dairy Farmers Federation, Australian Wheatgrowers Federation, Cattle Council of Australia, Ricegrowers Association of Australia, Sheepmeat Council of Australia, Tobacco Growers Council and the Wool Council of Australia.</p> <p>Support groups and programs include the Commonwealth Department of Primary Industries and Energy (Countrylink program), NFF's strategy for Australia's Agrifood Industries - New Horizons, State Departments of Agriculture or Primary Industry, rural counsellors, rural debt mediators, CSIRO, universities and other rural research organizations such as the Agricultural Bureau, Women in Agriculture and Business, Country Womens' Association and other non-political rural organizations, such as accountants, solicitors, and financial institutions.</p>

What sorts of networking opportunities are there within this industry?

Networking may include team meetings, attending formal and informal information sessions conducted by commodity groups and/or professional associations, conferences, seminars, formal and informal training, internet discussion groups, rural business social functions, and peer groups.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in supporting and reviewing business structures and relationships requires evidence that the roles and responsibilities of family members in a rural business are clearly defined and communicated, stress management strategies are developed and implemented, and rural networks and support groups are accessed as required.

The skills and knowledge required to support and review business structures and relationships must be transferable to a different work environment. For example, across a range of family-owned rural or non-rural based agricultural or horticultural businesses.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- relevant legislation and statutory requirements including those relating to OHS and anti-discrimination
- organisational structure
- organisations policies, plans and procedures
- environmental policies and procedures including sustainable energy work practices and techniques
- principles of effective communication in relation to listening, questioning and non-verbal communication
- workplace communication channels
- principles and techniques to use feedback to achieve positive outcomes
- rural networks and support groups
- stressors in the rural business environment.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- effectively communicate with internal and external clients and organisations
- research and identify appropriate bodies and sources of information
- negotiate and resolve disputes
- utilise technology
- prepare written documentation
- implement strategies to resolve problems
- implement OHS and environmental policies and procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4903A

Unit Descriptor

Arrange transport for grain or livestock

This competency standard covers the functions required to arrange and co-ordinate the transport of grain, prepared stock feed or livestock.

It requires the application of knowledge and skills to source and negotiate an appropriate transportation agreement, obtain permits and clearances, and ensure the accurate and timely completion of relevant documentation. The work functions in this standard are likely to be carried out under minimal supervision within enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------------|---|
| 1. Confirm transport requirements | 1.1 Transport requirements are confirmed according to enterprise marketing and production plans .
1.2 The amount of grain, prepared stock feed and/or number of livestock to be transported is confirmed according to enterprise instructions.
1.3 Legislative requirements associated with the transport of grain or livestock are identified and complied with. |
| 2. Prepare transport plan | 2.1 Equipment, vehicles and resources required to transport grain or livestock are determined and arranged according to enterprise requirements.
2.2 Relevant authorisations or permits are identified, sought and obtained according to legislative requirements .
2.3 Transport plan is flexible to allow for changes and ensure minimal disruption to transportation schedule. |
| 3. Source and select carrier | 3.1 Carriers are sourced to ascertain availability, terms and conditions in relation to transport and enterprise requirements .
3.2 Carriers who satisfy the transport requirements are contacted to negotiate suitable costs, terms and cartage conditions.
3.3 Carrier is selected and negotiations are confirmed with an agreement and insurance arrangements prepared accordingly. |
| 4. Co-ordinate transport arrangements | 4.1 Relevant documentation is complete, accurate and according to industry, legislative and enterprise requirements.
4.2 Operational staff and contractors are communicated with regularly to confirm arrangements are clear and understood.
4.3 Scheduling arrangements and preparation of grain or livestock in readiness for transportation are checked and confirmed with enterprise personnel. |

KEY COMPETENCIES

Key Competency	Example of Application	Performance Level
Communicating ideas and information	In preparing a plan for use by a range of other people.	2
Collecting analysing and organising information	In determining the requirements of the transport plan and preparing information for interpretation by others.	3
Planning and organising activities	In co-ordinating personnel, contractors, goods and equipment.	3
Working with others and in teams	By completing specified activities and operations in relation to grain and livestock movement.	2
Using mathematical ideas and techniques	In calculating contract specifications and profitability	2
Solving problems	In recognising where and when amendment is required to the plans	3
Using technology	In operating any necessary equipment prior to, and during, the transport operations - communication technology, calculating equipment, measuring equipment, word processing/spreadsheeting software	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What information may be included in marketing and production plans?

This information may include a broad outline of the condition/state in which the grain and livestock should arrive at the destination and timeframes or schedules for activities and transactions within the enterprise.

What types of grain or stock feed may be transported?

Types of grain may include cereals, legumes, pulses, oilseeds, or pasture seeds.
Stock feed may include prepared rations, pelleted, mash or liquid feeds.

What livestock may be transported?

Livestock may include cattle, goats, sheep, pigs, horses, poultry or working dogs.

What equipment, vehicles and resources may be arranged to transport grain or livestock?

Equipment may include:

- cleaning equipment, power tools and hand tools, silos, vertical and horizontal storage, temporary storage and field bins, loading and unloading equipment

Vehicles may include:

- support vehicles, floats, semi-trailers, road trains including B trains, trucks and trailers, and rail transport

Resources may include:

- personnel, contractors, log books and relevant forms, vehicle specification and service manuals, vehicle tools, writing materials, first aid kit, fire control equipment, and breakdown gear.

What legislative requirements may be applicable to this standard?

Appropriate licenses and permits for the operation of vehicles and machinery, the Environmental Protection Act, OHS Act, Australian Standards, Trade Practices Act, traditional landowners requirements, welfare and land transport Codes of Practice.

What information may be included in a transport plan?

This may include a verbal or written briefing outlining and detailing the nature and scope of the task including time of loading, type of loading and unloading facilities, type of vehicles, number of livestock per vehicle, watering and feeding points, travelling time, destination, access road plan and haul routes, condition of livestock, place of loading, labour requirements, the use of dogs and muzzles, preparation procedures for the loading of grain and livestock, potential hazards, safety and environmental protection procedures, animal welfare considerations, instructions and schedule details.

What information may be sourced from carriers?

Information may include availability and conditions of transportation, cartage options and quotes, rates, terms and conditions.

What enterprise requirements may be applicable?

Standard operating procedures (SOPs), industry standards, production schedules, MSDS, work notes and plans, product labels, manufacturers specifications, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), and oral or written instructions.

What types of agreement might be arranged?

Where the contract is to be formal, it should be signed and copies exchanged; where it is informal, the agreement may be a verbal one; and the agreement may be in the form of a purchase order.

What relevant documentation may be applicable to this standard?

This may include carrier agreements, workers' compensation and public liability insurance, and compliance with relevant legislative and regulatory requirements.

What preparatory processes may be carried out?

This may include the completion of appropriate paperwork, ensuring any requirements for the drenching or inoculation of livestock and the fumigation of grain have been met, and the co-ordination of personnel and equipment.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in this standard requires evidence of the ability to accurately assess livestock or grain loads, and arrange personnel, equipment and vehicles accordingly. It also requires the ability to develop a transport plan, co-ordinate schedules and work within specified timeframes. An awareness of legislative requirements with regard to the transportation of grain and livestock is also required.

The skills and knowledge required must be transferable to a different work environment. For example, this could include different loads, destinations, transport companies and enterprise procedures.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- industry and legislative requirements for the transport of grain and livestock
- safety requirements for livestock and personnel
- animal welfare and OHS legislative requirements
- transportation availability and costing alternatives
- environmental codes of practice and management practices, and processes to minimise noise, odours, and debris from transport operations.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- communicate verbally with carriers, personnel and contractors
- determine, select and calculate resource requirements
- prepare written plans and procedures for implementation by others
- organise quotes and negotiate effective transport contracts
- co-ordinate transport operations.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4904A**Unit Descriptor****Arrange employment for shearing operations**

This competency standard covers the process of arranging employment for shearing operations. It requires the ability to determine staff needs, prepare advertisements, select and induct staff. Arranging employment for shearing operations requires knowledge of industry awards and conditions, duty statements for each category of wool harvesting staff, interviewing techniques, advertising mechanisms for staff vacancies, telephone techniques, equal employment opportunity legislation, staff selection process and induction procedures.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|------------------------------------|---|
| 1. Determine staffing requirements | 1.1 Assessments are made of the numbers and types of staff required for wool harvesting.
1.2 Lists of duties are drawn up for additional staff.
1.3 Required capabilities of staff are defined prior to selection. |
| 2. Seek applicants | 2.1 Informal enquiries are made and vacancies advertised .
2.2 Possible staff are followed up by telephone and in person. |
| 3. Select staff | 3.1 Potential staff are interviewed against selection criteria.
3.2 Staff are selected having due regard to equal employment opportunity. |
| 4. Induct staff | 4.1 New staff are briefed on relevant awards, enterprise agreements, pay rates and related administration.
4.2 New staff are advised of terms and conditions and signed on.
4.3 New staff are familiarised with the workplace and colleagues.
4.4 OHS legislation and requirements are outlined in detail to staff. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through preparation of job descriptions and advertisements, conducting interviews and inducting staff.	3
Collecting analysing and organising information	Through determining employment requirements of the enterprise.	2
Planning and organising activities	According to establishing selection and induction processes.	2
Working with others and in teams	Through developing the job description with support of other staff.	2
Using mathematical ideas and techniques	Not applicable.	-
Solving problems	Through determining staffing needs, issues and selecting staff.	2
Using technology	Not applicable.	-

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What staff may be included in this competency standard?	Permanent and casual employees, contractors, family labour, neighbour exchange.
What does advertising cover?	Advertising includes all informal and formal methods of publicity.
What may be considered a workplace?	Workplace includes the shearing shed and equipment, staff quarters, lunchrooms, toilets, and surrounding areas.
What OHS requirements may be relevant to this competency standard?	OHS requirements include relevant legislation, first aid equipment, qualified first aid staff, safe work practices, and potential work hazards, and other items covered in the legislation.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in arranging employment for shearing operations requires evidence that staff have been successfully and appropriately selected for enterprise operations. The skills and knowledge required to arrange employment must be transferable to a range of work environments and contexts. For example, this could include different enterprises, shearing teams and workplace environments.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- industry awards and conditions
- duty statements for each category of wool harvesting staff
- interviewing techniques
- advertising mechanisms for staff vacancies
- telephone techniques
- equal employment opportunity legislation
- staff selection process
- induction procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- use the telephone
- conduct interviews
- prepare advertisements
- carry out induction processes.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4913A

Unit Descriptor

Analyse and interpret production data

This competency standard covers the process of analysing and interpreting data for animal production, crop and horticultural production. It requires the ability to collect and organise production data, analyse, interpret and present data. Analysing and interpreting data for production requires knowledge of the relevant legislation, industry and enterprise codes of practice, enterprise record keeping and recording practices, methods to collect and analyse production data, business equipment and principles of report writing and data presentation.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Collect and organise production data | <p>1.1 Information is collected and organised in a format suitable for analysis and interpretation in accordance with enterprise requirements.</p> <p>1.2 Information held by the production unit is assessed for accuracy and relevance in line with enterprise requirements.</p> <p>1.3 Methods of collecting data are reliable and make efficient use of resources in accordance with organisational requirements.</p> <p>1.4 Business equipment is used to access, organise and monitor data in accordance with organisational requirements.</p> <p>1.5 Information is updated, modified, maintained and stored in accordance with organisational requirements.</p> |
| 2. Analyse and interpret data | <p>2.1 Objectives of analysis are clearly defined and consistent with enterprise requirements.</p> <p>2.2 Methods of data analysis are reliable and suitable to research purposes.</p> <p>2.3 Assumptions used in analyses are clear, justified and consistent with enterprise objectives.</p> <p>2.4 Conclusions are supported by evidence and contribute to the achievement of business objectives.</p> |
| 3. Present data | <p>3.1 Data are prepared in an appropriate format, style and structure using suitable business technology.</p> <p>3.2 Structure and format of reports are clear and conform to enterprise requirements.</p> <p>3.3 Findings are reported and distributed in accordance with enterprise requirements.</p> <p>3.4 Feedback and comments on suitability and sufficiency of findings is obtained in accordance with enterprise requirements.</p> |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through preparation and presentation of data to management.	3
Collecting analysing and organising information	Through collection and analysis of production data.	3
Planning and organising activities	Through following enterprise and industry quality assurance procedures and best practice.	3
Working with others and in teams	Through working with others in collecting and analysing data.	3
Using mathematical ideas and techniques	Through analysis of production data.	3
Solving problems	Through identification of non-compliances in collected data.	3
Using technology	Through use of business equipment to collect, store and maintain data.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What enterprise requirements may be relevant to this standard?

Quality assurance and/or procedures manuals, biosecurity requirements, animal welfare, procedures for updating records, OHS policies, procedures and programs, production plans, systems and processes, and defined resource parameters.

What business equipment may be relevant to this standard?

Photocopier, computer (including handheld electronic loggers), email, internet, software programs, answering machine, fax machine, telephone and radio communication systems.

What methods of data analysis may be used?

Feedback on results, review of previous data and production figures, peer review, data sampling and statistical analysis.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in analysing and interpreting intensive production data requires evidence that production data has been successfully and appropriately collected, analysed and maintained according to enterprise requirements. The skills and knowledge required to analyse and interpret intensive production data must be transferable to a range of work environments and contexts. For example, this could include different enterprises, data collection methods and production systems.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- the relevant legislation, industry and enterprise codes of practice and quality assurance procedures that impact on intensive production
- knowledge of enterprise record keeping and recording practices
- knowledge of enterprise policies and procedures relating to collection, analysis and maintenance of production data
- methods to collect and analyse production data
- data management systems and methods
- business equipment
- principles of report writing and data presentation.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- collect and organise production data
- analyse and interpret data
- present data.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4914A

Unit Descriptor

Participate in an e-business supply chain

This competency standard covers the process of participating in e-business supply chains. With the increasing use of information and communication technologies, supply chains are becoming more integrated and reliant on the exchange of electronic data to facilitate improved production and distribution. Traditional industry supply chains are changing, and the needs of specific customers are affecting production along with the processes used to take goods to market.

This unit requires the application of knowledge and skills to understand the e-business supply chain as a whole. It requires the ability to adjust production to meet the requirements of that supply chain, and to provide product data in the formats required. It assumes that some new business processes and associated technology are required.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Prepare e-business systems and procedures | <p>1.1 Supply chain requirements are identified and validated as required.</p> <p>1.2 Technology requirements are identified.</p> <p>1.3 Technology is brought online in accordance with requirements and budget.</p> <p>1.4 Policies and procedures are designed to guide business relations and operations in accordance with supply chain requirements.</p> <p>1.5 Supporting business processes and outputs are designed or re-designed to support requirements of the e-business supply chain.</p> <p>1.6 Information and development support is provided to staff, customers and suppliers to assist in implementation the requirements of the e-business supply chain.</p> |
| 2. Implement e-business systems and procedures | <p>2.1 Production processes required by e-business supply chain are implemented.</p> <p>2.2 Online purchasing, selling and payments are conducted as required by the e-business supply chain with reference to associated risk management strategies and relevant legal and ethical requirements.</p> <p>2.3 Business processes and data flows required by the e-business supply chain are identified and adjusted as required.</p> <p>2.4 Actions to build trust and foster a supply chain culture are implemented in accordance with supply chain ethos.</p> |

3. Monitor and review e-business systems and procedures
 - 3.1 E-business innovation/s are integrated into the business and monitored to gauge their usefulness and maximise implementation.
 - 3.2 E-business innovation is reviewed in consultation with users and recommendations for improvement or further innovation documented and evaluated.
 - 3.3 Business data and reports are used to compare outcomes, budgets, timelines and forecasts to actual performance.
 - 3.4 Technology performance is reviewed and recommendations made for improvements to hardware, software and/or their use in accordance with e-business strategy and budget.
 - 3.5 Feedback and evaluation results are used to plan and improve future supply chain management strategies.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	By communicating with management, operators and other stakeholders in the e-business supply chain.	3
Collecting analysing and organising information	By observing and analysing the effect of the e-business supply chain on the production processes in place.	2
Planning and organising activities	In ensuring that production timelines meet the requirements of the e-business supply chain.	2
Working with others and in teams	In working safely to ensure that production targets are met.	2
Using mathematical ideas and techniques	In calculating and recording consignment details.	2
Solving problems	Through identifying solutions to production processes that are not compatible with the e-business supply chain.	2
Using technology	By ensuring that enterprise technology infrastructure is adequate to participate in the e-business supply chain.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What forms of e-business might relate to this standard?	Every type of business transaction in which the participants (i.e. suppliers, end users, etc.) prepare or transact business or conduct their trade in goods or services electronically (Definition of e-commerce in <i>E-competent Australia</i> , ANTA, May 2000). Some e-business supply chains however, may only involve electronic data related to products e.g.; consignment data relating to product type, price, etc., details of individual animals captured by RF or microchip scanners.
What aspects of the supply chain might apply to this unit?	Different industry sectors have different supply chains depending on the nature of goods and the extent to which e-business has been embraced by producers and suppliers. The supply chain may include the entire cycle from raw materials to producers, component suppliers, manufacturers, wholesalers, third party service providers, retailers, customers and recyclers, plus freight, distribution and cash flow.
What business processes might be relevant?	Business processes will vary depending on the industry sector and the elements of production related to an e-business supply chain. Relevant business processes might include purchasing of production inputs, data entry, administration, payments, production, packing, preparation for transport, storage, accounting, etc. In e-business supply chains, business processes relate to business data as much as the outputs of production.
What e-business systems might be relevant to this unit?	Participation in an e-business supply chain will often require some form of process re-engineering where aspects of production and administration are changed to meet new business requirements. The changes will vary depending on the industry sector, the elements of production involved and the state of readiness of the enterprise. Implementation might require: <ul style="list-style-type: none"> • advice on technology issues/compatibility • protocols for electronic data interchange • personal identification and password for online access between businesses for access to inventory data and purchasing, payment or supply processes • banking information for electronic funds transfer • protocols relating to legal or security issues for e-business.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in participating in an e-business supply chain requires evidence that production is done in such a way as to meet the requirements of the relevant supply chain.

The skills and knowledge required to participate in an e-business supply chain must be transferable to a different work environment. For example, as different supply chains exist across a range of industry sectors, the nature of workplace practices and procedures will vary according to the extent to which electronic forms of data are used.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- the entire supply chain from raw materials to producers, component suppliers, manufacturers, wholesalers, third party service providers, retailers, customers and recyclers, plus freight, distribution and cash flow
- technology hardware and software requirements of the e-business supply chain
- protocols for electronic data interchange
- personal identification and password for online access between businesses for access to inventory data and purchasing, payment or supply processes
- banking information for electronic funds transfer
- protocols for to e-business legal and security issues
- e-business terminology.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- use relevant technology such as computers, handheld scanners, bar-coding equipment
- prepare production data in the format required by the e-business supply chain
- converse and liaise with supply chain contacts, staff and senior management
- meet production deadlines required by e-business supply chain.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4915A**Implement and monitor quality assurance procedures****Unit Descriptor**

This competency standard covers the process of implementing and monitoring quality assurance procedures in an agricultural or horticultural enterprise. It requires the ability to establish quality specifications for products, identify hazards and critical control points in production, and assist in planning and implementation of quality assurance procedures. Implementing and monitoring quality assurance procedures requires knowledge of market requirements for products, enterprise and industry quality assurance systems, HACCP techniques, strategies for control of hazards, work place training strategies, delegation and empowerment, and contingency management.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | | |
|--|-----|---|
| 1. Establish quality specifications for product | 1.1 | Market specifications are sourced . |
| | 1.2 | Legislated requirements are identified. |
| 2. Identify hazards and critical control points in the production of quality product | 2.1 | Critical control points impacting on quality are identified. |
| | 2.2 | Degree of risk for each hazard is determined. |
| 3. Assist in planning of quality assurance procedures | 3.1 | Procedures for each identified control point are developed to ensure optimum quality. |
| | 3.2 | Hazards and risks are minimised through application of appropriate controls. |
| | 3.3 | Processes to monitor the effectiveness of quality assurance procedures are developed. |
| 4. Implement quality assurance procedures | 4.1 | Responsibilities for carrying out procedures are allocated to staff and contractors. |
| | 4.2 | Instructions are prepared in accordance with the enterprise the quality assurance program. |
| | 4.3 | Staff and contractors are given induction training on the quality assurance policy. |
| | 4.4 | Staff and contractors are given in-service training relevant to their allocated procedures. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through interaction with staff and management.	3
Collecting analysing and organising information	Through monitoring of quality assurance procedures according to enterprise standards.	3
Planning and organising activities	According to enterprise quality assurance procedures.	3
Working with others and in teams	In implementing quality assurance procedures in the enterprise, and in staff training and induction.	3
Using mathematical ideas and techniques	Through calculations associated with record keeping systems and monitoring records.	3
Solving problems	By dealing with quality assurance contingencies as they arise.	3
Using technology	In maintenance of records and use of computer software applications.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What quality specifications may be relevant to this competency standard?	Quality specifications will have a range of measurable dimensions depending upon the product and may include guarantees related to the source and non-contamination of the product.
From where can market specifications be sourced?	Relevant quality specifications will be sourced from purchasers of the product e.g., processors or end-use customers.
What legislated requirements may be relevant to this competency standard?	Relevant law may relate to the verification of product quality as part of consumer legislation or specific legislation related to product content or composition.

What hazards and critical control points should be considered?

Hazards and critical control points will be identified using the national HACCP procedures or a similar model for auditing the production process.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in implementing and monitoring quality assurance procedures requires evidence that quality assurance procedures have been successfully and appropriately implemented and monitored in an agricultural or horticultural enterprise.

The skills and knowledge required to implement and monitor quality assurance procedures must be transferable to a range of work environments and contexts. For example, this could include different rural enterprises and commodity areas.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- market requirements for product
- enterprise and industry quality assurance systems
- HACCP techniques
- strategies for control of hazards
- work place training strategies
- delegation and empowerment
- contingency management.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- establish quality specifications for product
- identify hazards and critical control points in the production of quality product
- assist in planning of quality assurance procedures
- implement quality assurance procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4916A**Unit Descriptor****Prepare shearing team wages**

This competency standard covers the process of preparing shearing team wages. It requires the ability to maintain staff records, calculate earnings, deductions and nett, and prepare pays for workers. Preparing shearing team wages requires knowledge of maintaining records, contract duplicates, group certificate copies, work records, books of account, and GST requirements.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|--------------------------------------|---|
| 1. Maintain staff records | 1.1 All employees are signed on and declaration forms signed.
1.2 Employment agreements are arranged.
1.3 Work is recorded accurately.
1.4 Units of work are totalled for each employee.
1.5 Injury records are maintained.
1.6 Tax file and superannuation numbers and collected and maintained confidentially. |
| 2. Calculate earnings | 2.1 Relevant awards and current pay rates are obtained.
2.2 Employment contracts are followed.
2.3 Gross earnings are calculated for each employee. |
| 3. Calculate deductions and nett pay | 3.1 Taxation deductions are calculated.
3.2 Group certificates are completed.
3.3 Tax is forwarded to the Australian Taxation Office.
3.4 Occupational superannuation is calculated and documented. |
| 4. Pay staff | 4.1 Pays are prepared and staff paid in accordance with the relevant Award.
4.2 Cash advances are arranged on request. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through advise on tax deductions, pay rates and preparing pay slips and group certificates.	2
Collecting analysing and organising information	Through determining tax requirements, earnings and deductions, and hours of work.	2
Planning and organising activities	Sequencing and planning to ensure staff pays are prepared on time.	2
Working with others and in teams	Through consulting with others on wage and tax issues.	2
Using mathematical ideas and techniques	Through calculating pay rate, tax rates, and deductions.	2
Solving problems	Through addressing queries and concerns of staff in respect to under and over-payments.	2
Using technology	Through using telephone, fax machines, bank machines and computers as required.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What Acts may apply to this competency standard?

Relevant Acts include Pastoral Industry Superannuation Act and State Workcover Acts.

What Awards may apply to this competency standard?

Federal Pastoral Award, State Awards, Wool Classers Award 1994, and enterprise bargaining agreements.

How might wages be paid?

Cheque, electronic transfer, cash, and deposit into bank account.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in preparing shearing team wages requires evidence that wages have been accurately calculated and pays have been prepared on time, and issues raised by payees have been resolved.

The skills and knowledge required to prepare shearing team wages must be transferable to a range of work environments and contexts. For example, this could include different work locations, shearing teams and tax arrangements.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- maintaining records
- contract duplicates
- group certificate copies
- work records
- books of account
- GST requirements
- PAYG.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- maintain staff records
- calculate earnings, deductions and nett pay
- prepare pays and pay slips.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE4917A**Unit Descriptor****Account for shearing shed supplies**

This competency standard covers the process of accounting for supplies to meet needs of a shearing shed. It requires the ability to determine, obtain and record supplies for shearing. Accounting for shearing shed supplies requires knowledge of supplies required to support shearing operations, procedures for ordering supplies and purchasing, books of account and maintaining records.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|------------------------------------|---|
| 1. Determine supplies for shearing | 1.1 List of required supplies is prepared according to enterprise needs.
1.2 Existing supplies are determined and recorded.
1.3 Required storage facilities are identified. |
| 2. Obtain supplies for shearing | 2.1 Supplier of required goods is identified.
2.2 Supplies are ordered and purchased prior to commencement of shearing operations.
2.3 Delivery of supplies is arranged according to enterprise guidelines. |
| 3. Record supplies for shearing | 3.1 Stores inventory is maintained for duration of shearing.
3.2 Supplies are stored according to health and enterprise requirements.
3.3 Stores account is prepared and submitted to the grower. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through preparing lists of food and equipment needs, and ordering supplies.	1
Collecting analysing and organising information	Through determining supply needs.	1
Planning and organising activities	Through timing factors associated with ordering and storage of supplies prior to shearing.	1
Working with others and in teams	Through consultation on food and materials needs.	1
Using mathematical ideas and techniques	Through calculating quantities and costs of supplies.	1
Solving problems	Through recognising and dealing with pending supply or storage issues.	1
Using technology	Through use of calculator, fax and telephone.	1

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What shearing supplies may be relevant to this competency standard?

Shearing supplies include food and equipment.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in accounting for supplies for shearing requires evidence that supplies have been accurately calculated and acquired prior to the commencement of shearing operations. The skills and knowledge required to account for supplies for shearing must be transferable to a range of work environments and contexts. For example, this could include different shearing teams, food needs and working environments.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- supplies required to support shearing operations
- procedures for ordering supplies and purchasing
- books of account
- maintaining records
- GST requirements.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- determine supplies for shearing
- obtain supplies for shearing
- record supplies for shearing
- negotiate discounts on bulk purchases.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5002A**Manage integrated crop and pasture production****Unit Descriptor**

This competency standard covers the work required to manage agricultural and/or horticultural crops and pastures. It requires the application of skills and knowledge to set objectives to maximise pasture and crop resources. It also involves the implementation of strategies to ensure the sustainability of the land and an awareness of resource use, as well as the capacity to introduce specific control measures to deal with infestations. The work is likely to be carried out independently within enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|--|---|
| 1. Develop a pasture and crop program | 1.1 Production targets for each crop and pasture type are established consistent with marketing and enterprise objectives.
1.2 Plant varieties are selected that are best suited to soil, climate, seasonal conditions and marketing goals.
1.3 Irrigation schedules, where required, are determined for each soil and crop/pasture type based on assessed water requirements, rainfall and evapo-transpiration data.
1.4 Nutrient requirements for crops and pastures are assessed to determine appropriate fertiliser program.
1.5 Budgetary constraints are identified and maintained according to enterprise requirements .
1.6 A pasture and crop program is developed to meet production targets and enterprise objectives. |
| 2. Implement pasture and crop management program | 2.1 Pasture and crop program is implemented and pasture capacity is monitored according to enterprise requirements.
2.2 Strategic grazing may be carried out to reduce or eradicate areas of weed infestation where planned.
2.3 Fertiliser applications and rates are determined appropriate to crop/pasture type and applied accordingly.
2.4 Crop and pasture nutrient requirements are applied to ensure achievement of yield and sustainability of pasture.
2.5 Soil moisture is monitored and watering scheduled adjusted as required.
2.6 Processes to minimise waste and soil degradation are introduced and implemented according to environmental standards. |

- 3. Monitor crop/pasture growth and fodder production
 - 3.1 Longer term trends in weed, pest and disease incidence are determined and any necessary changes to control measures are implemented.
 - 3.2 Soil structure and erosion are monitored and necessary changes to cultural practices, grazing management and drainage are determined.
 - 3.3 Irrigation and drainage systems are checked regularly and maintained if appropriate.
 - 3.4 Grazing management is monitored to ensure high pasture and livestock production levels.
 - 3.5 Feed surpluses and deficiencies are identified and appropriate action taken according to enterprise requirements.
 - 3.6 Crop/pasture maturity is monitored and harvesting is undertaken to meet marketing and production targets.
- 4. Review production levels
 - 4.1 Pasture and crop yields are monitored and evaluated against forecast production levels.
 - 4.2 Grazing and cropping programs are evaluated for efficiency and effectiveness, and documented for future best practice.
 - 4.3 Evaluation of production performance of each enterprise is undertaken and documented for use in reviewing and revising management program.
 - 4.4 **Physical and financial records** of production are maintained for analysis and evaluation of production performance.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Presentations about the crop management may need to be developed and presented for the benefit of staff involved in the program.	3
Collecting analysing and organising information	Information on the program may be documented and organised by reports for analysis.	3
Planning and organising activities	Resources and materials necessary to the program may need to be scheduled to meet timetables and deadlines.	3
Working with others and in teams	The implementation of the plan may need input and advice from others, as well as requiring the co-ordination of other staff work schedules.	3
Using mathematical ideas and techniques	Estimation techniques may be necessary to determine the likelihood of successful outcomes of the pasture and crop management program.	3
Solving problems	Problems may arise in the course of the program that need to be addressed through adjustments of the programs resources or timetables.	3
Using technology	Technology may be used to monitor and calculate the results of the program.	3

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What types of crops may be relevant to this standard?

This may include agricultural broadacre crops including wheat and coarse grains, grain legumes, oilseeds, sugar, temperate and tropical pastures, and intensive fruit and vegetable crops, field and tree crops, vines and hay crops.

What types of pasture may be relevant to this standard?

This may include all unimproved and improved rangelands used for grazing, temperate and tropical pastures, crop stubble, shrubs and trees, and residues that may be used for stock feed.

How may nutrient requirements be assessed?	Nutrients may include nitrogen, phosphorus, potassium, sulphur, calcium, magnesium, boron, molybdenum, copper and chlorine. Nutrient requirements may be assessed by tissue or soil testing.
What enterprise requirements may apply to this standard?	SOP, industry standards, Total Quality Management standards, product labels, manufacturers specifications, MSDS, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use) and reporting requirements. It may also include consideration of the following factors: <ul style="list-style-type: none"> • the introduction of transgenic varieties to minimise chemical use • the industry commitment to minimise pesticide use • containing pesticides to the pesticide site • selecting pesticides with minimal environmental impact.
What information may be included in a pasture and crop program?	<p>A pasture plan may include pasture species, seasonal influences, yield requirements, and pasture renovation requirements to production goals and the overall levels of weed infestations.</p> <p>A crop program may include suitability of crop, pasture supplement requirements, seasonal influences, soil conditioning and pasture renovation issues.</p>
What factors affecting total pasture capacity s may be relevant to this standard?	Factors may include climate, irrigation availability, stocking rates, soil types, pasture pests, topography, soil and plant nutrient status, paddock history and drainage.
What grazing plans may be relevant to this standard?	This may include rotation plans, stocking rates, gazing systems and grazing pressures.
What environmental protection strategies may be relevant to this standard?	Safe use and disposal of machinery and equipment debris and detergent waste from servicing, maintenance and cleaning procedures, strategic placing of dams, siting of stock to prevent overgrazing and erosion, and maintaining of stable banks in streams.
What range of physical and financial records may be maintained?	This may include seed and fertiliser rates and costs, number of paddock operations and fuel costs, types of chemicals, rates and costs of applications for week, pest and disease control, amount of irrigation water applied and application costs, weather conditions during growth, purchased labour, contracting and share-farming.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in developing and implementing a pasture and crop management program requires evidence of the ability to plan and develop programs and manage resources. Evidence must be provided in evaluating the success or otherwise of crop programs, as well as the quality and sustainability of the land.

The skills and knowledge required to develop and implement a pasture and crop management program must be transferable to another rural environment. For example, competence in this unit would support the development of planning and improving for both crop and land uses.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- land and soil conditions
- effects of nutrients of soil types
- financial analysis techniques
- environmental protection strategies
- cultivation requirements for different types of crop
- safe handling processes for fertilisers
- infestation patterns for different types of weed
- OHS legislative requirements
- relevant codes of practice, legislation, and regulations relating to farm production.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- measure and assess quantities of fertiliser
- apply environmental protection strategies in land use
- set objectives and milestones
- calculate costs
- determine soil quality and land use capability
- predict patterns of weed infestation
- design irrigation processes to avoid soil degradation
- converse and liaise with industry network, staff and senior management
- write reports for the understanding of staff and management
- assess financial strategies and prepare budgets.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5006A**Plan and manage long-term weed, pest and/or disease control in crops****Unit Descriptor**

This competency standard covers the process of planning for long-term weed, pest and/or disease control, and then managing the implementation of such a plan. It includes the need to provide input to planning processes that may be occurring elsewhere in the organisation, and to determine the scheduling for implementation. It requires the need to monitor and adjust the plan in response to changing situations, and to subsequently evaluate the outcomes of the weed, pest and/or disease control measures taken.

Responsibility for the planning and management of the work of others may be involved. Planning for and managing weed, pest and/or disease control involves the self directed application of knowledge with substantial depth in some areas such as the effects on crops of weeds, pests and/or diseases, including competitive effects on crop yield and the effects of alternative methods of control. It requires a range of technical and other skills such as planning, establishing procedures and control for implementation by others, and the identification of the symptoms of poor growth and lack of vigour in the crop.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|---|
| 1. Source information for input to weed, pest and/or disease control planning | 1.1 Historical data , including recent data from organisational records is identified and accessed for input to weed, pest and/or disease control planning.
1.2 Information from other enterprises within the district is sought and gathered.
1.3 Information regarding the characteristics of the crop(s) planned for, or under production, is accessed.
1.4 Information regarding the local geography, soil and climatic conditions is accessed and gathered.
1.5 The environmental implications of pesticide/ herbicide use, alternative methods and non-chemical preventative methods are considered and documented.
1.6 Information is assessed to determine potential key information for input to planning decisions. |
| 2. Determine long-term weed, pest and/or disease control strategies | 2.1 Information gathered is analysed for suitable methods of weed, pest and/or disease control.
2.2 Methods of control are considered in light of their impacts .
2.3 Strategies for weed, pest and/or disease control are determined to integrate the most suitable control methods with the proposed crops and the existing geography.
2.4 Environmental controls are established and specifically included in the plan.
2.5 OHS hazards are identified, risks assessed and suitable controls are incorporated into the plan. |

- | | |
|---|---|
| 3. Provide input to other planning processes | <p>3.1 Details regarding selected weed, pest and/or disease control strategies are used as input to other organisational planning processes.</p> <p>3.2 Information regarding other planning processes is collected and used to inform the weed, pest and/or disease control planning process.</p> <p>3.3 Information about the range of planning processes is communicated verbally and/or in writing according to the requirements of the circumstances and the people involved.</p> |
| 4. Determine scheduling and key responsibilities | <p>4.1 Scheduling for weed, pest and/or disease control is determined taking the range of seasonal, geographic and resourcing factors into consideration.</p> <p>4.2 Key responsibilities for specific implementation processes are determined.</p> <p>4.3 Record keeping requirements are determined and procedures are put in place to ensure compliance with the range of applicable regulations.</p> <p>4.4 The plan, including scheduling and key responsibilities, is clearly documented.</p> <p>4.5 The plan includes the type, format, frequency and detail of any reporting required by both manager(s) and operators.</p> |
| 5. Monitor and adjust weed, pest and/or disease control strategies | <p>5.1 The effectiveness of the weed, pest and/or disease control strategies is evaluated at key points, and adjustments made as necessary.</p> <p>5.2 Environmental impacts and OHS hazards relating to weed, pest and/or disease control are identified, monitored and assessed throughout the implementation process.</p> <p>5.3 Modifications are made to the strategy as and when necessary for environmental, OHS, resourcing, or effectiveness reasons.</p> |
| 6. Evaluate weed, pest and/or disease control strategies and record results | <p>6.1 Data, observations, and documentation from the implementation of weed, pest and/or disease control is analysed against the plan according to organisation guidelines.</p> <p>6.2 Recommendations for future strategies are prepared based on the analysis of the data.</p> <p>6.3 A report is prepared that documents the implementation of the strategies and includes:</p> <ul style="list-style-type: none"> 6.3.1 any difficulties or issues faced 6.3.2 the methods used for treatment 6.3.3 impacts on environmental and OHS 6.3.4 any recommendations for future work 6.3.5 results 6.3.6 costs 6.3.7 and any available data analysis. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	With the full range of staff and industry participants.	3
Collecting analysing and organising information	Using the variety of sources available for input to decision-making.	3
Planning and organising activities	In developing plans and directions for the long-term control of weeds, pests and/or diseases.	3
Working with others and in teams	In working with colleagues during input to the range of other planning processes.	2
Using mathematical ideas and techniques	In calculating quantities, ratios, the extent of infestations and the potential costs of activities.	2
Solving problems	In recognising where and when amendment is required to plans.	2
Using technology	In operating any necessary equipment prior to, and during, the control operations - communication technology, calculating equipment, measuring equipment, and word processing/spreadsheeting software.	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

From where might information be sourced for input to the planning process?

Information may come from a range of internal and external sources that might include records of resistance patterns of weed species, records of existing herbicide resistance, records of previous outbreaks, industry journals, and industry seminars/workshops.

What data might be included in the analysis?

Data might be from the distant or recent past, and might include the species and types of weeds that have affected the property. Aspects of the weeds may be the density and growth stage in relation to the crop, distribution throughout the paddock, efficacy of herbicide applied prior to monitoring, and herbicide resistance control measures.

What types of weed and pest might be targeted in the long-term control strategy?

Such pests as insects, weeds, pathogens, vertebrates, nematodes and molluscs. Weeds may be those which are annual, perennial, broad leaf, narrow leaf, or grasses.

Invertebrate pests may be thrips, mites, nematodes, locusts or caterpillars, whereas vertebrate pests might include rabbits, rats, mice, macropods and birds.

What are the diseases that may be at issue?

They may be foliar pathogens, e.g. rusts, chocolate spot, ascochyta, mildew, septaria, seferotina, soil borne pathogens, (for example, take-all, cereal cyst nematodes), rhizoctonia, pythium, fusarium, or phytophthora.

Which herbicides might be part of the control plan, and how may they be used?

Herbicides used may be pre- or post-emergence, and may be root/foliar absorbed. They may be used selectively or non-selectively, or combinations of these.

What physical or alternative control measures might be included in the control plan?

Control measures such as rotations (for example, wheat, other grains, lupins, pulses, pasture and fallow), hay making and grazing. They may also include changing the rotations.

What are the impacts that might be considered when determining long-term strategies?

The impacts may be those that cause financial, environmental, labour, OHS and opportunity costs to the organisation.

What are the methods that might be used in controlling weeds and vertebrate and invertebrate pests?

Amongst the invertebrate pest control methods that may be used are insecticides, biological agents, crop rotation and fallowing. Vertebrate pest control methods may include physical barriers, baiting methods, shooting, fumigation of burrows, trapping, netting, and biological control.

In the instance of weed infestations, the selection of herbicides involves the collection of information, evaluation of alternatives, purchasing arrangements, safe storage, and degree of risk to user and environment, proper application and disposal of residues, manufacturers recommendations, and legislative and end user requirements.

What other planning processes are to be considered when planning for weed, pest and/or disease control?

The planning processes that deal with other discrete areas of the organisation's production include those such as production planning, irrigation planning, pasture and crop management planning, property management planning, business planning, marketing planning, and livestock production planning.

What might affect the scheduling of treatments?

Timing of treatments is planned to suit seasonal influences, weather and weather forecasts, as well as the local geography and the organisation's resourcing situation.

How might records be stored in the organisation?

Records may be created and stored either manually or electronically. They may also be in the form of samples of weeds or pests, photographs or sketches.

What are the OHS issues that impact on managing weed, pest and/or disease control?

They include safe systems and procedures for storage, handling and transportation of hazardous substances; chemicals selected taking into account toxicity levels and environmental effects; systems and procedures for the safe operation and maintenance of machinery and equipment, including hydraulics and guarding of exposed moving parts; safe manual handling systems and procedures; safe systems and procedures for outdoor work, including protection from solar radiation; selection, use and maintenance of relevant personal protective clothing and equipment; and fire risk.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in planning and managing long-term weed, pest and/or disease control in crops requires evidence that the people who are required to implement the plan are clearly informed of its requirements, and of the OHS hazards.

The skills and knowledge required to plan and manage long-term weed, pest and/or disease control in crops must be transferable to a different work environment. For example, across a range of crop types and in both agricultural and horticultural environments.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- pest and weed species, including their life cycles and reproduction/multiplication capability
- integrated pest and weed management
- the effects on crops of weeds, pests and/or diseases including competitive effects on crop yield; threshold levels; and the effects of alternative methods of control
- environmental controls and codes of practice applicable to the enterprise
- relevant legislation and regulations relating to OHS, contractor engagement, chemical use and application, and vehicle and plant use
- environmental controls and codes of practice applicable to the business, and to the weed, pest and/or disease

control operations

- sound management practices and processes to minimise noise, odours, and debris from weed, pest and/or disease control operations.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- interpret monitored information on pest and weed numbers, density and control
- interpret, analyse and extract information from a range of sources and discussions
- plan and manage long-term weed, pest and/or disease control including amending plans during the operations
- plan land use incorporating appropriate weed, pest and/or disease control measures
- establish processes/strategies, procedures and controls for long-term weed, pest and/or disease control
- prepare written plans and procedures for implementation by others
- negotiate and arrange contracts and agreements
- explain, and deliver instructions about the plans and scheduling of the weed, pest and/or disease control operations to both staff and contractors, as well as suppliers, customers, and neighbours
- recognise poor growth and lack of vigour caused by nutrient deficiency
- observe, identify and react appropriately to environmental implications and OHS hazards.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5007A

Unit Descriptor

Plan and manage stored grain program

This competency standard covers the process of planning grain storage for the long, medium and short term to maximise returns for the organisation. This includes pest control and OHS planning as well as ensuring that appropriate records are kept throughout the operation. This standard also covers the work required to identify and solve problems as they occur throughout the grain storage operation.

Planning for, and managing grain storage is likely to be undertaken alone or under broad guidance. Responsibility for the planning and management of the work of others may be involved. Planning for, and managing grain storage involves the self-directed application of extensive knowledge including effective management of pests and/or diseases in stored grain. It requires a range of technical and other skills such as planning, establishing procedures and control for implementation by others, and the estimation of the financial effects of a range of problems.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

1. Plan grain storage program

- 1.1 Relevant organisational **documentation and information** is obtained and analysed for input to the storage program.
- 1.2 The available storage facilities are identified, recorded and **assessed** for suitability and capacity.
- 1.3 The projected grain production and delivery quantities, types and timeframes are calculated and analysed against storage capacity.
- 1.4 Temporary storage if required, is arranged
- 1.5 Timeframes and scheduling for delivery of grain to storage facilities on- and **off-site** are estimated.
- 1.6 The program includes plans for annual, seasonal and short-term periods, and is prepared to achieve the goals and objectives of the organisation.
- 1.7 The program, including scheduling and key responsibilities, is clearly documented.
- 1.8 The program includes the type, format, frequency and detail of any reporting required by both managers and operators.

- 2. Plan integrated pest control for the storage area
 - 2.1 Grain is sampled for pest infestation and **testing** is organised.
 - 2.2 The results of samples and tests for pest infestation are recorded and analysed.
 - 2.3 An integrated pest management program is developed and implemented to control **grain insects and other pests** in storage.
 - 2.4 Monitoring points, targets and methods are determined to identify possible development of resistance in insects.
 - 2.5 The pest control strategies selected relate to the requirements of the end use, and to the customers expectations.
 - 2.6 Record keeping requirements are determined and procedures are put in place to ensure compliance with the range of applicable regulations.
 - 2.7 The program, including scheduling and key responsibilities, is clearly documented.
 - 2.8 The program includes the type, format, frequency and detail of any reporting required by both managers and operators.
- 3. Implement OHS program for grain storage area
 - 3.1 **OHS hazards** are identified within and surrounding the grain storage area(s).
 - 3.2 Procedures to minimise OHS risks are developed and documented for use by all people operating around the storage facilities.
 - 3.3 Procedures to minimise OHS risks are communicated clearly to all people operating around the storage facilities, and confirmation of the clear communication is sought.
 - 3.4 The OHS program clearly describes the **personal protective equipment** and safety gear required to be used around the storage facilities.
 - 3.5 Record keeping requirements are determined and procedures are put in place to ensure compliance with the range of applicable regulations.
 - 3.6 The program includes the type, format, frequency and detail of **any reporting required** by both managers and operators.

- 4. Manage the grain storage program
 - 4.1 All aspects of the grain storage program are implemented to achieve the goals and objectives of the organisation.
 - 4.2 Activities are scheduled and organised to allow for efficient transport and storage of the grain.
 - 4.3 Pest control strategies are undertaken according to the requirements of the integrated pest management program.
 - 4.4 Personal protective equipment and safety gear is provided to all people operating around the storage facilities.
 - 4.5 All OHS procedures that were prepared are implemented by operational personnel.
 - 4.6 Checks are made to ensure that the performance indicators, targets and specifications are being met and amendments to the program are made where necessary.
 - 4.7 Operational personnel are communicated with regularly throughout the storage, transport, sampling and chemical application operations to ensure efficient and safe operation and progress.
 - 4.8 The impact and risk of existing and potential problems are assessed.
 - 4.9 Where a potential problem is identified, investigation is made into its likely causes.
 - 4.10 Alternative **solutions** are analysed and reviewed, and the most appropriate is recommended to the appropriate personnel for a decision.
- 5. Maintain records of stored grain movements
 - 5.1 **Records and documentation** are created, maintained and kept as described in the grain storage program, the integrated pest management program, and the OHS requirements.
 - 5.2 Records and documentation are completed clearly and accurately throughout the storage program.
 - 5.3 The record keeping system that is used ensures that required information is available, accessible, reliable, meaningful, and useful.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	By clearly explaining to staff, and/or contractors, the purpose, requirements and processes to be used during the operation.	3
Collecting analysing and organising information	In gathering and analysing the organisation's production, marketing and business plans as input to the implementation plan.	2
Planning and organising activities	By scheduling for the people, materials and equipment to be in the right place at the right time.	3
Working with others and in teams	In managing and monitoring the operation.	3
Using mathematical ideas and techniques	In calculating the resource requirements for the grain storage operations from the plan.	3
Solving problems	In recognising where and when amendment is required to the plans.	2
Using technology	In operating any necessary equipment prior to, and during, the control operations - communication technology, calculating equipment, measuring equipment, and word processing/spreadsheets software.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What documentation and information would be obtained and analysed in preparation for planning grain storage?

The documents that outline the organisations production planning for the specified period, those that outline the policies and procedures in relation to chemical handling and OHS, as well as the way in which potential environmental impacts should be approached.

Where would testing for insects and pests occur?

Testing of samples would generally take place off-site by a specialist organisation, which would then prepare analysis results to be used as a basis for decision-making within the organisation.

By what criteria would grain storages be assessed?	Grain storages are generally assessed in relation to capacity, suitability for fumigation, state of repair and their current use.
On what site are the grain storage facilities likely to be?	They may be at one large site or a group of smaller sites, which may be operating a single shift or multiple shifts, especially during harvest.
What are the grain insects and other pests that are likely to be found in the storage area?	They are both vertebrate and invertebrate and might include mites, rodents and birds.
Where might OHS hazards exist?	Such hazards might exist where a person is working at height, in an enclosed space, on the grain mass, using fumigants, around grain dust, desiccants and pesticides residues, or working near belts, augers and pulleys.
What personal protective equipment might be required to be worn and used around the storage facilities?	Personal protective equipment that should be used around the storage facilities would include respirators, overalls, safety boots, head protection, gloves, goggles, dust mask and an apron.
What may be required to be reported on in terms of occupational health and safety?	The use and application of pesticides and fumigants, and any individual exposure records.
What records and documentation would be kept during the grain storage program?	Records relate to the grain itself (types, varieties, quality segregation), expenditure in relation to storage and handling, OHS considerations (those relating to chemical handling and application), and operational functions (dates, times, quantities, personnel). The format of any reporting might be electronic or paper based.
What problems might be identified during the grain storage program?	Such operational problems as grain admixtures, blockages or equipment malfunctions (e.g. electrical faults and dust ignition, computing hardware and software faults), they may be issues to do with weather conditions, wide variations in volume and quality of incoming grain, co-ordinating transport, pest infestations (both invertebrate and vertebrate), or security and theft.

In determining solutions to the problems, what should be considered?

Organisational policies or production planning will give direction to the solutions recommended, and aspects to consider would include safety of personnel and public, loss and damage control, risk management, maintenance of quality, cost control, cost estimates and savings reporting requirements, OHS integrated pest management programs, and market standards and requirements.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in planning and managing a stored grain program requires evidence that the plan takes all potential OHS impacts into consideration while determining how, where and when grain should be stored, and appropriately calculating the resource requirements for the operation.

The skills and knowledge required to plan and manage a stored grain program must be transferable to a different work environment. For example, across the range of grains that might be stored and in both on- and off-site storage facilities.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- silo layout and operations, configuration, and maintenance procedures
- safe working practices, especially in confined spaces and at heights
- organisational priorities and policies in relation to production planning, OHS and chemical use
- organisational priorities and policies in relation to quality, personnel and operations
- pest control principles
- reporting and recording requirements within the organisation and as required by external authorities
- general grains market and commodity prices
- specific electronic systems used within the organisation
- integrated pest and weed management techniques
- relevant legislation and regulations relating to OHS, contractor engagement, chemical use and application, site management, and vehicle and plant use
- sound management practices and processes to minimise noise, odours, and debris from grain storage operations.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- estimate costs of problems and cost savings in improvements
- plan, schedule, monitor and amend plans for operations
- administer and co-ordinate operations on a site
- prepare written plans and procedures for implementation by others
- explain, and deliver instructions about the plans and scheduling of the grain storage operations to both staff and contractors
- observe, identify and react appropriately to environmental implications and OHS hazards.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5014A

Unit Descriptor

Manage agricultural crop production

This competency standard covers the work required to manage agricultural crop production. It requires the application of skills and knowledge to develop agricultural crop establishment, maintenance and harvesting plans. It also involves the implementation of strategies to ensure the sustainability of the land and an awareness of resource use, as well as the capacity to introduce specific control measures to deal with infestations.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Develop agricultural crop establishment program | 1.1 Production targets for each crop type are established, consistent with marketing and enterprise objectives.
1.2 Plant varieties are selected that are best suited to soil, climate, seasonal conditions and marketing goals.
1.3 Irrigation schedules, where required, are determined for each soil and crop type based on assessed water requirements, rainfall and evapo-transpiration data.
1.4 Nutrient requirements for crops are assessed to determine appropriate fertiliser program.
1.5 Budgetary constraints are identified and maintained according to enterprise requirements .
1.6 A crop establishment program is developed to meet production targets and enterprise objectives. |
| 2. Develop agricultural crop maintenance plans | 2.1 Strategic grazing may be planned to reduce or eradicate areas of weed infestation where planned.
2.2 Fertiliser applications and rates are determined appropriate to crop type and applied accordingly.
2.3 Crop nutrient requirements are determined to ensure sustainability and achievement of yield.
2.4 Soil moisture is monitored and watering schedule adjusted if appropriate.
2.5 Processes to minimise waste and soil degradation are introduced and implemented according to environmental standards. |
| 3. Develop agricultural crop harvesting plans | 3.1 Longer term trends in weed, pest and disease incidence are determined, and any necessary changes to control measures are implemented.
3.2 Soil structure and erosion are monitored and necessary changes to cultural practices, grazing management and drainage are determined.
3.3 Irrigation and drainage systems are checked regularly and maintained if appropriate.
3.4 Grazing management is monitored to ensure crop production levels.
3.5 Crop maturity is monitored and harvesting is undertaken to meet marketing and production targets. |

4. Review production levels
- 4.1 Crop yields are monitored and evaluated against forecast production levels.
 - 4.2 Grazing and cropping programs are evaluated for efficiency and effectiveness, and documented for future best practice.
 - 4.3 Evaluation of production performance is undertaken and documented for use in reviewing and revising management program.
 - 4.4 **Physical and financial records** of production are maintained for analysis and evaluation of production performance.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Presentations about the crop management may need to be developed and presented for the benefit of staff involved in the program.	3
Collecting analysing and organising information	Information on the program may be documented and organised by reports for analysis.	3
Planning and organising activities	Resources and materials necessary to the program may need to be scheduled to meet timetables and deadlines.	3
Working with others and in teams	The implementation of the plan may need input and advice from others, as well as requiring the co-ordination of other staff work schedules.	3
Using mathematical ideas and techniques	Estimation techniques may be necessary to determine the likelihood of successful outcomes of the pasture and crop management program.	3
Solving problems	Problems may arise in the course of the program that needs to be addressed through adjustments of the programs resources or timetables.	3
Using technology	Technology may be used to monitor and calculate the results of the program.	3

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What agricultural crops does this unit cover?	Agricultural crops covered by this unit include wheat and coarse grains, cotton, grain legumes, oilseeds, sugar, temperate and tropical pastures.
How may nutrient requirements be assessed?	Nutrients may include nitrogen, phosphorus, potassium, sulphur, calcium, magnesium, boron, molybdenum, copper and chlorine. Nutrient requirements may be assessed by tissue or soil testing.
What enterprise requirements may apply to this standard?	SOP, industry standards, Total Quality Management standards, product labels, manufacturers specifications, MSDS, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use) and reporting requirements. It may also include consideration of the following factors: <ul style="list-style-type: none"> • the introduction of transgenic varieties to minimise chemical use • the industry commitment to minimise pesticide use • containing pesticides to the pesticide site • selecting pesticides with minimal environmental impact.
What information may be included in a crop program?	A crop program may include plant species, seasonal influences, yield requirements, pasture renovation requirements to production goals, and the overall levels of weed infestations.
What environmental protection strategies may be relevant to this standard?	Safe use and disposal of machinery and equipment debris and detergent waste from servicing, maintenance and cleaning procedures, strategic placing of dams, siting of stock to prevent overgrazing and erosion, and maintaining stable banks in streams.
What range of physical and financial records may be maintained?	This may include seed and fertiliser rates and costs, number of paddock operations and fuel costs, types of chemicals, rates and costs of applications for weed, pest and disease control, amount of irrigation water applied and application costs, weather conditions during growth, purchased labour, contracting and share-farming.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in developing and implementing a pasture and crop management program requires evidence of the ability to plan and develop programs and manage resources. Evidence must be provided in evaluating the success or otherwise of crop programs as well as the quality and sustainability of the land.

The skills and knowledge required to develop and implement a pasture and crop management program must be transferable to another rural environment. For example, competence in this unit would support the development of planning and improving for both crop and land uses.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- land and soil conditions
- effects of nutrients of soil types
- financial analysis techniques
- environmental protection strategies
- cultivation requirements for different types of crop
- safe handling processes for fertilisers
- infestation patterns for different types of weed
- OHS legislative requirements
- relevant codes of practice, legislation and regulations relating to farm production.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- measure and assess quantities of fertiliser
- apply environmental protection strategies in land use
- set objectives and milestones
- calculate costs
- determine soil quality and land use capability
- predict patterns of weed infestation
- design irrigation processes to avoid soil degradation
- converse and liaise with industry network, staff and senior management
- write reports for the understanding of staff and management
- assess financial strategies and prepare budgets.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5016A

Unit Descriptor

Develop production plans for crops

This competency standard covers the process of developing production plans for agricultural and horticultural crops. It requires the ability to prepare budgets and gross margins, source and interpret relevant benchmark information from consultants or peers, sample soils and plant tissue for testing, manage and monitor crop diaries and associated records, select crop species and variety, determine yield potential for crop, prepare individual paddock plans and a whole farm crop, and review production plan. Developing production plans for crops requires knowledge of determinants of crop yield, market prices, gross margins, cash flow budgets and disease and pest management for relevant crops.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Select crop species and variety | 1.1 Crop types and varieties are assessed and selected for their market potential and gross margin returns for the farm environment.
1.2 Most profitable cultural practices and rotations are selected consistent with disease and pest management strategies, available machinery resources, and management for sustainability of resources.
1.3 Production risks are identified for each crop and strategies to address these are determined.
1.4 Environmental risks are identified and strategies developed as appropriate. |
| 2. Determine yield potential for crop | 2.1 Relevant benchmark yields are sourced, where available, to assist setting target yields.
2.2 Past production records are analysed to determine the key determinants of yield.
2.3 Available models for calculating water use efficiency or other key determinants of yield are used, as appropriate, to assist in setting target yields.
2.4 Quality specifications and target yields are established for all crops. |
| 3. Prepare individual paddock plans and a whole farm crop production plan | 3.1 Paddocks are assessed for their nutrient, pest and disease status, water reserves, tillage requirements, and other factors before selecting crop variety.
3.2 Records of chemical use are used, as appropriate, to assist planning to reduce chemical resistance.
3.3 Crop variety is selected and paddock preparation, planting, fertilising and other treatments are planned.
3.4 Optimum timing of planting, applications and treatments is determined and a calendar of operations is prepared.
3.5 Cash flow budget for the farm-cropping program is determined. |

4. Review production plan
- 4.1 **Logistical arrangements** related to harvesting/transportation/marketing and other key operations are planned for the production cycle.
 - 4.2 Machinery and equipment requirements are planned and checked for the crop production cycle.
 - 4.3 Labour requirements are identified and planned for the crop production cycle.
 - 4.4 Seed, fertiliser, pest and disease treatments and other input requirements are identified.
 - 4.5 **Physical and financial record keeping system** is established to provide data for the analysis of crop performance, and to meet other statutory requirements including records of chemical use.
 - 4.6 Production plan is reviewed and amended where required.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through record keeping of previous yields and other relevant data.	3
Collecting analysing and organising information	Through evaluation and review of production plans, and comparison with collated data.	3
Planning and organising activities	According to standard planning processes for crops production.	3
Working with others and in teams	Through consultation with others involved in crop management.	3
Using mathematical ideas and techniques	Through determining yield potential.	3
Solving problems	Through planning for unforeseen circumstances related to crop production and dealing with variables as they arise.	3
Using technology	Through use of computer and communication systems.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

How might paddocks be assessed?	Assessment may include the use of objective soil tests, current and previous observations/tests, and a range of other historical records. The process may involve professional support from agronomists and consultants.
What records of chemical use should be required?	These will be established by minimum legal requirements, but will also reflect target quality parameters set by the production plan.
What may be considered a logistical requirement?	These requirements will include planning the most cost effective mix of arrangements related to on-farm storage capacity, off-farm collection point alternatives, transport alternatives and opportunities for backfilling when transporting product, etc.
What physical and financial record keeping system should be used to meet the requirement of this competency standard?	The system should include paddock records, input records, and may be computer or non-computer based.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in developing production plans for crops requires evidence that a production plan for a crop has been successfully and appropriately implemented and monitored in an enterprise. The skills and knowledge required to develop production plans for crops must be transferable to a range of work environments and contexts. For example, this could include different crops, enterprises and growing conditions.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- determinants of crop yield
- cultural practices related to cropping
- market prices, gross margins, cash flow budgets
- benchmark performance indicators
- disease and pest management for relevant crops
- machinery and equipment requirements for cropping
- record keeping systems (computer or non-computer).

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- prepare budgets and gross margins
- source and interpret relevant benchmark information from consultants or peers.
- sample soils and plant tissue for testing
- manage and monitor crop diaries and associated records
- select crop species and variety
- yield potential for crop is determined
- prepare individual paddock plans and a whole farm crop
- production plan is reviewed production plan.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5101A

Unit Descriptor

Develop and implement a breeding strategy

This competency standard covers the work required to develop and implement a livestock breeding program.

It requires skills and knowledge to select breeding options and resources appropriate to meet the breeding aims of the enterprise. It also requires skills to evaluate the strategy in terms of costs and benefits to the enterprise. The work associated with this standard is undertaken independently within enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|----------------------------------|--|
| 1. Assess breeding requirements | <p>1.1 Breeding requirements are assessed and clarified according to enterprise objectives.</p> <p>1.2 Resources to support breeding requirements are identified and arranged.</p> <p>1.3 Breeding options are selected to optimise results and consistency according to enterprise objectives.</p> <p>1.4 Economic assessments are undertaken to establish the feasibility of the breeding objectives.</p> <p>1.5 Breeding program is formulated to meet enterprise objectives, and is sufficiently flexible to accommodate contingencies.</p> |
| 2. Select livestock for breeding | <p>2.1 Selection criteria are determined for the visual and objective methods of selecting livestock.</p> <p>2.2 Culling and replacement practices are established to maintain the appropriate size and ratios of livestock.</p> <p>2.3 Selected livestock are checked and monitored to ensure condition and welfare status is according to breeding program requirements.</p> <p>2.4 Tests are conducted using recognised industry methods, and evaluated within appropriate breeding program parameters.</p> |
| 3. Monitor breeding program | <p>3.1 Implementation of the breeding program is monitored for efficiency and effectiveness.</p> <p>3.2 Changes necessary to achieve breeding aims are prioritised and implemented according to breeding program requirements.</p> <p>3.3 Allocated resources are monitored and controlled within enterprise budgetary constraints.</p> <p>3.4 Safe workplace and environmentally responsible practices are maintained according to OHS and enterprise requirements.</p> <p>3.5 Relevant legislative requirements associated with livestock production are observed and complied with.</p> |

- 4. Evaluate breeding program
 - 4.1 Breeding program processes and outcomes are reviewed and evaluated against enterprise objectives.
 - 4.2 Performance of facilities, resources and equipment are evaluated for effectiveness and efficiency.
 - 4.3 Effectiveness of selection criteria is evaluated for contribution to achievement of breeding aims.
 - 4.4 **Relevant information** is documented for continual assessment to inform future practice.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Information about the breeding strategy may be explained to other persons involved in implementation of the program.	3
Collecting analysing and organising information	Information with regard to the breeding program and its processes and outcomes may be documented and organised by reports for future analysis.	3
Planning and organising activities	Resources and materials necessary to the program may be planned and scheduled to meet timetables and deadlines.	3
Working with others and in teams	In the application of effective methods and procedures, including advice and input from external sources to achieve the objectives of the breeding program.	3
Using mathematical ideas and techniques	In the application of estimation techniques to determine the likelihood of successful outcomes of the breeding program.	3
Solving problems	Problems may arise in the course of the program that need to be addressed through adjustments of the programs resources or timetables.	3
Using technology	Technology may be used to communicate, source information, and to monitor and calculate the results of the program.	3

RANGE STATEMENT

Range of Variables

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What information may be considered when assessing breeding requirements?

Relevant information may include an assessment of enterprise breeding and production records to identify property potentials.

What resources may be arranged?

This may include human resources, facilities and equipment including recording systems, personal protective equipment, monitoring technology for breeding, pesticides, weighing and testing equipment.

What range of breeding options may be considered?

This may include a decision to straight breed or cross breed, to arrange natural mating or artificial breeding.

What information may be included in a breeding program?

This may include breed and identity of livestock, the method of breeding, joining procedures, and culling and replacement instructions.

What range of selection criteria may be used to select livestock for breeding purposes?

Selection criteria will vary according to animals farmed and production/breeding strategies. Objective and subjective criteria may include size, age, breed, teeth for age and deformity, general appearance and condition, colour, temperament, disease susceptibility, flesh colour, percentage deformity, percentage mal-pigmentation, sex growth rate, body weight, breeding history, growth rate, milk production and milk quality, style and character of wool/fibre, colour of fleece and greasy fleece weight.

What livestock may be relevant to this standard?

Livestock may include beef and dairy cattle, pigs, horses, goats and sheep.

What criteria may determine the carrying out of culling and replacement practices?

Criteria for **culling and replacement** will vary according to animals farmed and production/breeding strategies. This may include age, size, fertility history, conformation, skeletal faults, temperament, body weight, mean wool/fibre diameter, presence of medullated wools/fibres, low fleece yield or weight, fleece rot, pigmentation, body strike and colour, body weight, butter fat/milk yield, growth rate, and chronic disorders.

What type of tests may be conducted?

Testing may be carried out to determine pH, trace elements, and specifications, spot colour appearance, calorimetry, optical, wether tail, nutritional intake and history.

What environmental considerations may be applicable to this standard?

Negative environmental impacts may result from high density livestock activity, particularly in holding or confined areas, causing increased run-off flows, loss of ground cover, soil disturbance, pugging, dust problems, weed seeds in animal manure, and contamination of ground and surface water supplies. Consideration may also be given to the safe use and disposal of veterinarian chemicals and livestock residues.

What OHS requirements may be applicable to this standard?

Safe systems and procedures for:

- maintenance of hygienic and hazard-free facilities and equipment
- handling livestock
- handling of hazardous substances
- manual handling, including lifting and carrying
- outdoor work including protection from solar radiation
- appropriate use of personal protective equipment.

What enterprise requirements may apply to this standard?

SOP, industry standards, Total Quality Management standards, product labels, manufacturers specifications, MSDS, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use), and reporting requirements.

What legislative requirements may be applicable to this standard?

This may include Animal Welfare Act, OHS legislation, Environmental Protection Act, and legislation, regulations and codes of practice with regard to the breeding livestock and the transfer of genetic materials.

What relevant information may be documented?

This may include details of joined livestock, artificial insemination procedures carried out, health and condition status of livestock and details of administered preventative health treatments, and details of culled and replaced livestock.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in this standard requires evidence of the ability to design and develop a breeding strategy to enhance the genetic strength of livestock. It also requires the ability to undertake an economic assessment to establish the feasibility of the breeding objectives and estimate the cost of investment in the breeding strategy.

The skills and knowledge required must be transferable to a different work environment. For example, this may include different breeds, animals, breeding techniques and enterprise requirements.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- basic genetic theories, including knowledge of heritability of traits, pedigrees, breeding patterns and dominant and recessive genes and the importance of this to the development of an enterprise's breeding strategy and its long term planning
- economic assessment of production characteristics
- testing procedures
- costs and benefits of alternative strategies.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- handle livestock safely and humanely
- supervise personnel
- plan and schedule resources
- maintain a safe and hazard-free workplace environment
- monitor and minimise impacts to the environment
- communicate in verbal and written form including the preparation of plans, document and maintain records, and report writing for the understanding of staff and management
- calculate resources and costings of program.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5103A

Unit Descriptor

Manage livestock production

This competency standard covers the process of planning for livestock production, and then managing the implementation of such a plan. It includes the need to act in an environmentally aware manner and to be mindful of the health and welfare of the livestock, while at the same time maximising the production capacity of the farm. It requires the need to analyse and extract information from a broad range of sources, and to comply with a variety of legislative and regulatory requirements.

Livestock production management is likely to be undertaken alone or under broad guidance. Responsibility for the planning and management of the work of others may be involved. Planning for the management of livestock production requires extensive knowledge in some areas such as sustainable land use principles and practices, livestock husbandry and management practices, and a range of technical and other skills such as planning, cost benefit analysis, and monitoring of the health and welfare of animals.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

1. Plan for production

- 1.1 The capability of land resources for grazing is assessed and stock, fire, pasture or range management strategies are determined for each land capability class.
- 1.2 The suitability and sustainability of water resources is assessed.
- 1.3 Livestock production targets for each enterprise are established for the short and long term according to the farm's marketing and business plans.
- 1.4 Short and long term livestock production targets take breeding for herd/flock improvement into consideration, and are established in the light of the risk control factors that are applicable.
- 1.5 Breeds and breeding programs are selected based on the production targets and the marketing requirements for the enterprise.
- 1.6 **Production facilities** are selected and designed in a way that **deals sensitively** with identified waste products.
- 1.7 **Environmental controls** are established and specifically included in the production plan.
- 1.8 **OHS hazards** are identified, risks assessed, and suitable controls are incorporated into the production plan.
- 1.9 A plan is prepared that documents the decisions taken, the assessments made, the targets established, and any specific issues that relate to environmental and OHS risks.
- 1.10 The plan includes the type, format, frequency and detail of any reporting required by both manager(s) and operators.

- | | |
|--|--|
| 2. Plan for livestock needs | <p>2.1 Feed requirements are determined for each age/sex category of herds and/or flocks.</p> <p>2.2 A feeding plan is determined for each livestock category based on a cost benefit analysis.</p> <p>2.3 Health strategies are devised to prevent and control disease in each herd and/or flock on the basis of a cost benefit analysis.</p> <p>2.4 Schedules are prepared for purchasing and using the products and services that are used in livestock production.</p> <p>2.5 Livestock production, harvesting, handling and transportation methods are determined from a cost benefit analysis.</p> <p>2.6 A livestock production plan is prepared that incorporates the calendar of operations for each enterprise production cycle, and any specific animal welfare issues.</p> <p>2.7 The plan includes the type, format, frequency and detail of any reporting required by both manager(s) and operators.</p> |
| 3. Seek information on innovations for existing or potential enterprises and farm activities | <p>3.1 Sources of information on innovations are identified and accessed.</p> <p>3.2 Information on innovations is assessed to determine whether or not such innovations could be used in the present enterprise, or in a potential enterprise.</p> <p>3.3 Prepared production plans are amended to include innovations that are deemed suitable for use in the enterprise.</p> |
| 4. Test and adopt relevant innovations | <p>4.1 Any people who may be involved in implementing the innovation or in planning for it are consulted, and the change is discussed with them.</p> <p>4.2 Innovations are tested on the farm to determine whether or not they are suitable, and whether they may be readily adapted to suit the circumstances of the business.</p> <p>4.3 Any OHS hazards or environmental risks that present during the trial phase are identified, assessed, and responsible action is taken.</p> <p>4.4 A decision is made about whether or not to adopt the innovation, based on its costs and benefits and any implementation issues, including environmental and OHS considerations.</p> |

- 5. Implement, monitor and evaluate livestock production plans
 - 5.1 Production plans are implemented and monitored according the calendar of operations.
 - 5.2 **Production facilities** are sited, erected and/or installed in a way that **deals sensitively** with identified waste products.
 - 5.3 Livestock growth/maturity or production is evaluated according to the planned targets and the marketing requirements.
 - 5.4 Flock/herd health is monitored and parasite and disease outbreaks are controlled quickly and effectively.
 - 5.5 Feed supplies are assessed, pasture or range condition and species composition are monitored, and stocking rates are varied to maintain optimum pasture and livestock health.
 - 5.6 Environmental impacts and OHS hazards relating to livestock production in the business are identified, monitored and managed to promote optimum pasture, livestock, and employee health.
 - 5.7 Physical and financial records are analysed and extractions taken from them to assess production performance, and to provide information for taxation purposes.
 - 5.8 The production performance of each enterprise is evaluated to determine whether or not they are sustainable and profitable, and to use in reviewing and revising production plans.
- 6. Comply with legal requirements and regulations
 - 6.1 Information about the **legal requirements and regulations** that affect farm land ownership/possession and livestock production is obtained.
 - 6.2 **Record keeping** requirements are determined, and procedures are put in place to ensure compliance with the range of applicable regulations.
 - 6.3 Permits are obtained from the relevant authorities for the transport and movement of livestock and equipment.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	By preparing production plans that may be implemented by other people.	3
Collecting analysing and organising information	In searching for innovative ideas that may be implemented on the farm.	3
Planning and organising activities	In setting up and undertaking the monitoring and management of a range of simultaneous production processes.	3
Working with others and in teams	In working with others to plan for, test and assess innovations that may be of use in the enterprise.	3
Using mathematical ideas and techniques	In ensuring that record keeping is accurate and up-to-date, and in extracting such information as may be needed for taxation or legal compliance.	2
Solving problems	In reconciling the benefits of implementing any one of a range of processes with the costs to be paid in doing so.	2
Using technology	In setting up and maintaining record keeping and similar administration systems.	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work contexts.

What might the production facilities be?	The facilities might include water storage(s), fencing and gateways, laneways, yards, milking sheds, and stock watering systems and points.
What does sensitivity in dealing with waste products mean?	Identifying and taking the opportunity to eliminate, minimise, or recycle them. It might also mean disposing of them in full consideration of environmental implications.
What kind of environmental controls would be included in the plan?	Strategies for avoiding unnecessary erosion, planting species and techniques that encourage desalination, methods for avoiding and eliminating weeds in pasture, and strategies for avoiding the contamination of ground and surface water supplies would be included.

What are the OHS hazards associated with livestock production?	OHS hazards include working closely with animals in confined spaces, moving animals by force of the body, and handling and moving weights and objects such as feed and equipment.
What are the major aspects of a feeding plan?	Supplies, schedules and feeding programs should all be included in the plan.
Are financial indicators the only component of a cost benefit analysis?	Costs and benefits are considered in terms of all impacts on the performance of the farm, and must include animal welfare, environmental and OHS issues, as well as the financial ones.
From where would information be found on innovations?	The sources are many and varied and may encompass news media, farm newspapers and journals, field days, workshops and conferences, other farmers, farm input suppliers, extension services, farm consultants, agricultural research institutes, as well as professionals employed by the business from time to time.
What kind of innovations might be researched and implemented?	Equipment, machinery and practices, including those relating to environmental, OHS and animal welfare practices and/or related equipment, might be researched and implemented.
What is taken into consideration when innovations are assessed?	As with cost benefit analyses, all impacts on the performance of the farm are considered, including animal welfare, environmental implications and OHS hazards and issues, as well as financial issues. Also taken into consideration is the way in which the changes might be implemented and by whom; this might include changes to organisation structure and processes and the individuals who would be required to implement them.
What legal requirements and regulations are likely to impact on managing livestock production?	Rights, responsibilities and limitations relating to land ownership, agricultural tenancy, agistment agreements, and environment protection and others may apply.
How do the legal requirements and regulations affect the farm's business?	In the records required to be kept, the permits to be acquired, and/or the notifications to be made for such activities as the control of weeds and pests, handling, transport, storage and use of chemicals, registration of firearms, and product quality.

Which stages of the production process might attract either procedural or mandatory recordkeeping?

Records kept may relate to resourcing, financial control, and environmental and OHS issues. Specifically, these may include breeding, feeding and production, deaths, rations, sales, purchases, natural increase, stock on hand, inputs and services to production, purchased labour, contracting costs, and share-farming costs.

Permits are required for what kind of activity?

Activities that may adversely affect members of the community, the farm's staff and customers, or the environment. These might include chemical application, chemical clean-up, and the transport and movement of stock and equipment.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in managing livestock production requires evidence that decisions are based on sound cost benefit analysis, which includes all real costs to the enterprise, including environmental costs. Competence also requires that all legal and taxation requirements are adhered to and that systems are set in place to ensure compliance. Overall competence will lead to a business that implements innovative techniques and maximises production, while ensuring the health and welfare of the pasture and the livestock.

The skills and knowledge required to manage livestock production must be transferable to a different work environment. For example, across the range of livestock types and the differing management and husbandry techniques that are used.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- maintaining and promoting livestock health and nutrition
- livestock breeding, where appropriate
- livestock husbandry and management practices
- sustainable land use principles and practices applicable in the region
- environmental controls and codes of practice applicable to the enterprise
- the whole farm plan
- sound management practices and processes to minimise noise, odours and debris from the livestock operations
- relevant legislation and regulations relating to soil and water degradation issues, animal health and welfare, and chemical use
- relevant OHS legislation, regulations and codes of practice.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills are the ability to:

- plan and implement the activities contained in livestock production plans
- supervise or perform livestock husbandry operations
- monitor health and welfare of animals
- observe, identify and react appropriately to environmental implications and OHS hazards
- analyse and assess the *whole* cost and benefit of specific situations
- establish processes/strategies, procedures and controls for livestock production
- prepare written plans and procedures for implementation by others

- interpret, analyse and extract information from such things as professional literature, legal documents, discussions and workshops
- assess, then adopt profitable innovations.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5104A**Develop livestock health and welfare strategies****Unit Descriptor**

This competency standard covers the functions required to design and implement preventative health treatment and programs for livestock.

It requires skills and knowledge to assess a range of livestock health problems and devise appropriate strategies for the implementation of both livestock health strategies and contingency plans. It also requires skills to evaluate the strategy in terms of costs and benefits to the enterprise. It requires knowledge of codes of practice with regard to animal welfare and animal health practices. The work associated with this standard is undertaken independently within enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|--|--|
| 1. Determine health strategy for livestock | 1.1 Livestock condition is assessed and individual health problems are ascertained and recorded according to industry standards and enterprise requirements .
1.2 Preventative health supplies are determined, arranged and stored according to manufacturers specifications.
1.3 Treatment program , procedures and operations are planned to meet livestock health requirements, legislative and enterprise requirements .
1.4 Facilities and equipment required to implement health strategy are identified and arranged according to industry standards and enterprise requirements.
1.5 Staff are briefed with details of treatment programs, schedules and OHS issues. |
| 2. Implement treatment program | 2.1 Diagnosis of livestock condition is made systematically with reference to all symptoms and signs according to veterinary guidelines.
2.2 Complex problems or signs of disease are referred for specialist advice and treatment.
2.3 Treatment is planned and administered according to veterinary guidelines, legislative requirements, and animal welfare codes of practice.
2.4 Control measures are carried out as required to prevent the spread of communicable diseases.
2.5 Procedures for reporting notifiable diseases are implemented according to legislative requirements. |

3. Monitor health strategy
 - 3.1 Withholding periods are noted and complied with according to manufacturers instructions and legislative requirements.
 - 3.2 Livestock are monitored post-treatment for signs of treatment effectiveness and any further health problems.
 - 3.3 Treatment outcomes and processes are reviewed for effective management planning and best practice.
 - 3.4 Surplus supplies are stored according to manufacturers recommendations and enterprise requirements.
 - 3.5 Data is documented and accurate records are maintained according to industry standards, legislative and enterprise requirements.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communication with regard to complex livestock problems or disease may be discussed with veterinarian personnel.	1
Collecting analysing and organising information	Information with regard to diagnosis and administered treatment may be documented and organised by reports for analysis.	1
Planning and organising activities	Vaccines and drenches may be planned and arranged at regular scheduled intervals.	2
Working with others and in teams	In the application of methods and procedures to develop and implement a livestock treatment program to meet enterprise objectives.	1
Using mathematical ideas and techniques	Mathematical techniques may be used to estimate dosage and frequency of health treatment applications.	2
Solving problems	Livestock health problems may be accurately diagnosed and appropriately treated.	2
Using technology	Technology may be used to communicate, record, and estimate and calculate quantities and volumes.	1

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What breeds of livestock may be relevant to this standard?	Livestock may include sheep, goats, beef cattle, dairy cattle and pigs.
How might livestock condition be assessed?	Assessment may be by direct observation of general health and soundness, checks of performance, and inspection of livestock records.
What health problems may be identified?	This may include bloat, worms, external parasites, infertility, leptospirosis, vibriosis, poisonings, oedemas, ketosis, lumpy jaw, tick fever, white scours, pinkeye and grass tetany.
What enterprise requirements may be applicable?	SOP, industry standards, production schedules, MSDS, work notes and plans, product labels, manufacturers specifications, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), and managers oral or written instructions.
What range of preventative health supplies may be arranged?	This may include drenches, vaccines and other health treatments.
What procedures and operations may be included in a treatment program?	Routine operations and procedures may include mulesing, jetting and dipping, crutching and shearing, vaccinating, foot paring and bathing. It may also include drenching, teeth grinding, grass-seed removal, lice control, horn trimming, pinkeye control, and mastitis treatment (strategic and preventative).
What legislative requirements may be relevant to this standard?	This may include relevant legislation, regulations and codes of practice for the export of livestock, for the land transport of livestock, and for the welfare of animals.
What procedures may be included in a health strategy?	A livestock health program may include breeding objectives, livestock operations, worm counts, the use of professional advice, pasture grazing plan, health treatments, observing livestock health and symptoms, and fly traps. It may also include quarantine/isolation plans for new or sick livestock, and implementation of an annual program of health treatments.

What OHS requirements may be applicable to this standard?

Safe systems and procedures for:

- livestock handling including zoonoses control
- manual handling including lifting and carrying
- outdoor work including protection from solar radiation
- handling and storage of hazardous substances for internal and external parasite control
- use of personal protective equipment
- wool/fibre harvesting (crutching).

What control measures may be carried out?

This may include quarantine, livestock disposal, preparation of clean paddocks, livestock proof fencing, and the administering of appropriate treatments.

What notifiable diseases may be identified?

This may include anthrax, brucellosis, foot and mouth, Johnes disease, liver fluke and tuberculosis.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in this standard requires evidence of the ability to design and develop the implementation of strategies to enhance the health, condition and wellbeing of livestock. It also requires an understanding of contemporary animal welfare issues and the appropriate treatments and handling of disease and injury, the ability to recognise and remedy livestock sickness within veterinarian guidelines, devise an annual program of preventative health treatments, and seek specialist advice as required.

The skills and knowledge required must be transferable to a different work environment. For example, if evidence is evident in the development and implementation of health and welfare strategies for beef cattle, it must also be evident that these skills may be adapted to devising a health program for sheep and goats.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- livestock health and abnormalities
- preventative health practices
- contingency planning
- animal welfare codes of practice
- environmental protection codes of practice
- veterinary medicines and their use
- quarantine procedures
- vaccine types and their administration
- OHS legislative requirements.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- plan and co-ordinate livestock health and welfare strategies
- develop a routine for health control and disease prevention
- diagnose health problems in livestock
- read and interpret veterinary procedures and guidelines
- write and prepare reports and plans
- communicate in written and oral form for the understanding of staff and management
- measure preventative health treatment dosage and calculate rates and schedule for treatment effectiveness.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5105A

Comply with deer industry national velvet accreditation requirements

Unit Descriptor

This unit of competency specifies the outcomes required to acquire and apply the knowledge to comply with the deer industry's national velvet accreditation requirements. It requires knowledge of relevant legislation and the industry's national velvet accreditation and quality assurance schemes. It also requires the application of knowledge in respect to antler anatomy and physiology, pain control, relevant pharmacology, legal aspects of the possession and use of drugs and velveting procedures.

The work functions in this unit involve the identification and application of knowledge with substantial depth in some areas. One would be expected to evaluate information using it to forecast for planning or research purposes.

Demonstration of competency in this unit must be performed under the supervision of a registered veterinarian with knowledge of deer handling.

Employability Skills

This unit contains employability skills.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Demonstrate knowledge of deer velvet industry requirements. | 1.1 Relevant legislation and codes of practice are identified and applied to deer farm activities and in particular to deer velveting.
1.2 Industry accreditation and quality assurance schemes are identified and implemented according to industry requirements.
1.3 Relationships with external parties are established and maintained.
1.4 A bona fide legal relationship with a registered veterinarian is established and maintained.
1.5 Record keeping system is established and maintained according to industry and legislative requirements. |
| 2. Apply knowledge of industry-accredited deer velveting process. | 2.1 Animals are handled according to occupational health and safety (OHS) and animal welfare requirements .
2.2 Restraint facilities and equipment suitable for handling animals for velvet harvesting are selected and used.
2.3 Stag/buck management process is established and followed before and after velveting.
2.4 Deer antler growth rates and optimum time for cutting are determined.
2.5 Relevant drugs and equipment used in velveting are identified and dosage rates are calculated.
2.6 Human emergency response procedures are established according to legislative and organisational requirements. |

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- assessing animal body condition, signs of health and weather conditions that may result in detrimental outcomes of drug administration
- communicating with others involved in the velveting process
- complying with the National Velvet Accreditation Scheme (NVAS) and quality assurance program of the Deer Industry Association of Australia (DIAA)
- dealing with aggressive or difficult animals
- developing a bona fide veterinarian-client working relationship
- during velveting, recognising signs of stress and pain and their effect and taking appropriate action
- implementing emergency response procedures such as cardiopulmonary resuscitation (CPR)
- recording accurately and legibly information collected
- reading and interpreting legislation and industry codes of practice
- using handling and restraint facilities and equipment.

Required knowledge:

- animal welfare issues and legislation relating to velvet antler harvesting
- basic and applied principles of anatomy, physiology, pain control and pharmacology relevant to velvet harvesting
- DIAA's NVAS and quality assurance program
- definitions and requirements with respect to veterinary supervision and legal responsibilities of deer producers and veterinarians
- drug withholding periods and tissue residues
- management of deer before and after velveting
- nature of a bona fide legal relationship
- principles and process of velveting, including potential complications
- relevant action of drugs used for velveting on body function, and detrimental results of drug administration
- relevant legislation relating to restricted drugs.

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Legislation that applies to the deer velveting industry includes:

- Australian Veterinary Association (AVA) velveting policy
- Model Code of Practice for the Welfare of Animals (The Farming of Deer)
- national animal welfare codes of practice
- relevant state and territory legislation, particularly those Acts relating to:
 - animal welfare
 - poisons and/or controlled substances
 - prevention of cruelty to animals
 - veterinary surgeons.

Industry accreditation and quality assurance schemes include:

- NVAS developed by the DIAA and AVA, which covers:
 - all aspects of stag management
 - animal welfare guidelines and legal requirements, including the need for a bona fide veterinarian-client relationship to be established
 - annual renewal requirement
 - compulsory accreditation for those involved in:
 - velvet cutting
 - velvet grading
 - velvet harvesting
 - velvet production
 - velvet storage
- quality assurance program developed by the DIAA and based around the NVAS, focused on:
 - clean, damage-free product for purchase
 - facilities that are clean, hygienic and safe
 - health and wellbeing of animal.

External parties include:

- AVA
- DIAA
- program auditors
- veterinarians.

Records may include:

- audits of animal welfare
- breeding and culling
- chemical inventories
- deaths
- farmer competence
- financial transactions and tax
- food safety records given that velvet is a food product
- natural increase
- OHS
- purchase, use and disposal of drugs
- quality assurance
- velvet production quantity, grade and quality
- veterinary supervision.

OHS requirements

include:

- general OHS procedures for:
 - being aware of and able to respond to aggressive behaviour of animals
 - safe use of chemicals and drugs
 - using safe manual handling techniques when lifting and moving items
 - working safely with deer in yards and confined spaces
 - working safely with machinery and equipment
- safe animal-handling systems and procedures for:
 - controlling zoonoses (e.g. leptospirosis)
 - identifying hazards and assessing risks
- safe systems and procedures for applying and storing hazardous substances such as:
 - analgesics and anaesthetics
 - drenches
 - vaccines
- safe systems and procedures for handling veterinary equipment such as:
 - biohazard sharps container for safe disposal of needles
 - drugs
 - needles
 - syringes
- safe systems and procedures for outdoor work such as:
 - appropriate use of personal protective equipment
 - protection from solar radiation
 - use of restraint and handling devices.

Animal welfare requirements refer to:

- state of being well or healthy and free from disease
- wellbeing or freedom from stress and ability to exhibit normal behaviour.

The **stag/buck management process** involves:

- procedures for pre-velveting management such as:
 - culling difficult or aggressive animals
 - drafting for stage of antler growth or in preparation for re-growth
 - increasing nutrition in winter to stimulate velvet growth
 - training animals to become familiar with farm facilities and processes
 - worming
- procedures for post-velveting management such as:
 - close observation of animals for abnormal signs
 - tourniquets removed and animals returned to recovery paddocks.

Factors that affect antler **growth rates** include:

- animal health and age
- body condition
- genetics
- nutrition management
- photoperiod.

Drugs and equipment

used in velveting may include:

- drugs which may be:
 - prescribed and dispensed by a registered veterinarian
 - administered by an accredited person
 - for the sedation of deer such as:
 - xylazine 2% solution
 - yohimbine to reverse effects of xylazine
- local anaesthetic such as lignocaine 2% (without adrenaline)
- equipment such as:
 - antiseptic
 - biohazard sharps container for disposal of needles
 - suitable needles and syringes
 - tourniquets.

Drug dosage rates may be calculated by:

- assessment of individual animal's reaction to drug
- assessment of individual animal's health and body condition
- use of charts for dose rate of drugs for sedation and recumbency.

Human emergency response procedures for the accidental injection or exposure of humans to drugs used for velveting include:

- application of CPR
- location of CPR chart in a visible location in facilities where velveting occurs.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

This unit of competency could be assessed on its own or in combination with other units of competency relevant to the job function. RTC2704A *Provide basic first aid is recommended.*

Critical aspects for assessment and evidence required to demonstrate competency in this unit

The critical requirements for this unit of competency as a whole are listed below.

Assessment must confirm one's ability to:

- apply the NVAS to own enterprise
- establish and maintain a bona fide client-veterinarian relationship
- apply relevant state and territory legislation and industry codes of practice as they relate to own enterprise
- demonstrate knowledge of legal aspects of possession and use of approved drugs
- establish systems to satisfy the DIAA's quality assurance program.

Context and specific resources for assessment

Assessment for this unit of competency is to be a mix of practice and theory and will most appropriately be assessed in a deer velvet workplace or in a situation that reproduces normal work conditions.

For valid assessment, one must have opportunities to participate in exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge required to comply with deer velvet industry requirements.

The candidate must also have access to the following resources:

- supervision by a registered veterinarian
- relevant legislation and industry codes of practice
- organisational policies and procedures
- facilities, materials and equipment for velveting normally available on a deer farm, including access to deer, drug charts, drugs and equipment for velveting, biohazard sharps container, record keeping system, freezer and storage facilities for harvested velvet, velvet grading chart, grading equipment and NVAS tags.

Guidance information for assessment

To ensure consistency in one's performance, competency should be demonstrated on more than one occasion over a period of time in order to cover a variety of circumstances, cases and responsibilities, and where possible, over a number of assessment activities.

The skills and knowledge required to comply with deer industry national velvet accreditation requirements must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events.

RTE5106A**Unit Descriptor****Develop production plans for livestock**

This competency standard covers the process of developing production plans for livestock. It requires the ability to determine feasibility of livestock enterprise, identify and define determinants of livestock profitability, establish livestock production targets, prepare production plan, and review production plans to determine input and service requirements. Developing production plans for livestock requires knowledge of livestock husbandry, production and management practices, financial analysis techniques, sustainable land use principles and practices applicable in the region, environmental controls and codes of practice applicable to the enterprise, and whole farm planning processes.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|--|
| 1. Determine feasibility of livestock enterprise | 1.1 Farm environment parameters are assessed for their suitability for a range of livestock species.
1.2 Potential livestock enterprises are assessed for their market potential and gross margin returns.
1.3 Resource requirements are identified.
1.4 Production risks and strategies to address them are identified.
1.5 Livestock species and breeds are selected. |
| 2. Identify and define determinants of livestock profitability | 2.1 Production objectives are defined.
2.2 Strategies for herd/flock sourcing and improvement are established, and breeding program determined as appropriate.
2.3 Feed requirements are determined for each age/sex/category of herds/flocks.
2.4 Feeding strategy including grazing management, where appropriate, is determined and feeding programs are developed for each livestock category.
2.5 Health management program is developed to manage/prevent disease in each herd/flock.
2.6 Environmental controls are established as required. |
| 3. Establish livestock production targets and prepare production plan | 3.1 Performance indicators for the livestock enterprise are defined.
3.2 Product quality specifications are developed and production targets set.
3.3 Livestock cash flow budget is established.
3.4 Production plan is prepared incorporating a calendar of operations for the enterprise production cycle. |

4. Review production plans to determine input and service requirements
 - 4.1 **Logistical arrangements** related to harvesting/transportation/marketing and other key operations are planned for the production cycle.
 - 4.2 Schedules are established for the purchase of inputs and services used in production.
 - 4.3 Appropriate physical and financial record keeping system is established to provide data for the analysis of livestock production performance.
 - 4.4 Production plan is reviewed.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Ideas and information are communicated through the development of breeding, feeding and health management plans.	3
Collecting analysing and organising information	Information can be collected, analysed and organised by the development of breeding, feeding and health management plans.	3
Planning and organising activities	Activities can be planned and organised with others through meetings and work schedules.	3
Working with others and in teams	Team work can be applied when implementing breeding, feeding and health management plans.	3
Using mathematical ideas and techniques	Mathematical ideas and techniques can be applied in the collection of breeding, feeding and health management data.	3
Solving problems	Problem-solving skills can be applied when improving breeding, feeding and health management plans.	3
Using technology	The use of technology can be applied in the collection and storage of data.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What farm environment parameters may be relevant to this competency standard?	Environmental factors that may need to be considered could include water supply and quality, prevailing seasonal conditions including ambient temperatures, incidence of weather and climate extremes, and other physical features such as topography and natural shelter.
What resource requirements should be considered?	Resources may relate to production facilities and other infrastructure, management and labour resources, and capital requirements.
What product quality specifications may be relevant to this competency standard?	Product quality specifications may be determined by Quality assurance programs, or by the enterprise using information sourced from customer analysis.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in developing production plans for livestock requires evidence that production plans have been successfully and appropriately implemented and reviewed in an enterprise. The skills and knowledge required to develop production plans for livestock must be transferable to a range of work environments and contexts. For example, this could include different animal breeds and species, planning processes, production systems and enterprises.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- livestock husbandry, production and management practices
- financial analysis techniques
- sustainable land use principles and practices applicable in the region
- environmental controls and codes of practice applicable to the enterprise
- whole farm planning processes
- relevant OHS legislation, regulations and codes of practice.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- determine feasibility of livestock enterprise
- identify and define determinants of livestock profitability
- establish livestock production targets
- prepare production plans
- review production plans to determine input and service requirements.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5107A

Unit Descriptor

Identify and select animals for breeding

This competency standard covers the work involved in identifying and selecting animals for breeding. Competency in this standard includes the determination of selection criteria according to enterprise goals, and accurate identification and selection of animals that conform to the requirements of a breeding strategy.

Identifying and selecting animals for breeding requires skills and knowledge to determine and identify characteristics to meet the breeding aims of the enterprise. The work associated with this standard is undertaken independently within enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Identify breeding selection criteria | 1.1 Enterprise production records are referenced and enterprise production goals are reaffirmed in the breeding program.
1.2 The heritability of the desired performance characteristics is sourced and the potential for genetic improvement is identified.
1.3 Criteria for selection are determined and recorded in the production plan. |
| 2. Select animals for breeding | 2.1 Animals are accurately assessed against selection criteria.
2.2 Culling and replacement practices are determined and organised to improve the performance of the enterprise-breeding program.
2.3 Selected livestock are checked and monitored to ensure condition and welfare status is according to breeding program requirements.
2.4 Tests are conducted using recognised industry methods and evaluated within appropriate breeding program parameters. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communication of ideas and information can be applied in developing breeding criteria and a breeding program.	2
Collecting analysing and organising information	Information can be collected, analysed and organised when recording selection criteria and livestock performance records.	2
Planning and organising activities	Activities are planned and organised through workplace meetings and reporting procedures.	2
Working with others and in teams	Teamwork can be applied when collecting information about performance.	2
Using mathematical ideas and techniques	Mathematical ideas and techniques can be applied when determining selection criteria based on performance records.	2
Solving problems	Problem-solving skills can be applied in determining selection criteria for a breeding program.	2
Using technology	Technology can be used to communicate, gather and record livestock performance data.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What criteria may be used to select livestock for breeding purposes?

Selection criteria will vary according to animals farmed and production/breeding strategies. Objective and subjective criteria may include size, age, breed, teeth for age and deformity, general appearance and condition, estimated breeding value (EBV), colour, temperament, disease susceptibility, flesh colour, percentage deformity, percentage mal-pigmentation, sex growth rate, body weight, breeding history, growth rate, milk production and milk quality, style and character of wool/fibre, colour of fleece and greasy fleece weight.

What relevant information might be recorded and reported?	Livestock numbers, details of administered preventative health treatments and outcomes, appraisal results, back fat test results, conformation, temperament and performance details, weight and condition scoring, estimated breeding value (EBV), and any observed abnormalities.
What animals may be relevant to this standard?	Animals may include beef and dairy cattle, pigs, horses, goats and sheep.
What criteria may determine the carrying out of culling and replacement practices?	Criteria for culling and replacement will vary according to animals farmed and production/breeding strategies. This may include age, size, fertility history, conformation, skeletal faults, temperament, body weight, mean wool/fibre diameter, presence of medullated wools/fibres, low fleece yield or weight, fleece rot, pigmentation, body strike and colour, body weight, butter fat/milk yield, growth rate, and chronic disorders. Culling rates will vary according to the production profile of the herd, affordability and availability of replacement stock and other factors.
What type of tests may be conducted?	Testing may be carried out to determine fertility, pH, trace elements, specifications, spot colour appearance, calorimetry, optical, wether tail, nutritional intake, and history.
How might information be documented?	Record keeping systems used may be either paper-based or digital, and information will be recorded into logbooks or other records.

EVIDENCE GUIDE

Competence in identifying and selecting animals for breeding requires evidence of the ability to determine criteria for performance selection, and to identify and select animals according to those criteria.

The skills and knowledge required to identify and select animals for breeding must be transferable to a different work environment. For example, across a range of different animal breeds and classes.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- environmental codes of practice with regard to livestock production
- market requirements and gradings applied by different markets
- selection criteria to be applied
- genetics, pedigree and bloodlines
- organisational selection criteria for breeding stock.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- develop selection criteria for a breeding program
- record performance information
- recognise livestock abnormalities.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5205A

Unit Descriptor

Plan and manage infrastructure requirements

This competency standard covers the process of planning for and managing the infrastructure required for production in the organisation. It includes the need to act in an environmentally aware manner. It requires the need to analyse and extract information from a broad range of sources, and to comply with a variety of legislative and regulatory requirements.

Planning and managing infrastructure requirements is likely to be undertaken alone or under broad guidance. Responsibility for the planning and management of the work of others is likely to be involved. Planning and managing infrastructure requirements requires extensive knowledge in some areas such as sustainable land use principles and practices, and a range of technical and other skills such as planning, calculating volumes areas and distances, and cost benefit analyses.

Note: This unit provides the framework for the unit RUA4207CMB Implement a property improvement plan

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Determine infrastructure requirements | <ul style="list-style-type: none">1.1 Information regarding the characteristics of the products and their respective market requirements is accessed.1.2 Characteristics of the land under production and the production processes to be used are confirmed from colleagues and other planning processes.1.3 Historical data, including recent data, from organisational records is identified and accessed for input to infrastructure planning processes.1.4 Information regarding other organisational planning processes and potential for improvements or innovations, is collected and used to inform the infrastructure planning process.1.5 Requirements of the organisation are taken into consideration during analysis.1.6 All available information is analysed, and the infrastructure required to efficiently achieve the targeted production requirements are identified and compared with those existing and available in the organisation.1.7 OHS hazards identified, risks assessed and suitable controls are incorporated into the planning process.1.8 Replacements, purchases and sales of plant and vehicles are planned and budgeted for according to organisational policies and procedures.1.9 Details regarding infrastructure requirements are used as input to other organisational planning processes. |
|--|--|

- | | |
|--|---|
| 2. Obtain, prepare or build infrastructure | <p>2.1 Solutions to bridging the gaps between required and existing infrastructure are identified.</p> <p>2.2 Preferred solution to filling gaps in required infrastructure is determined from a cost benefit analysis.</p> <p>2.3 Negotiations are undertaken to obtain infrastructure or componentry at the best rate for the organisation.</p> <p>2.4 Preparation work required for existing infrastructure is organised and undertaken as necessary.</p> <p>2.5 Works required are planned and commissioned according to organisation requirements.</p> <p>2.6 All alterations to infrastructure or new developments give due consideration to environmental and waste management requirements.</p> |
| 3. Manage infrastructure | <p>3.1 Infrastructure maintenance programs are determined including scheduling and responsibilities.</p> <p>3.2 Replacements, purchases and sales of plant and vehicles are undertaken according to plans made, and are in line with organisation policies and guidelines.</p> <p>3.3 Any reallocations of land required are undertaken with the planning and consultation required by the organisation, and within all relevant guidelines and regulations.</p> <p>3.4 Situations that require unplanned maintenance are managed within organisation guidelines and policy.</p> <p>3.5 Checks are made to ensure that program specifications are adhered to and amendments are made where necessary.</p> <p>3.6 Checks are made to ensure that all OHS requirements are adhered to, including the appropriate use of personal protective equipment.</p> <p>3.7 Checks are made to ensure that potential detrimental environmental impacts are minimised or eliminated.</p> |
| 4. Record and manage information | <p>4.1 Data, observations and documentation recorded during the production cycle are analysed against the plan according to organisation guidelines.</p> <p>4.2 Recommendations for future plans are prepared based on the analysis of the data.</p> <p>4.3 A report is prepared that documents the plans implementation according to the organisations requirements and guidelines.</p> <p>4.4 Records and documentation are created, maintained and kept as described in the infrastructure plan, the OHS requirements, and machinery and equipment management programs.</p> <p>4.5 Records and documentation are completed clearly and accurately throughout production in the organisation.</p> <p>4.6 The record keeping system that is used ensures that required information is available, accessible, meaningful and useful.</p> |

KEY COMPETENCIES

Key Competency	Example of Application	Performance Level
Communicating ideas and information	By preparing maintenance plans that will be implemented by other people.	3
Collecting analysing and organising information	Using the variety of sources available for input to decision-making.	3
Planning and organising activities	In developing and managing plans for the development and maintenance of infrastructure.	3
Working with others and in teams	In working with colleagues during input to the range of other planning processes.	2
Using mathematical ideas and techniques	In calculating infrastructure requirements in terms of volumes, distances and times, and in conducting cost benefit analyses.	2
Solving problems	In recognising where and when amendment is required to plans.	2
Using technology	In operating any necessary equipment for the maintenance activities - communication technology, calculating equipment, measuring equipment, and word processing/spreadsheets software.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What characteristic of the products might be accessed?	If it is an annual or perennial product, experimental product, yield, financial return, frequency of rotation, harvesting requirements, prevalence of pests and disease, and pest and disease control.
To what does the term products refer?	To the crops, stock and/or products under production or refinement/manufacture in the organisation.
What characteristics of the land under production should be accessed?	Accessibility, topography, moisture content, pH levels, nutrient levels, salinity, erosion, drainage, land use history, germination rates, and pest and disease prevalence.
What historical data might be assessed in the planning process?	Crop/stock history, disease and pest history, previous yield data, pesticide use, financial returns, weather patterns, market information, existence and suitability of previous infrastructure.

What infrastructure might be planned?

In addition to equipment, machinery and vehicles, the organisations infrastructure may include buildings, sheds, shelters, stock yards, stock handling structures, fences, water supply systems, roads, tracks, soil conservation works, irrigation and drainage channels, silage pits and/or grain and fodder storage, dams, monitoring systems, and information technology systems.

What other organisational planning processes might provide input to infrastructure planning?

Activities such as land-use, production systems, production process and strategic planning processes.

What might improvements or innovations relate to?

To equipment, machinery, materials, practices, and systems - including those relating to environmental, OHS, and animal welfare practices and/or related equipment might be researched and implemented.

What requirements might the organisation have in relation to production processes?

Requirements may relate to the preferred approach/policy in regard to animal welfare, environmental management, waste management, and OHS. Legislation and regulation may also impact on, or restrict production.

What actions could be taken to eliminate or minimise OHS risk?

The range of actions are both systemic and at an operational level. These are listed below.

Systems should be in place to ensure the safe operation and maintenance of machinery and equipment. Precautions should also be in place to minimise exposure to noise, and organic and other dusts. Systems and procedures for handling and storing product, as well as working with and around electricity should also be in place.

Fixtures should be in place in all silos and storage sheds, including appropriate access ladders, handrails and ladder cages.

Personal protective equipment should be selected, used and maintained.

Environmental conditions should be controlled. For example, keeping moisture levels as low as possible will reduce the likelihood of fire and silo collapse.

Procedures should be in place and used for working with and operating machinery and equipment, including exposed moving parts, noise, transporting and storing hazardous substances (such as pesticides), working within confined spaces, moving vehicles and working at height.

Record keeping should ensure that requirements in relation to properly observing and using product labels and MSDS sheets, instruction manuals and written organisational procedures.

What solutions might exist for bridging the gaps between required and existing infrastructure?

Reassigning, refitting or modifying existing infrastructure.

Are financial indicators the only component of a cost benefit analysis?

Costs and benefits are considered in terms of all impacts on the performance of the farm and must include animal welfare, environmental, and OHS issues, as well as the financial ones.

How might infrastructure or componentry be obtained?

Through transactions, which may include purchase, lease, hire, rental, barter, or loan.

What preparation work may be required for utilising existing infrastructure?

Obtaining relevant permits and permissions, or stripping, emptying, or disassembling them.

What might be required when works are planned?

Appropriate permits and permissions are in place and appropriate people are consulted.

What environmental and waste management requirements should be considered?	Construction activity, as well as the improvement itself, might put the local environment at risk of off-site contamination such as the fouling of surface or ground water bodies with solid material, and/or nutrients, including acid discharges from acid sulfate soils. Any change to the natural lie of the land may affect run-off and drainage to increase erosion or the acidity of the soil, and the way in which effluent is managed to pollute surface and underground catchments. Removal of vegetation and ground cover may affect wind or water erosion and/or an increase in salinity.
What should be considered when developing infrastructure maintenance programs?	Scheduling issues, affect on production, availability of staff, costs, seasonal variances, weather patterns, and other operations occurring in the organisation.
Why might reallocations of land be required?	For road or path building, siting buildings, dam construction, run-off and drainage works.
What guidelines and regulations should be considered during reallocations of land?	The required permissions and permits are obtained; environmental guidelines, animal welfare regulations and OHS regulations are adhered to.
When might unplanned maintenance be required?	To rectify machinery or plant breakdown, and damage caused by storm, stock or vandals.
What data might be analysed against the production plan?	Information pertaining to costs, production levels, labour and overhead inputs, environmental data and OHS data.
What would be included in the report?	Issues and details such as, any difficulties or issues faced, the methods used for treatment, impacts on environmental and OHS, any recommendations for future plans, results, costs, and any available data analysis.
What record keeping systems might be utilized?	These may include the storage devices, the procedures, operators who enter and update the data, and guidelines and policy for the maintenance and migration of data.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in planning and managing infrastructure requirements requires evidence that appropriate and sound infrastructure is installed for the most efficient production and environmentally sound results.

The skills and knowledge required to plan and manage infrastructure requirements must be transferable to a different work environment. For example, across a range of products and organisation sizes.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- property planning, financial management and enterprise budgeting systems and procedures
- environmental controls and codes of practice available to the organisation
- relevant legislation and regulations relating to OHS, contractor engagement, chemical use and application, and vehicle and plant use
- sound management practices and processes to minimise noise odours and debris from production processes
- sustainable land use principles and practices applicable in the region
- relevant legislation and regulations relating to soil and water degradation issues, animal health and welfare, and chemical use.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- interpret monitored information on production processes
- interpret, analyse and extract information from a range sources such as professional literature, legal documents, discussions, and workshops
- identify, build and use network and support groups
- recognise potential opportunities to use or install more environmentally efficient systems or equipment
- assess, then adopt, profitable innovations
- prepare written plans and procedures for implementation by others
- observe, identify and react appropriately to environmental implications and occupational OHS hazards.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5301A

Unit Descriptor

Design livestock effluent systems

This competency standard covers the process of the design and planning of livestock effluent systems. The effluent management processes chosen should be planned to maximise sustainable and productive outputs in an environmentally responsible manner, and within established planning goals. The design and planning of livestock effluent systems requires the ability to identify factors affecting the design, evaluate the effectiveness and conduct a cost benefit analysis of a livestock effluent management system. It requires knowledge of the components of a livestock effluent management system, the options available and the relative advantages and disadvantages, financial considerations, and relevant legislation and regulations relating to effluent management.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Determine the feasibility of an effluent management system | 1.1 Planning parameters that affect the design of effluent management system are identified.
1.2 Statutory, local government and environment authority requirements for effluent disposal are identified.
1.3 The environmental implications of livestock effluent disposal are identified.
1.4 Effluent recycling options are evaluated in accordance with the whole farm plan.
1.5 Processing options are analysed on the basis of their merits and suitability for the environment.
1.6 Information is obtained from effluent management specialists on all relevant aspects of effluent management.
1.7 An effluent management system is selected on the basis of a cost benefit analysis . |
| 2. Design an effluent management system | 2.1 The volume of livestock effluent is calculated according to established guidelines.
2.2 The volume of water flowing into the effluent management system is calculated.
2.3 Storage requirements are calculated.
2.4 Professional assistance is obtained, appropriate to the complexity of the task and the financial risk involved.
2.5 Plan and layout include provision of access, availability and the incorporation of technological innovations.
2.6 OHS hazards are identified, risks assessed, safe systems established, and OHS risk assessment records maintained.
2.7 The effluent management system design reflects the requirements of the business plan, production plan and the whole farm plan . |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	System options and management systems will need to be communicated with management, staff, industry specialists, factory field staff, contractors, and neighbours involved.	3
Collecting analysing and organising information	Environmental data, property and production data will be collected and collated in both electronic and paper forms.	3
Planning and organising activities	Activities such as data collection, drafting of plans, obtaining of quotes, and the monitoring of contracts will be planned and organised in consultation with the property manager and relevant industry specialists.	3
Working with others and in teams	Both the planning of management systems, the implementation of construction, and day-to-day operation of effluent systems requires a team approach.	2
Using mathematical ideas and techniques	The calculation of volumes, sizes, flows, and the final specification of the management plan require the application of these techniques.	2
Solving problems	Problem-solving skills are required in responding effectively to a range of circumstances including adverse soil, property or water conditions, as well as addressing issues of blockage or malfunction of effluent systems.	3
Using technology	A range of communication, measurement and recording equipment may be involved in the development of livestock effluent management systems.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What should a livestock effluent management system do?

The system must **collect, store, treat and re-use effluent** in the most efficient manner on site with minimal impact on the local environment.

What methods of effluent disposal may be considered?

Effluent disposal systems may include: ponding and spreading on paddocks to improve pasture growth, recycling water for yard wash-down, generation of methane gas for water heating, applying to crops and trees as a soil conditioner, and composting or worm farming.

What parameters should be considered in planning?

Planning parameters that may be considered include:

Soil type, topography, ground water levels, local water courses, climate, the whole farm plan, environmental risk management planning, available labour and financial resources, availability of water, area available for distribution, current and planned future herd size, intensity of operations, disease status within the herd, future increases in supplementary feeding, shed or cow flow modifications, possibility of flood washing, feed pads, winter feeding, volume of effluent currently produced, proximity to the milk room, neighbours, siting of calf paddocks in relation to areas where effluent water will be applied, irrigation layout and re-use dams, and relevant legislation and regulations relating to effluent management.

What are the OHS hazards associated with effluent management systems?

OHS hazards include drowning of workers or visitors to the workplace including children. Slips trips, falls and mechanical injury with pumps and equipment. The inclusion of safety covers over pits and tanks, and guards on all machinery associated with these systems is crucial in addressing these hazards.

What are the recycling and volume reduction options available?

Use of yard flood washing systems using recycled water, reduction of wash systems, storage and usage of stormwater from roofs and yard areas.

What factors should an evaluation of a livestock effluent management systems consider?

Cost effectiveness, ease of use, efficiency in overall design and operation, effective conservation of livestock effluent into a useable form, environmental impacts, achieving maximum benefit from the recycled livestock effluent, and meeting the legal requirements and environmental responsibilities.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in designing and planning of livestock effluent systems requires evidence that an individual is aware of how these systems are planned and designed, as well as an awareness of the issues impacting on the design and operation of these systems. This will include demonstration of an understanding of both the environmental and OHS issues involved. The skills and knowledge required to design and plan livestock effluent management systems must be transferable to a different work environment. For example, this could include different effluent systems, production systems, environmental factors and enterprise guidelines.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- the role of differing components of a livestock effluent management system
- the options available and the relative advantages and disadvantages of differing effluent management systems
- different methods of managing large quantities and reducing the quantity of effluent water in effluent management
- financial considerations including the availability of low interest loans and incentives for expenditure on facilities to treat and retain livestock effluent
- relevant legislation and regulations relating to effluent management
- relevant OHS legislation, regulations and codes of practice.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- identify all factors affecting the design of a livestock effluent system
- evaluate the effectiveness of a range of livestock effluent management systems
- conduct a cost benefit analysis of a livestock effluent management system
- calculate the amount of effluent produced, storage required and water required by a effluent management system
- research the latest innovations in livestock effluent management
- liaise and effectively negotiate with livestock effluent management specialists.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5304A

Unit Descriptor

Implement a machinery management system

This competency standard covers the process of implementing a machinery management system and requires the ability to identify machinery and equipment requirements for the property, select and manage the range of machinery services provided by external suppliers, and manage machinery maintenance and operation. Implementing a machinery management system requires knowledge of cultural operations and their associated machinery requirements, costs associated with the use of machinery, maintenance requirements of machinery and equipment, storage and housing requirements of machinery, negotiation and the development of agreements, safe operating procedures for machinery, and systems for monitoring machinery maintenance and operation.

Unit Sector No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Identify machinery and equipment requirements for the property | 1.1 Machinery and equipment requirements are identified for the enterprises being conducted.
1.2 Alternative options to machinery ownership are evaluated for applicability .
1.3 Storage and housing requirements for machinery and equipment are identified and addressed.
1.4 Machinery innovations are monitored and assessed for applicability.
1.5 Inventory of machinery and equipment is maintained as required by the enterprise. |
| 2. Select and manage the range of machinery services provided by off-farm suppliers | 2.1 Services to be provided by off-property suppliers are identified.
2.2 Criteria to select and monitor the provision of services are developed.
2.3 Agreements and transactions are appropriately recorded and monitored. |
| 3. Manage machinery maintenance | 3.1 Maintenance requirements of machinery and equipment are determined from manufacturers instructions, and maintenance schedules are established.
3.2 Systems for recording machinery use and maintenance are established.
3.3 Machinery maintenance is monitored to ensure adherence to schedules and manufacturers instructions. |
| 4. Manage machinery and equipment operation | 4.1 Machinery and equipment use is monitored and recorded according to enterprise requirements.
4.2 Machinery operation is monitored to ensure compliance with manufacturers instructions.
4.3 Procedures for the safe operation of machinery are determined and adherence to safe procedures is monitored and ensured.
4.4 Staff are trained in the safe operation of machinery and the required procedures for the maintenance of machinery. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Ideas and information are communicated through the development of machinery maintenance, purchasing and replacement plans.	3
Collecting analysing and organising information	Information can be collected, analysed and organised by comparative analysis of performance and running costs.	3
Planning and organising activities	Activities can be planned and organised through workplace meetings.	3
Working with others and in teams	Team work can be applied through workplace meetings.	3
Using mathematical ideas and techniques	Mathematical ideas and techniques can be applied when making comparative analysis of machinery purchase and/or running costs.	3
Solving problems	Problem-solving skills can be applied to maintenance schedules and replacement plans.	3
Using technology	The use of technology can be applied through information collection and storage systems.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What alternative options may be relevant to this competency standard?	Alternative options might include the use of shared machinery arrangements, contractors, membership of machinery syndicates, and leasing or hiring, participation in machinery rings.
What services should be considered?	Service might include repair and overhaul services, contracted machinery operations, and parts suppliers.
What agreements may be considered relevant?	Examples of agreements include those that cover the conditions for use and operation of shared equipment, and agreements negotiated with contractors and other service providers.

What machinery and equipment may be relevant to this competency standard?	Machinery and equipment will all vehicles and attachments, and stationary and mobile plant, used by the enterprise.
Who should be considered as staff?	Staff will include family and non-family labour, casual and permanent labour.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in implementing a machinery management system requires evidence that machinery systems have been successfully and appropriately implemented in an enterprise. The skills and knowledge required to implement a machinery management system must be transferable to a range of work environments and contexts. For example, this could include different machinery and equipment and enterprise operations.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- cultural operations and their associated machinery requirements
- costs associated with the use of machinery
- maintenance requirements of machinery and equipment
- storage and housing requirements of machinery
- negotiation and the development of agreements
- safe operating procedures for machinery
- systems for monitoring machinery maintenance and operation
- staff training.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- identify machinery and equipment requirements for the property or enterprise
- select and manage the range of machinery services provided by off-farm suppliers
- manage machinery maintenance
- manage machinery and equipment operation.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5515A

Unit Descriptor

Manage natural areas on a rural property

This competency standard covers the process of managing natural areas on a rural property towards enhancing ecological and economical sustainable capacity of the land, and outcomes for an enterprise. It requires the ability to prepare and implement management strategies. Managing natural areas on a rural property requires knowledge of natural area restoration and management principles including identification of native plants, animals, weeds and vertebrate pests, environmental issues, fencing and barriers, stocking options, and control ecological systems in regard to business operation and relevant State/Territory legislative requirements.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Determine location, size and type of natural area to be managed | 1.1 Location of natural area confirming property ownership and boundaries are mapped following industry guidelines.
1.2 Lists of native animal and plant species specific to natural area are obtained in line with scientific guidelines .
1.3 Vegetation structure and conservation value data for natural area is sourced and accuracy confirmed.
1.4 Details of the presence and threats from pest plants and animals are obtained following industry guidelines.
1.5 Documented evidence of physical impacts on natural area is compiled. |
| 2. Prepare management plan | 2.1 Boundary control designed appropriate to natural area protection guidelines.
2.2 Restoration/maintenance strategies for natural area are planned consistent with relevant industry principles.
2.3 Environmental concerns are adhered to when developing management strategies in accordance with relevant National, State, and local legislation and/or regulations.
2.4 Physical impacts reduced/corrected utilising industry endorsed strategies.
2.5 Appropriate planning and specialist personnel, and local authorities are liaised with in accordance with organisation policy and guidelines.
2.6 Habitat enhancement strategies are developed in line with industry guidelines.
2.7 Strategies to integrate management of natural areas into land use and production systems of property are developed.
2.8 Management plan is prepared and presented according to enterprise guidelines and industry best practice |

- 3. Implement management strategies
 - 3.1 Work schedules are developed incorporating objectives and timelines consistent with rural production requirements.
 - 3.2 Organisational OHS procedures, practices, policies and precautions are observed and followed.
 - 3.3 Work is carried out in natural areas according to management strategies and within statutory requirements.
 - 3.4 People, materials and equipment required for the work in natural areas are co-ordinated and scheduled in accordance with enterprise guidelines .
 - 3.5 Schedule for natural area works is organised in conjunction with operational personnel and source of equipment, and takes seasonal weather conditions into consideration in accordance with enterprise policy guidelines.
 - 3.6 Any permits or licences required for the natural area works are identified, sought and obtained.
 - 3.7 Neighbouring landholders, local authorities and interest groups are consulted with, as required, during the implementation of works.
 - 3.8 Staff, clients, and contractors are communicated with regularly during implementation work.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Information and ideas with regard to developing management strategies may be discussed with staff and industry participants.	3
Collecting analysing and organising information	Historical information with regard to previous land use may be gathered for analysis and organised by reports.	3
Planning and organising activities	Resources and materials required for planning management strategies may need to be scheduled to meet timetables and deadlines.	3
Working with others and in teams	Team work may be applied in effective and timely communication to achieve projected management outcomes.	3
Using mathematical ideas and techniques	Mathematical techniques will be required to analyse data and estimate costs for work.	3
Solving problems	Problems with obtaining data and resources for planning of management strategies may be addressed through adjustments to resources or timetables.	3
Using technology	Technology may be used to gather information, prepare planning, communicate and keep records.	3

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work contexts.

How may lists of native animal and plant species be obtained?

Through direct observation, review of reference sources from government and local interest groups, specialist consultants, and liaison with relevant local interest groups.

How might vegetation structure and conservation values be determined?

Through review of reference sources from government and local interest groups, specialist consultants, and liaison with relevant local interest groups.

Who could assist in defining presence of and threats from pest plants and animals?

Local environmental protection agencies and personnel.

What may constitute physical impacts on natural areas?

Erosion and sedimentation, salinity, degradation, loss of habitat, pest plants and animals.

What restoration/maintenance strategies may be planned?

Planting of native plants, restoration of animal habitats and landform, reintroduction of animal and plant species, fences to exclude stock and pest animals, weed control, assisted natural regeneration, and erosion and sediment control measures.

What National, State, and local legislation and/or regulations may impact on management of natural areas?

Environment Protection Act, environmental agencies regulations, duty of care, isolation procedures, OHS legislation, site regulations and procedures, codes of practice or statutory requirements, Native Title Act and traditional land owners requirements.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in managing natural areas on a rural property requires evidence of the ability to assess characteristics of the site, and plan and implement ecologically sustainable management strategies. The skills and knowledge required to manage natural areas on a rural property must be transferable to a different work environment. For example, this may include different areas, conservation values, rural enterprises and management strategies.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- advantages and limitations of sustainable land management practices including environment sustainability as a "whole-system" approach
- property planning, financial management and enterprise budgeting systems and procedures
- identification of native plants, animals, weeds and vertebrate pests
- strategies to maximise opportunities and minimise environment impact
- environmental issues especially in regard to water catchments, air, noise, ecosystems, habitat and waste minimisation
- ecological systems in regard to business operation
- relevant State/Territory legislative requirements with regard to environmental protection and control standards.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These include the ability to:

- determine features and characteristics of natural areas
- prepare management strategies
- implement management strategies.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5516A**Unit Descriptor****Develop a whole farm plan**

This competency standard covers the process of developing a whole farm plan for a rural enterprise. It requires the ability to determine directions for the business, audit the natural resources of the property, monitor legal requirements impacting on the management of the property, and develop management strategies to address natural resource management issues.

Developing a whole farm plan requires knowledge of SWOT analysis, sustainable land management practices, property planning processes and approaches, land capability, conservation management strategies, legal requirements and risk management.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|--|
| 1. Determine directions for the business | 1.1 Long-term directions and purposes of the business are established through identification and analysis of the values, expectations and personal goals of the people involved.
1.2 Business and personal strengths, weaknesses, opportunities and threats are identified (SWOT analysis).
1.3 Strategies to address the SWOT are developed consistent with the business vision. |
| 2. Audit the natural resources of the property | 2.1 Physical characteristics of the soil resource are identified and recorded.
2.2 Soil map of property is drawn and land classes are recorded using classification terminology.
2.3 Land capability is determined and land management options for each land class identified.
2.4 Natural property features and infrastructure are shown on property map.
2.5 Areas at risk of soil degradation are identified.
2.6 Native vegetation is classified and condition is assessed.
2.7 Endangered species are identified as appropriate.
2.8 Other natural resource issues are identified as appropriate to the property. |
| 3. Monitor legal requirements impacting on the management of the property | 3.1 Current knowledge of relevant Acts and regulations impacting on the property is maintained.
3.2 Legal requirements are addressed through management plans. |

- | | |
|--|--|
| 4. Develop management strategies to address natural resource management issues | 4.1 Property improvement plans to assist natural resource management are developed, costed and prioritised.
4.2 Plans to repair land degradation are developed.
4.3 Strategies to address water supply and water management, vegetation and revegetation management, and wildlife management are prepared as appropriate to the property.
4.4 Strategies for weed and pest management are developed.
4.5 Plans to address fire risk/fire management are developed as appropriate. |
| 5. Review whole farm plan | 5.1 Plans are reviewed and revised to meet changing circumstances. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Communication of ideas and information be can applied through the development of whole farm plans.	3
Collecting analysing and organising information	Information can be collected, analysed and organised in accordance with whole farm planning processes.	3
Planning and organising activities	Activities are planned and organised in accordance with whole farm planning processes.	3
Working with others and in teams	Team work can be applied during the development of whole farm plans.	2
Using mathematical ideas and techniques	The use of mathematical ideas and techniques can be applied when collecting and using primary data about farm resources.	2
Solving problems	Problem-solving skills can be applied in solving complexities in the analysis and decision-making process.	2
Using technology	The use of technology can be applied by using appropriate data collection and storage technology.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What physical characteristics of the soil might be assessed?	Moisture content, pH levels, nutrient levels, salinity, erosion, germination rates, aggregate stability, colour, texture, structure, and pest and disease prevalence.
What natural resource issues may need to be included?	Natural resource issues may relate to stock grazing pressure, feral animals, wildlife, weeds, human impact, cultural practices, contamination, agricultural chemical drift, fire, reintroduction of native animals, legislation, management advice, and initiation of heritage agreements and other issues.
What infrastructure should be mapped?	Infrastructure may include buildings, sheds, shelters, stock yards, stock handling structures, fences, water supply systems, roads, tracks, soil conservation works, irrigation and drainage channels, silage pits and/or grain and fodder storage, and dams.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in developing a whole farm plan requires evidence that business objectives and plans, and plans for sustainable land management and production have been integrated and documented. The whole farm plan must incorporate relevant data such as results from a natural resources audit and build on and contribute to other plans, such as the business plan, human resources plan and risk management plan.

The skills and knowledge required to develop a whole farm plan must be transferable to a different work environment. For example, across a range of production types and processes.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- SWOT analysis
- sustainable land management practices
- property planning processes and approaches
- land capability
- water, vegetation, soil, fire and wildlife management strategies
- legal requirements impacting on whole farm planning
- risk management.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These include the ability to:

- determine directions for the business
- audit the natural resources of the property
- monitor legal requirements impacting on the management of the property
- develop management strategies to address natural resource management issues.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5523A

Unit Descriptor

Develop climatic risk management strategies

This competency standard describes the work function associated with developing climate risk management strategies for an agricultural, horticultural or land management enterprise. It requires the ability to research climate and enterprise data, analyse and interpret climate and enterprise data, prepare risk management strategies, and integrate climate risk and opportunities for management strategies at a business management level. Developing climate risk management strategies requires knowledge of current forecasting techniques, impact of weather and climate phenomena on rainfall, plant growth and yields, livestock production, causes of general patterns of weather and climate over Australia, climate variability and climate change, and direct and indirect impacts of climate variability on land management and sustainability.

Unit Sector No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Survey climate and enterprise data | 1.1 Historical climate data is obtained and interpreted from a range of sources.
1.2 Weather and climate risk factors are identified.
1.3 Information on normal and significant climate events and their impact on natural and rural systems is collected.
1.4 Current and historical property and enterprise situation is detailed according to enterprise guidelines.
1.5 Short and long term enterprise goals are reviewed.
1.6 Climate and enterprise data is sourced, presented and updated according to enterprise requirements. |
| 2. Climate risks and opportunities are identified and analysed. | 2.1 Forecasted chances of seasonal climate are analysed.
2.2 Climate risks and opportunities are identified.
2.3 Impact on production of different weather and climate risk factors are determined according to enterprise requirements.
2.4 Qualitative and quantitative risk and opportunity factors are identified and developed.
2.5 Importance of climate variability and significant climate events is evaluated.
2.6 Tactics to address a range of different climate variability risks and opportunities are outlined according to enterprise requirements.
2.7 Contingency options for enterprises and the business are identified. |

3. Prepare climate risk management strategies
 - 3.1 Climate variability and seasonal climate forecasts are analysed.
 - 3.2 Insurance and other options are addressed in strategies.
 - 3.3 Major climate risk factors are addressed in strategies.
 - 3.4 Financial outcomes for all strategies are prepared according to enterprise guidelines.
 - 3.5 Impacts on the environment, property value and equity is predicted for the preferred strategies.
 - 3.6 Preferred production, enterprise or alternative strategies are reviewed, and options selected according to enterprise requirements.
 - 3.7 A planned strategy to cope with variable climate and climate risk management is presented in a format according to enterprise guidelines.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through research, collation and interpretation of climate data.	3
Collecting analysing and organising information	Through the sourcing, presentation and updating of data according to enterprise conventions and requirements.	3
Planning and organising activities	Through developing scenarios and identifying trends in climate variability.	2
Working with others and in teams	Through working with departmental staff or other growers in developing tactics and strategies.	2
Using mathematical ideas and techniques	Through analysing and interpreting information on weather and climate.	3
Solving problems	By anticipating and responding to climate change.	3
Using technology	Through computer applications and information technology systems.	3

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What may be considered under weather or climate risk factors?

Risk factors may include soil erosion, tree cover, flooding, drought, fire management, pests and diseases, and changing nutrient levels.

What significant climate events may be relevant to this standard?

Significant climate events may include floods, droughts and periods of extreme temperature.

What enterprise situation may be relevant to this standard?

Enterprise situation may include stock, pasture, crops, climate, vegetation, waterways, slope, aspect, and growing season.

What may be included under climate opportunities?

Climate opportunities may include above average production, market opportunities, refining enterprise mix decisions, and alternative enterprises.

What may be classed as contingency options?

Options may include marketing, cropping strategies, plant production, animal husbandry and health, removing stock, re-stocking property, provision of food supplements, changing enterprises, and other emergency planning.

What property values may apply to this standard?

Values may include economic, enterprise sustainability, improvement in natural resource base, and other benefits.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence to develop climate risk management strategies requires evidence that the candidate can research, collate and interpret climate data in order to develop and present rational, achievable and effective strategies. The skills and knowledge required to develop climate risk management strategies must be transferable to a different work environment. For example, this could include different properties, strategies and climate conditions.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- current forecasting techniques and phenomena such as El Nino, ENSO, Southern Oscillation Index (SOI) and Pacific and Indian Ocean SST patterns
- the impact of weather and climate phenomena on rainfall, plant growth and yields
- causes of general patterns of weather and climate over Australia
- climate variability and climate change
- direct and indirect impacts of climate variability on land management and sustainability
- property and enterprise management decisions affected by the variable climate
- recognition of climate risks and opportunities
- seasonal climate forecasting systems and related indicators
- drought planning and strategies
- flood planning and strategies
- climate and weather issues pertaining to sustainable agriculture
- potential impacts of greenhouse warming on land and natural resource management
- strategic options and planning in response to climate variability for a range of seasons (normal, drier or wetter than normal), and other risks and opportunities
- calculating financial returns for different strategic options
- computer applications and Internet to access, record and analyse data
- principles of decision-making based on the variable climate and seasonal climate forecasts.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- research climate and enterprise data
- analyse and interpret climate and enterprise data
- prepare risk management strategies
- integrate climate risk, and opportunities and management strategies at a business management level.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5524A**Develop and implement sustainable land use strategies****Unit Descriptor**

This competency standard covers the process of assessing land requirements and improving the land under production. It includes the requirements to apply a range of sustainable growing practices according to the industry's codes of practice and conduct, and consistent with State and Territory legislation. When achieved, the work in this standard leads to the long-term economic viability of land under production.

Implementing sustainable land use is likely to be under limited supervision from others, with checking only related to overall progress. It is usually done within routines, methods and procedures where some discretion and judgement is required in the selection of equipment and materials, organisation of work, services, actions, and the achievement of outcomes within budgetary constraints.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|--|---|
| 1. Assess requirements for improved land use | 1.1 Potential sources of additional funding are identified and accepted where possible.
1.2 Legislative and regulatory requirements and imperatives are identified and adhered to throughout the conduct of operations.
1.3 Specific requirements for improvement are identified from the organisations production and management plans.
1.4 Soil samples are taken according to the requirements of the organisations production and management plans.
1.5 Plans and reports are annotated as required in preparation for action. |
| 2. Prepare to improve land use | 2.1 Sites are inspected and measured, key features noted, and pegs or markers are placed as appropriate for the improvement required.
2.2 OHS hazards are identified and appeased, and responsible action is taken throughout the preparation process.
2.3 Materials required for the construction of the improvement(s) are calculated from the plans, observations and discussions with colleagues.
2.4 Materials, personnel and equipment are obtained and organised to be on site at the appropriate times.
2.5 Equipment to be used is checked and calibrated, if necessary, prior to commencement. |

- 3. Improve land use
 - 3.1 Suitable **personal protective equipment** is selected, used and maintained.
 - 3.2 OHS hazards are identified, risks assessed, and suitable controls are implemented.
 - 3.3 **Soil structure** and balance is corrected according to the results of the soil tests.
 - 3.4 Organisational chemical application procedures and processes are reviewed to reduce contamination of soils and ground water.
 - 3.5 **Soil conservation** measures are implemented
- 4. Prevent land degradation
 - 4.1 Suitable personal protective equipment is selected, used and maintained.
 - 4.2 OHS hazards are identified, risks assessed, and suitable controls are implemented.
 - 4.3 Fences or boundaries are realigned to land classes and soil conservation works.
 - 4.4 Contour banks are protected and repaired as necessary.
 - 4.5 Water carrying structures are repaired as necessary.
 - 4.6 Tree, other vegetation and shelter belts are established for crop and stock protection.
 - 4.7 Soil cultivation and planting practices are reviewed and amended to prevent erosion and minimise soil run-off.
 - 4.8 **Chemical applications** are planned using methods and times when maximum uptake and minimum run-off may be achieved.
 - 4.9 Equipment needed for chemical applications is calibrated and serviced to maintain optimum working condition.
- 5. Complete operations
 - 5.1 Equipment is **cleaned** in accordance with manufacturers specifications, organisational procedures and regulations.
 - 5.2 Attachments and other ancillary equipment are cleaned and stored to minimise damage and maximise hygiene according to manufacturers specifications, organisational procedures and regulations.
 - 5.3 All containers, leftover fluids, waste and debris from the maintenance and servicing work are disposed of safely and appropriately.
 - 5.4 All required records and **documentation** are completed accurately and promptly in accordance with organisational requirements.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	By preparing and amending plans that may be implemented by other people.	1
Collecting analysing and organising information	In assessing the land and interpreting plans for what should be done.	2
Planning and organising activities	In planning for and implementing the improvement works.	2
Working with others and in teams	In working with others to improve land use according to prepared plans.	1
Using mathematical ideas and techniques	In calibrating equipment and measuring quantities.	-
Solving problems	In recognising where corrective action is required and then implementing the appropriate action.	1
Using technology	In operating any necessary equipment prior to and during, land improvement works.	1

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What might cause land to require improvement?

The need for improvement may be caused by rising water tables, wind eroded areas, saline areas, weed infestations, unstable soils, poorly drained areas, or shelter requirements.

Once soil samples are taken, what might soil be tested for?

It may be tested for pH, salinity, texture, or nutrient status.

What actions could be taken to eliminate or minimise OHS risk?

The range of actions are both systemic and at an operational level. These are listed below.

Systems should be in place to ensure the safe operation and maintenance of machinery and equipment. Precautions should also be in place to minimise exposure to noise, and organic and other dusts.

Fixtures should be in place in all silos and storage sheds, including appropriate access ladders, hand rails and ladder cages.

Personal protective equipment should be selected, used and maintained.

Environmental conditions should be controlled. For example, keeping moisture levels as low as possible will reduce the likelihood of fire.

Procedures should be in place and used for working on harvesters, working with grain mass movement and stability, working within confined working spaces, moving vehicles, and working at height.

Recordkeeping should ensure that requirements in relation to properly observing and using product labels and MSDS sheets, instruction manuals and written organisational procedures.

What equipment might be required for land improvements?

Vehicles might include tractors, trucks and four-wheel drive vehicles.

Equipment might be mounted or trailing and may include ploughs, cultivators, scarifiers, fertiliser spreaders, spraying equipment, mulchers or rakes.

What personal protective equipment may be relevant to this standard?

Boots, hat/hard hat, overalls, gloves, protective eyewear, hearing protection, respirator or face mask, and sun protection (sun hat, sun screen).

What might natural features include?

Natural features include hills, depressions and waterways.

What soil conservation measures and structures might be used, examined and repaired?

The preparation of grassed waterways, construction of contour banks at specific sites, maintenance of contour banks and waterways, and stabilising and revegetating land by planting grasses/trees where soil erosion has taken place. There may also be the use of dams, banks and drains, waterways, land clearing, land rehabilitation, water ponding schemes, water ponding banks, sand owing completed areas on banks.

Carrying out irrigation practices to ensure crop needs are met, by matching irrigation inputs with soil water holding capacity to minimise excess applications that may result in rising water tables, leaching of nutrients or excessive run-off.

What practices will maintain organic (matter) levels in the soil structure?

Such practices as green cane harvesting, trash retention, minimum/zero tillage, green manure crops, spray out fallow fields to leave subterranean roots and organic surface cover, and maintaining vegetation cover as long as possible. Spray out ratoons or sown crops during the fallow period.

What might affect the selection and use of chemical applications?

The availability of the fertiliser and amendments, their physical and chemical characteristics, and the suitability of fertiliser and amendments to the type of soil, climate, crop and field topography.

What environmental implications may be associated with cleaning and maintenance procedures?

Detrimental environmental impacts may result from excessive noise and exhaust emissions, the incorrect use and disposal of maintenance debris (oils containers, chemical residues), and hazardous substances (fuel). Impacts may also include run-off flows of water and cleaning agents from servicing, maintenance and cleaning activities.

How might information be documented?

Record keeping systems used may be either paper-based or digital, and information will be recorded into logbooks or other records.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in implementing sustainable land use requires evidence that land is being managed effectively for the long term, and that operations performed on it are within the guidelines for sustainable land use.

The skills and knowledge required to implement sustainable land use must be transferable to a different work environment. For example, in a variety of degradation areas and using a range of soil conservation techniques.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

A basic working knowledge of:

- tree planting techniques
- sustainable land and water use principles and practices applicable in the region
- environmental controls and codes of practice applicable to the business and to the improvement works
- the whole farm plan
- relevant legislation and regulations relating to soil and water degradation issues and chemical use, building construction, and OHS
- relevant OHS legislation, regulations and codes of practice.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- use communication systems
- handle and manoeuvre equipment
- complete pre- and post-operational checks on tools and equipment
- perform routine safety, service and maintenance procedures on tools and equipment
- read and interpret manufacturers specifications, work and maintenance plans, and Material Safety Data Sheets
- interpret and apply task instructions, communicate with work team and supervisor, and record and report faults, workplace hazards and accidents.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5525A

Unit Descriptor

Manage trial and/or research material

This competency standard covers the process of managing a trial and/or research materials as part of a designated research project. It requires the ability to define the purpose of the trial and the scope and extent of the work, oversee management of trial/research materials, collate data, and complete reports. Managing trial and/or research materials requires knowledge of scheduling and programming work within timelines, data collection and reporting, research procedures and best practice techniques, and enterprise work team management guidelines. It will also require specialist knowledge related to the area of research.

Unit Sector No sector assigned

ELEMENT	PERFORMANCE CRITERIA
1. Identify scope and extent of work	<p>1.1 Trial/research hypothesis and parameters are identified according to researchers requirements.</p> <p>1.2 Trial/research is planned to meet research objectives.</p> <p>1.3 Data relevant to managing trial/research materials is assessed according to research parameters.</p> <p>1.4 Data relevant to managing trial/research materials is assessed according to enterprise policy.</p> <p>1.5 OHS hazards associated with managing trial/research materials are identified, risks assessed, and controls developed according to enterprise guidelines, costed and documented in the survey design.</p> <p>1.6 Tools, equipment and machinery required for managing trial/research materials are identified, costed, and availability confirmed with suppliers, contractors and appropriate personnel.</p> <p>1.7 Research design is determined according to the trial/research plan.</p>
2. Oversee management of trial/research materials	<p>2.1 Trial/research is prepared, maintained and monitored according to project parameters.</p> <p>2.2 Field work is conducted to verify and collect data according to the trial/research design and research parameters.</p> <p>2.3 Work activities are monitored for accuracy, validity and compliance to the parameters of the trial/research design.</p> <p>2.4 Staged data collection is undertaken according to trial/research design, scheduling and access requirements.</p> <p>2.5 Monitoring and data is recorded faithfully, promptly and accurately according to the specifications of the trial/research design.</p>

3. Prepare reports on work completed
 - 3.1 Collected data is recorded according to trial/research requirements and guidelines
 - 3.2 Data is statistically analysed to determine significance of research results.
 - 3.3 Hypothesis is accepted or rejected based on data collected.
 - 3.4 Reports are produced which conform to the structure and content required by the researcher.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Oral and written communication with the researcher, enterprise staff, senior management, consultants, or industry contacts will be required.	3
Collecting analysing and organising information	Information will be collected and collated according to research project guidelines.	3
Planning and organising activities	The project design should reflect the activities required to effectively manage materials and accurately obtain objective data.	3
Working with others and in teams	Other members of a team will assist in managing materials.	3
Using mathematical ideas and techniques	Mathematical concepts will be required to measure quantities, distances and times, calculate areas, resources, costs, and prepare reports.	3
Solving problems	System breakdowns and failures will require problem-solving skills.	3
Using technology	Technology will be required to record, store and communicate ideas and information consistently, reliably and accurately. It will also be used to research relevant information, collect and process data to produce the report.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What objectives may be specified for the trial/research project?	Research objectives may relate to the full range of research questions investigated by agricultural and horticultural researchers. More common areas will include monitoring and assessing the performance or characteristics of plants or animals, although work may also involve allied areas such as soil, chemical and irrigation research.
What constraints may affect the survey?	Constraints may be financial, time, scheduling, labour availability, seasonal, and government legislation and regulations.
What ethical issues should be considered in the conduct of the research?	Ethical issues may include those relating to animal welfare, ethical practice in informing other parties of the research in process, or be concerned with intellectual property.
Who may be referred to as a client?	Clients may include the enterprises management or a private individual, company, community group, government agency, or a combination of these entities.
What data may be assessed?	Data may include written or oral records, existing studies, and local and State government policy. Data may also relate to human intervention (such as clearance, cultivation, grazing, settlements, revegetation), landscape degradation (such as salinity, accelerated wind and water erosion, edge die-back, species depletion), pest plant populations, pest animal activity, and animal and plant production.
What processes for data collection may be relevant?	Processes may include the employment of staged visual assessments and checklists, photo points, aerial photography, plant/animal sampling, transect plant or associated animal counts, surveys and questionnaires, and examination of aerial or other existing photographs.
What OHS hazards may be associated with conducting a biological survey?	Hazards may include solar radiation, air-, soil- and water-borne micro-organisms, chemicals and hazardous substances, sharp hand tools and equipment, manual handling, slippery and uneven surfaces, and moving vehicles.

What controls may be introduced to minimise the risk of OHS hazards?

Controls should be introduced according to enterprise OHS policies and procedures and may include identifying hazards; assessing and reporting risks; cleaning, maintaining and storing tools, equipment and machinery; appropriate use of personal protective equipment including sun protection; safe operation of tools, equipment and machinery; safe handling, use and storage of chemicals and hazardous substances; correct manual handling; basic first aid available on site; personal hygiene, and reporting problems to managers.

What tools, equipment and machinery may be required to conduct a biological survey?

Tools, equipment and machinery may include computers and appropriate software, photographic equipment, potentiometer, tape measure, flagging tape, site or district maps, compass, recording implements, survey point markers and drivers, Global Positioning System (GPS), specimen bags, secateurs, leaf tissue collection equipment, field testing reagents and tools, and binoculars.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in managing trial/research materials requires evidence that a person is able to identify, manage and monitor materials for a research project, and collect appropriate data requirements to research project requirements.

The skills and knowledge required to manage trial/research materials must be transferable to a different work environment. For example, this could include different research projects and objectives, biological components, data collection methods and reporting requirements.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- scheduling and programming work within timelines
- ecological principles and terminology
- data collection and reporting, research procedures and best practice techniques
- enterprise work team management guidelines
- data analysis techniques
- research planning and design
- research methodologies.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- communicate and negotiate orally and in writing with the researcher, enterprise staff, managers and consultants
- identify scope and extent of work
- calculate the cost requirements of managing trial/research materials
- produce written reports
- oversee management of trial/research materials
- comply with legislative requirements.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5601A**Unit Descriptor****Audit irrigation systems**

This competency standard covers the process of collating and assessing system performance data, and compiling a system evaluation report including recommendations for improvements. It requires the ability to analyse and organise data, solve performance problems and recommend solutions, identify adverse environmental impacts of irrigation system activities and recommend appropriate remedial action, and use computer software for irrigation auditing. Auditing irrigation systems requires knowledge of evaluation procedures, irrigation system performance indicators, statistical data analysis procedures or software, and environmental impacts of irrigation systems using water from any ground or underground source.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|--|---|
| 1. Collect and collate all available data | 1.1 Data on system performance is collated.
1.2 Data on environmental and OHS issues is collated.
1.3 Data on equipment supply and usage is collated.
1.4 Data on crop production is collated.
1.5 Data on water use and quality is collated.
1.6 Data on climatic trends is collated.
1.7 Data on physical and chemical properties of soil is collated. |
| 2. Assess actual data against benchmarks, specifications and predictions | 2.1 System performance is compared to system specifications and performance predictions.
2.2 Supply and stock use is compared to previous and estimated usage and costs.
2.3 Crop production is compared to previous and predicted production.
2.4 Water usage and quality is compared to past and predicted usage and quality.
2.5 Climatic information is compared to predicted trends.
2.6 Soil properties are compared to previous and predicted properties.
2.7 Production costs related to irrigation system, are compared to previous and predicted costs.
2.8 Net profits are compared to past and predicted profits. |
| 3. Compile a report of system evaluation | 3.1 Report includes discussion of results of data analysis.
3.2 Indicators of good performance are isolated and discussed.
3.3 Indicators of poor performance are isolated and discussed.
3.4 Causes of deviations from performance specifications and requirements are examined.
3.5 Conclusions about irrigation system performance in relation to crop production and business performance are clearly stated.
3.6 Conclusions are supported by the data. |

4. Recommend alterations to irrigation system to achieve performance improvement
- 4.1 Recommendations are made to modify or eliminate causes of poor performance, or to enhance current performance.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Participating in discussions with irrigators and compiling reports that are accessible to a range of target groups.	2
Collecting analysing and organising information	Analysing and interpreting and data.	3
Planning and organising activities	Organising range of auditing activities.	1
Working with others and in teams	Co-ordinating audit activities with irrigators, staff, and others.	1
Using mathematical ideas and techniques	Manipulating statistical data.	3
Solving problems	Considering technical, environmental and financial solutions.	3
Using technology	Using information management, analysis and irrigation related technology as necessary.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

How might data be collected?

This may include direct methods (e.g. physical appearance and feel), or indirect methods (e.g. tensiometers, neutron probes, laboratory tests).

What data might be collated on the irrigation system?

System performance data may include pressures, flow rates, distribution uniformity, depth of irrigation, and soil moisture at root zone.

What irrigation systems might be relevant to this standard?

These may be pressurised irrigation systems such as micro-irrigation systems, spray irrigation systems or gravity fed irrigation systems.

Micro-irrigation systems include mains pressure, low pressure, below or above ground, sprays systems, drip emitter trickle, t-tape, mini-sprinklers, capillary, ebb and flow, and flood systems.

Spray irrigation systems include travelling irrigators (soft hose, hard hose boom type), centre pivot, linear move, powered side roll hand shift permanent (installed), and bike shift/easy shift.

Gravity fed irrigation systems include border check, contour irrigation, furrow irrigation, hillside flooding, and basin irrigation. Border check systems may be either permanent or temporary earth, plastic or concrete devices for insertion in a drain for reticulating water, contour banks used to collect and distribute water along the perimeter of an irrigation plot, contour banks within a plot to collect/distribute water, or larger scale systems to stop water exiting one area to another.

Irrigation systems may range from manual operation and monitoring to fully automated with computer control and monitoring.

What OHS issues may be relevant to this standard?

OHS issues may include identification and reporting of hazards to health and safety, risk assessment procedures and implementation of risk control measures, safe operation of machinery and equipment, safe manual handling procedures, selection, use and maintenance of relevant personal protective clothing and equipment, safe procedures for working at heights and for outdoor work, including protection from solar radiation, dust and noise.

What soil survey data types may be relevant to this standard?

These may include top soil types, soil profiles and readily available water (RAW).

Which benchmarks may be applied?

Benchmarks may include statistics and records from industry sources, records/reports from other farms in the region (comparative analysis), meteorological records and reports, and reports from Regulatory Authorities.

What might production costs include?

These may include costs relating to environmental and OHS issues.

What might indicators of performance be?

Indicators of performance will vary between systems and context.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in auditing irrigation systems requires evidence that a person can collect, collate and assess irrigation data against benchmarks, specifications or predictions; compile a system evaluation report; and recommend alterations to the system to achieve performance improvement.

The skills and knowledge required to audit irrigation systems must be transferable to a different work environment. For example, if a pressurised irrigation system is audited in one location, it should be evident that a gravity fed irrigation system in another location could be audited.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- evaluation procedures
- irrigation system performance indicators
- statistical data analysis procedures or software
- environmental impacts of irrigation systems using water from any ground or underground source
- relevant enterprise OHS issues.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- analyse and organise data
- solve performance problems and recommend solutions
- identify adverse environmental impacts of irrigation system activities and recommend appropriate remedial action
- use computer software for irrigation auditing
- recommend relevant enterprise OHS and environmental procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5602A

Design irrigation system maintenance and monitoring programs

Unit Descriptor

This competency standard covers the process of determining irrigation system maintenance requirements and resources, designing a system maintenance program and procedures for monitoring and recording system performance, water use and operating costs. It requires the ability to analyse and organise information, identify and schedule activities, design scheduling and recording procedures, and identify adverse environmental impacts of irrigation, drainage and water treatment activities and appropriate remedial action. Designing irrigation system maintenance and monitoring programs requires knowledge of maintenance and monitoring design requirements, irrigation, drainage and water treatment maintenance activities, water supply authority constraints, water quality guidelines for fresh and marine water, environmental impacts of irrigation, drainage and water treatment using water from any ground or underground source.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

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| 1. Design an irrigation system maintenance program | <p>1.1 Resources needed to perform maintenance tasks are specified in the program outline.</p> <p>1.2 Repairs, replacements and servicing requirements for all equipment and machinery are specified in the program outline.</p> <p>1.3 Activities required to maintain the irrigation site, system hardware and water quality are specified according to enterprise needs.</p> <p>1.4 Manufacturers operating manuals are obtained and used as guidance to specify maintenance activities, schedule and skills required.</p> <p>1.5 Timing and frequency of maintenance activities are scheduled to co-ordinate with other enterprise activities.</p> <p>1.6 System maintenance program activities relate to water supply authority constraints and requirements for water and maintenance.</p> <p>1.7 Labour and OHS requirements for each activity are determined and recorded in the system maintenance program.</p> <p>1.8 Weed control, water storage and treatment maintenance form an integral part of the system maintenance program.</p> <p>1.9 Strategies are specified in the program to ensure that negative impacts of irrigation, drainage and water treatment systems are minimised, and positive impacts are maximised.</p> |
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2. Design a monitoring and scheduling program
 - 2.1 Procedures for monitoring and **recording** system hardware use and performance are included in the monitoring and scheduling program.
 - 2.2 Procedures for **scheduling**, monitoring and recording water use form an integral part of the monitoring and scheduling program.
 - 2.3 Procedures for monitoring and recording operating costs are included in the program.
 - 2.4 Contingency plans in the event of water restrictions being imposed are developed for inclusion in the monitoring and scheduling program.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Recording monitoring and scheduling information.	3
Collecting analysing and organising information	Determining requirements for system maintenance program.	3
Planning and organising activities	Scheduling timing and frequency of maintenance activities.	3
Working with others and in teams	Determining labour requirements for each maintenance activity.	3
Using mathematical ideas and techniques	Monitoring operating costs and water use.	3
Solving problems	Developing contingency plans in the event of water restrictions.	3
Using technology	Recording system hardware performance.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What irrigation distribution systems might be relevant to this standard?

Micro-irrigation systems may include drip, mains pressure, low pressure, below surface, above surface, emitter trickle, t-tape, and mini-sprinklers, capillary, ebb and flow, and flood systems.

Spray irrigation systems may include travelling irrigators (soft hose, hard hose boom type) centre pivot, linear move, powered side roll hand shift permanent (installed), and bike shift/easy shift.

Surface irrigation systems may include border check, contour irrigation, furrow irrigation, hillside flooding, and basin irrigation. Border check systems may be either permanent or temporary earth, plastic or concrete devices for insertion in a drain for reticulating water, contour banks used to collect and distribute water along the perimeter of an irrigation plot, contour banks within a plot to collect/distribute water, or larger scale systems to stop water exiting one area to another.

Systems may range from manual operation and monitoring to fully automated with computer control and monitoring.

What may be included in the maintenance program?

Maintenance program may include site activities, hardware, quality collection and treatment.

What might be included in guidance for maintenance activities?

This may include design plans and specifications, mechanical specifications, site specifications and OHS considerations.

How might timing and frequency of maintenance activities be scheduled?

This may be daily, weekly, monthly, pre-season, during season and post-seasonally.

What OHS requirements may be relevant to this unit?

Consideration should be given at the design stage to the health and safety of workers who will be involved in activities associated with the monitoring and maintenance of irrigation systems in respect to machinery and equipment operation and chemical use.

What might be included in a monitoring program?

Monitoring program may include computer or manual logbooks, operators and operational manuals, maintenance scheduling logbooks, irrigation schedule, systematic testing procedures, and manufacturers specifications.

Where might data be recorded?

Data may be documented in enterprise records and reports, irrigation records, crop production records, maintenance records, climatic and financial records.

What factors might affect scheduling?

Factors may include evapotranspiration data for stages of the crop, weather conditions, soil types, new technologies, storage capacity and treatment lag times, and information from relevant regulatory authorities.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in designing irrigation system maintenance and monitoring programs requires evidence that a person can determine irrigation system maintenance requirements and resources, design a system maintenance program and procedures for monitoring, and recording system performance, water use and operating costs. The skills and knowledge required to design irrigation system maintenance and monitoring programs must be transferable to a different work environment. For example, if a monitoring and maintenance program is designed for a fully automated pressurised irrigation system in a location with particular water requirements, it should be evident that a monitoring and maintenance program could be designed for a manually operated gravity fed irrigation system in a different location with different water requirements.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- maintenance and monitoring design requirements
- irrigation, drainage and water treatment maintenance activities
- water supply authority constraints
- water quality guidelines for fresh and marine water (e.g. ANZECC 1999)
- environmental impacts of irrigation, drainage and water treatment using water from any ground or underground source
- OHS and environmental requirements of monitoring and maintenance programs.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- analyse and organise information
- identify and schedule activities
- design scheduling and recording procedures
- identify adverse environmental impacts of irrigation, drainage and water treatment activities and appropriate remedial action
- develop and include relevant enterprise OHS and environmental procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5603A**Design irrigation, drainage and water treatment systems****Unit Descriptor**

This competency standard covers the process of identifying design requirements, determining specifications for suitable pumping and power systems, designing distribution, drainage, storage and treatment systems, and determining capital and operating expense budgets for the system designed. It requires the ability to collect and analyse information, identify design requirements, develop specifications, compare costings, develop budgets and document outcomes. Designing irrigation, drainage and water treatment systems requires knowledge of design processes, developments in related technology, automatic control and monitoring systems, waste management and environmental issues, budgeting, contractual development and obligations, and environmental protection agency regulations.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

1. Determine design requirements

- 1.1 Water is predicted to be available in sufficient quantity and quality for the particular crop or situation at the time it is needed by the enterprise.
- 1.2 Water transfer, recharge, **reuse** and harvesting systems are designed to conserve natural resources.
- 1.3 The process of collecting or storing water does not degrade the water quality for the enterprise or the environment.
- 1.4 Construction specifications define the work required to make suitable water available to the enterprise in accordance with environmental and **OHS requirements**.
- 1.5 Environmentally sensitive areas are identified and protected according to local, State and National legislation.
- 1.6 Design calculations and decisions are documented to enterprise requirements.

- 2. Define pumping and power systems
 - 2.1 Pumps are selected to deliver water efficiently when needed, from the water storage at the flow and pressure required to operate the distribution system to the design specifications.
 - 2.2 The pump motor combinations are efficient and the pumps are reliable, functional, serviceable and flexible for the intended application.
 - 2.3 Energy requirements are determined, and layout of electricity lines are determined and checked with local authority.
 - 2.4 The relationship between capital and operational costs are optimised including a comparison of energy sources.
 - 2.5 Structures, valves and accessories are selected and integrated into a functional system that can be monitored and maintained according to enterprise guidelines.
 - 2.6 Performance indicators, design calculations and decisions are documented according to enterprise guidelines.
 - 2.7 Construction specifications define work required to make suitable pumping and power system available to enterprise.
 - 2.8 Power supply **design specification** is checked with power authorities.

3. Design an irrigation distribution system
 - 3.1 Detailed topographic survey is conducted or an accurate map is obtained showing extent of irrigation, planting layout, physical constraints and contours with suitable interval.
 - 3.2 Detailed soil survey is conducted at suitable intervals and mapped to show variation in readily available water.
 - 3.3 Water budgets are determined having regard to the evapotranspiration state of the crop/plants, soil moisture characteristics and cultural practices.
 - 3.4 Distribution systems are evaluated and designed with respect to a range of **key variables**.
 - 3.5 Pipes, valves and fittings are sized according to design system specifications so that capital cost is balanced against operation costs over the anticipated system life.
 - 3.6 Flows, water levels and pressures are calculated and documented to be within the acceptable tolerances for optimum performance.
 - 3.7 Flows, water levels and pressures are achievable by the pumps operating at optimum efficiency and according to enterprise standards..
 - 3.8 Mechanisms for controlling and adjusting pressure are included, and isolation valves direct water to areas with different irrigation schedules.
 - 3.9 Channel systems and attendant structures are designed according to industry recommendations, and channel flow velocities are calculated according to enterprise standards.
 - 3.10 Soil types have been compared for erodeability and suitable fill has been selected for construction according to enterprise standards.
 - 3.11 Construction plans and specifications define work required to achieve the required **standards of uniformity and efficiency** of water application according to industry standards.

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| 4. Design a drainage, storage and treatment system | <p>4.1 Regional geology and geography is investigated to predict sustainability of irrigation and storage.</p> <p>4.2 Site investigations to assess depth of clay, depth of ground water, soil and water salinity, and structural or chemical impediments are used to determine the most cost effective storage system.</p> <p>4.3 Predictions of leaching fractions and salt movements are documented, and soil amelioration and drainage management plans are developed.</p> <p>4.4 The need for leachate interception and dewatering system is determined, and if required, construction specification prepared for interception and collection, water treatment, disposal, and reuse or recycle.</p> <p>4.5 Drains and structures are capable of carrying the design water volumes and intensities according to enterprise standards.</p> <p>4.6 Damage from water logging is minimised according to enterprise standards.</p> <p>4.7 Hydrological calculations predict volumes and rates of surface run-off according to enterprise standards.</p> |
| 5. Determine capital expense budget | <p>5.1 Design calculations and decisions are documented and relevant information is communicated clearly through plans, specifications and manuals.</p> <p>5.2 Design output is checked by a competent designer against enterprise objectives.</p> <p>5.3 Materials requirements are determined and documented from plans and specifications.</p> <p>5.4 Labour requirements are estimated, based upon documented work schedule with reasonable allowance for variances in work schedules.</p> <p>5.5 Costing attributed to each component is based upon quoted information from suppliers, or sound analysis of individual elements.</p> |
| 6. Determine operating expense budget | <p>6.1 Operating expense budget indicates all expenses applicable to the completed irrigation system.</p> |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Checking power supply design specifications with power authorities.	3
Collecting analysing and organising information	Identifying environmentally sensitive areas.	3
Planning and organising activities	Developing construction plans and specifications.	3
Working with others and in teams	Obtaining detailed topographic information.	3
Using mathematical ideas and techniques	Calculating design specifications, costings and budgets.	3
Solving problems	Determining water use and availability and breakdowns with systems components.	3
Using technology	Designing computerised irrigation systems and documenting decisions.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What reuse systems might be designed? These may include disinfestation and filtering equipment.

What OHS requirements may be relevant to this standard? Consideration should be given at the design stage to the health and safety of workers who will be involved in activities associated with irrigation installation in respect to machinery, equipment operation and chemical use.

Why might power supply design specification be checked with power authorities? This may require compliance with the standard specification legislation and regulations of the relevant State or Territory water and power authorities.

What irrigation distribution systems might be relevant to this standard?

Micro-irrigation systems may include drip, mains pressure, low pressure, below surface, above surface, emitter trickle, t-tape, and mini-sprinklers, capillary, ebb and flow, and flood systems.

Spray irrigation systems may include travelling irrigators (soft hose, hard hose boom type) centre pivot, linear move, powered side roll hand shift permanent (installed), and bike shift/easy shift.

Surface irrigation systems may include border check, contour irrigation, furrow irrigation, hillside flooding, and basin irrigation. Border check systems may be either permanent or temporary earth, plastic or concrete devices for insertion in a drain for reticulating water, contour banks used to collect and distribute water along the perimeter of an irrigation plot, contour banks within a plot to collect/distribute water, or larger scale systems to stop water exiting one area to another.

Systems may range from manual operation and monitoring to fully automated with computer control and monitoring.

Distribution systems are evaluated and designed with respect to which key variables?

These may include the ability to target like soils and crops, efficiency of water use in various crop/weather situations, wind breaks to support irrigation where appropriate, uniformity of distribution, and use of specialist irrigation consultants.

What standards of uniformity and efficiency will apply to water application?

This will vary from system to system.

How might budget expenses be documented?

This may vary according to budget, environmental constraints, owner preferences and quoting procedures.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in designing irrigation, drainage and water treatment systems requires evidence that a person can identify design requirements, determine specifications for suitable pumping and power systems, design distribution, drainage, storage and treatment systems, and determine capital and operating expense budgets for the system designed.

The skills and knowledge required to design irrigation, drainage and water treatment systems must be transferable to a different work environment. For example, if a system is designed for particular plants/crops and soil type using a fully computerised spray irrigation and chemical water treatment systems, it should be evident that a system could be designed for different plants/crops in different soil using manually operated surface irrigation, and natural drainage and treatment systems.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- design processes
- developments in irrigation technology
- drainage and storage development technology
- latest treatment technology
- automatic control and monitoring systems
- waste management and environmental issues
- budgeting, contractual development and obligations
- environmental protection agency regulations
- environmental impacts of irrigation, drainage and water treatment using water from any ground or underground source
- cost/benefit analysis
- enterprise policies and procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- collect and analyse information
- identify adverse environmental impacts of irrigation, drainage and water treatment activities and appropriate remedial action
- identify design requirements
- develop specifications
- compare costings
- develop budgets
- document outcomes
- develop and implement relevant enterprise OHS and environmental procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5604A**Develop an irrigation and drainage management plan****Unit Descriptor**

This competency standard covers the process of compiling information on a property, and using this information to develop an irrigation and drainage management plan (IDMP) with specifications for a new or up-graded irrigation and drainage system where this is needed. It requires the ability to compile and analyse complex information, interpret statistical data and measurements, develop plans and reports, and use a range of irrigation and information management software. Developing an irrigation and drainage management plan requires knowledge of measuring and monitoring procedures, soil/plant/water relationships, readily available water, water table and salinity, methods and techniques of irrigation, irrigation system options, and computerised irrigation systems.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

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| 1. Compile property background information | 1.1 Ownership details are described.
1.2 Irrigation history is described.
1.3 Locality and property details are described.
1.4 Agreements and easements with surrounding properties are identified.
1.5 Property maps are developed to illustrate locality and property boundaries. |
| 2. Compile information on infrastructure and topography | 2.1 Significant topographical and infrastructure features are described.
2.2 Opportunities and strengths of the property are identified.
2.3 Limitations and weaknesses of the property are identified.
2.4 Local planning issues that may affect the irrigation development are identified.
2.5 Map overlay to illustrate topography and infrastructure is developed. |
| 3. Compile information on natural resources | 3.1 Soil survey information is described.
3.2 Strategies to minimise and reduce soil erosion, and physical and chemical soil deterioration are identified.
3.3 Water sources availability and qualities are described.
3.4 Ground water depth and salinity issues are identified.
3.5 Climatic characteristics are described.
3.6 Map overlay to illustrate natural resource features is developed |

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| 4. Compile information on enterprise cropping and planting | 4.1 Suitability of soils and water quality for enterprise crops/plans is described.
4.2 Special irrigation requirements of crops/plants are identified.
4.3 Monthly and annual water budgets for each crop/plant program are developed.
4.4 Current yields are identified and compared with benchmark crop yields.
4.5 Targets are established with consideration for any factors which would limit optimum production.
4.6 Intended crop rotations are described.
4.7 Map overlay to illustrate crop and plant details is developed. |
| 5. Compile information on existing irrigation and drainage system where used | 5.1 Evaluation of current system performance is described.
5.2 Current system performance is compared to benchmark performance parameters.
5.3 Scheduling procedures are described.
5.4 Drainage management performance is described including environmental authority compliance issues.
5.5 Areas for improvement in system management and/or structure are identified.
5.6 Map overlay to illustrate irrigation system layout is developed. |
| 6. Develop an irrigation and drainage management plan with specifications for new or up-graded irrigation and drainage system | 6.1 Performance requirements for distribution, treatment and drainage systems are summarised.
6.2 New or replacement components are listed.
6.3 Development timetable is developed.
6.4 Proposed scheduling system is described.
6.5 Performance monitoring procedures and OHS requirements are described.
6.6 Drainage management processes are described.
6.7 Map overlay is developed to illustrate proposed irrigation and drainage development. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Developing IDMP in manageable structure.	2
Collecting analysing and organising information	Manipulating irrigation performance and related information.	2
Planning and organising activities	Organising irrigation management activities and schedules.	2
Working with others and in teams	Co-ordinating activities with staff and consultants.	2
Using mathematical ideas and techniques	Managing, manipulating and interpreting statistical data and measurements.	1
Solving problems	Determining and prioritising improvements to the system.	2
Using technology	Using a range of irrigation and information management software.	1

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What does development of an Irrigation and Drainage Management Plan (IDMP) entail?

IDMP development involves a holistic approach to water management and environmental issues including consideration of drainage performance requirements.

What irrigation and drainage systems might be relevant to this standard?

These may be pressurised irrigation systems such as micro-irrigation systems, spray irrigation systems or gravity fed irrigation systems.

Micro-irrigation systems include mains pressure, low pressure, below or above ground, sprays systems, drip emitter trickle, t-tape, mini-sprinklers, capillary, ebb and flow, and flood systems.

Spray irrigation systems include travelling irrigators (soft hose, hard hose boom type) centre pivot, linear move, powered side roll hand shift permanent (installed), and bike shift/easy shift.

Gravity fed irrigation systems include border check, contour irrigation, furrow irrigation, hillside flooding, and basin irrigation.

Irrigation systems may range from manual operation and monitoring to fully automated with computer control and monitoring.

What might be included in descriptions of drainage performance requirements?

Descriptions may include storage, reuse, treatment and natural systems that comply with environmental regulations without necessarily having a drainage system installed.

What OHS requirements may be relevant to this standard?

OHS issues may include identification and reporting of hazards to health and safety, risk assessment procedures and implementation of risk control measures, safe operation of machinery and equipment, safe manual handling procedures, selection, use and maintenance of relevant personal protective clothing and equipment, safe procedures for working at heights and for outdoor work, including protection from solar radiation, dust and noise.

What decisions might be made regarding drainage management?

This may result in a judgement that no drainage strategy is required and, within the performance requirements of this unit, this would be acceptable as long as the judgement is supported by evidence from the assessment.

How might irrigation and drainage development be approached?

At this level of performance, irrigation and drainage is an integrated system within the environment so that the harvest, application and return of water within the environment is planned, with no or minimal impact on the local and regional ecosystems.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in developing an irrigation and drainage management plan requires evidence that a person can compile information on a property, its topography, infrastructure, natural resources, enterprise cropping and planting, and existing irrigation and drainage system where this is used. Evidence is also required that the person can use this information to develop an irrigation and drainage management plan (IDMP) with specifications for a new or up-graded irrigation and drainage system.

The skills and knowledge required to develop an irrigation and drainage management plan must be transferable to a different work environment. For example, if it is developed for a pressurised irrigation system in one location, it should be evident that an IDMP could be developed for a gravity fed irrigation system in another location.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- measuring and monitoring procedures
- soil/plant/water relationships
- readily available water
- water table and salinity
- methods and techniques of irrigation
- irrigation system options
- computerised irrigation systems
- environmental impacts of irrigation systems using water from any ground or underground source
- enterprise policies and procedures
- relevant enterprise OHS procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- compile and analyse complex information
- interpret statistical data and measurements
- identify adverse environmental impacts of irrigation system activities and recommend appropriate remedial action
- develop plans and reports
- use a range of irrigation and information management software
- develop and implement relevant enterprise OHS and environmental procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5605A**Establish and maintain an irrigation-related environmental protection program****Unit Descriptor**

This competency standard covers the process of determining and documenting responsibilities and procedures to reduce the impacts of irrigation and drainage systems on the environment, to minimise the risk of environmental pollution events, and reduce the impact of such events when they occur. It requires the ability to develop policies and procedures, apply and comply with environmental requirements, identify adverse environmental impacts of irrigation activities and appropriate remedial action, use technology to draft documents, develop environmental information, and audit data bases. Establishing and maintaining an irrigation-related environmental protection program requires knowledge of environmental legislation, regulations and guidelines, external factors that may affect the system, and enterprise policies and procedures.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

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| 1. Establish and maintain an irrigation and drainage environmental protection program | 1.1 An irrigation and drainage environmental plan is developed in consultation with property owner or manager.
1.2 Environmental responsibilities for the property are clearly defined and included in the duties of all personnel.
1.3 Financial and human resources are made available to implement the environmental plan in a timely and consistent manner.
1.4 Environmental records are established and maintained according to relevant codes of practice, legislation and regulations. |
| 2. Establish and maintain arrangements to ensure the involvement of all personnel in the environmental program | 2.1 Procedures and processes that allow and encourage all personnel at all levels to have input into environmental issues are developed.
2.2 Issues raised through involvement and consultation with personnel are addressed promptly. |
| 3. Establish and maintain risk management procedures to protect the environment from irrigation practices and related activities | 3.1 Procedures for identifying and assessing existing and potential risks to the environment arising from irrigation practices and related activities are established and maintained according to relevant environmental standards.
3.2 Work processes and procedures are designed to reduce or eliminate risks and hazards to the environment.
3.3 Organisational and administrative systems are established and maintained to control risks to the environment arising from irrigation practices and related activities.
3.4 Procedures to monitor risks to the environment and compliance with relevant legislation and regulations are established and maintained. |

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| 4. Establish and maintain procedures for responding to environmental pollution events | 4.1 Potential environmental pollution events are identified.
4.2 Procedures to control the level of risk associated with pollution events are developed in consultation with relevant environmental protection agencies and local government authorities.
4.3 Appropriate information and training is provided to enterprise personnel to ensure prompt implementation of response procedures according to organisational and OHS requirements . |
| 5. Establish and maintain an environmental protection induction and training program | 5.1 An environmental protection induction and training program is developed and incorporated into the organisational personnel training program to ensure compliance with relevant legislation and regulations is maintained.
5.2 Records of environmental protection training are established and maintained according to enterprise standards. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Developing policies and procedures and ensuring personnel access.	3
Collecting analysing and organising information	Interpreting and referencing environmental information and guiding personnel in the use of that information.	3
Planning and organising activities	Designing co-ordinated responses to potential and actual pollution events.	3
Working with others and in teams	Consulting with relevant internal and external parties in developing policies and procedures.	2
Using mathematical ideas and techniques	Assessing and quantifying environmental risks.	2
Solving problems	Identifying and assessing environmental risks.	2
Using technology	Drafting documents, developing environmental information, and auditing databases.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What irrigation systems might be relevant to this standard?

These may be pressurised irrigation systems such as micro-irrigation systems, spray irrigation systems or gravity fed irrigation systems.

Micro-irrigation systems include mains pressure, low pressure, below or above ground, sprays systems, drip emitter trickle, t-tape, mini-sprinklers and capillary.

Spray irrigation systems include travelling irrigators (soft hose, hard hose boom type) centre pivot, linear move, powered side roll hand shift permanent (installed), and bike shift/easy shift.

Gravity fed irrigation systems include border check, contour irrigation, furrow irrigation, hillside flooding and basin irrigation. Border check systems may be either permanent or temporary earth, plastic or concrete devices for insertion in a drain for reticulating water, contour banks used to collect and distribute water along the perimeter of an irrigation plot, contour banks within a plot to collect/distribute water, or larger scale systems to stop water exiting one area to another.

Irrigation systems may range from manual operation and monitoring to fully automated with computer control and monitoring.

Risk management procedures are established to protect the environment from which irrigation practices?

Irrigation practices may include implementation of irrigation schedules and shifts, and routine and seasonal maintenance activities.

Risk management procedures are established to protect the environment from which irrigation related activities?

These may include installation and construction of irrigation systems and components.

Procedures are developed to control risk for which environmental pollution events?

Pollution events may include backflow from the irrigation system into potable water supply, contamination of waterways by tailwater drainage, breakout of contaminated water from drainage system overload, system overload from storm water, contamination of stormwater run off with waste water, and aerial drift of chemical sprays.

What OHS requirements may be relevant to this standard?

OHS requirements may include safe systems and procedures for handling, transporting and storing hazardous substances; selection, use and maintenance of personal protective clothing and equipment; protection against chemical residues, including that in/on foliage, water, soil and other items; and safe systems and procedures for outdoor work, including protection from solar radiation, dust and noise.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in establishing and maintaining an irrigation-related environmental protection program requires evidence that a person can establish risk management procedures to protect the environment from irrigation practices and related activities, and procedures for responding to environmental pollution events. Evidence is also required that the person can establish and maintain an environmental protection induction and training program and procedures to ensure the involvement of all personnel in the environmental program.

The skills and knowledge required to establish and maintain an irrigation-related environmental protection program must be transferable to a different work environment. For example, this could include different irrigation systems, locations, environmental risks, and enterprise policies and procedures.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- environmental legislation, regulations and guidelines
- environmental impacts of irrigation, using water from any ground or underground source
- external factors that may effect the system
- relevant enterprise OHS procedures
- enterprise policies and procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- develop policies and procedures
- apply and comply with environmental requirements
- identify adverse environmental impacts of irrigation activities and appropriate remedial action
- use technology to draft documents, develop environmental information, and audit data bases
- develop and implement relevant enterprise OHS and environmental procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5606A

Unit Descriptor

Manage water systems

This competency standard covers the process of strategically managing an integrated system involving relationships between irrigation, drainage and environmental systems. This includes determining the feasibility of using or up-grading an irrigation system, installing or modifying the system as necessary, managing water systems, and evaluating irrigation system outputs. Managing irrigation systems requires knowledge of plant requirements, water quality, environmental impacts of irrigation, using water from any ground or underground source, cost/benefit analysis, and enterprise policies and procedures.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Determine the feasibility of using or up-grading irrigation system | 1.1 Water resources and drainage implications are assessed to determine suitability for irrigation.
1.2 Water quality and treatment requirements are determined.
1.3 Water requirements and most suitable application systems are determined for each crop/plant type and area, and for each soil type.
1.4 Other water requirements, such as climate control, are determined.
1.5 Soil types are assessed to determine suitability for irrigation and the range of crop/plant types that could be grown.
1.6 Drainage requirements are determined in relation to each soil and crop/plant type and type of irrigation system.
1.7 Performance data, audit reports, environmental and OHS data for existing systems are assessed if available.
1.8 Information is obtained from irrigation specialists on all relevant aspects of irrigation design.
1.9 Available irrigation system types and components are assessed and costed , and a decision is made on the particular system to be used or upgrades to existing system. |
| 2. Install or modify an irrigation and drainage system as necessary | 2.1 Materials and equipment making up the system are determined and acquired.
2.2 Irrigation system is installed using advice, as necessary, from irrigation specialists.
2.3 Checking of irrigation and drainage systems are supervised to ensure there are no leaks or blockages, that the water is being evenly distributed, that drainage is effective, and the system is in good working order. |
| 3. Evaluate irrigation system performance | 3.1 Plant growth /yield increases from irrigation are determined and valued
3.2 Costs of irrigation are calculated
3.3 Cost benefit of irrigation is determined and compared with alternative systems/approaches |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Participating in discussions with suppliers, staff, installers and technical experts.	2
Collecting analysing and organising information	Analysing and interpreting productivity/increased growth and systems information.	3
Planning and organising activities	Organising irrigation system installation.	3
Working with others and in teams	Allocating and co-ordinating activities of staff, technical experts and advisors.	3
Using mathematical ideas and techniques	Calculating costs and estimating benefits.	2
Solving problems	Determining technical, environmental and financial solutions.	3
Using technology	Assessing alternative irrigation-related technology.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What factors might be taken into account in assessing water resources?

Factors may include water quantity and quality, availability throughout year, and long-term impact on water resources.

What OHS requirements may be relevant to this standard?

OHS requirements may include safe systems and procedures for handling, transporting and storing hazardous substances; selection, use and maintenance of personal protective clothing and equipment; protection against chemical residues including that in/on foliage, water, soil and other items; and safe systems and procedures for outdoor work, including protection from solar radiation, dust and noise.

What irrigation system types might be assessed?

These may include flood, furrow, micro-sprinklers, pop-ups, impact sprinklers, low-level lines, overhead sprinklers, drippers and micro-jets.

What factors might be considered in costing irrigation system types?

Factors may include capital costs, operating costs, availability of labour to meet the increased labour demand, and long-term impacts on soils and on water resources.

What irrigated systems are relevant to this standard?

Irrigated systems may involve water harvesting, delivery, drainage collection, drainage storage and treatment as well as natural drainage and treatment systems involving the removal of pollutants through evaporation, and/or clearance by filtration through surface layers.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in managing irrigation systems requires evidence that a person can determine the feasibility of using or up-grading an irrigation system, install or modify an irrigation and drainage system as necessary, manage the irrigation and drainage system, and evaluate irrigated production system outputs.

The skills and knowledge required to manage irrigation systems must be transferable to a different work environment. For example, this could include different irrigation systems, enterprise procedures, environments and plant types.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- plant requirements
- water quality
- environmental impacts of irrigation, using water from any ground or underground source
- cost/benefit analysis
- enterprise policies and procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- identify adverse environmental impacts of irrigation activities and appropriate remedial action
- analyse performance and audit data
- calculate costs and benefits
- evaluate irrigation system performance
- strategically manage irrigated production systems
- develop and implement relevant enterprise OHS and environmental procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5607A

Unit Descriptor

Design drainage systems

This competency standard covers the process of identifying design requirements, determining specifications for drainage systems, and determining capital and operating expense budgets for the system designed. It requires the ability to collect and analyse information, identify design requirements, develop specifications, compare costings, develop budgets and document outcomes. Designing drainage systems requires knowledge of design processes, developments in related technology, monitoring systems, waste management and environmental issues, budgeting, contractual development and obligations, and environmental protection agency regulations.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

1. Determine design requirements

- 1.1 Water transfer, recharge, **reuse** and harvesting systems are designed to conserve natural resources.
- 1.2 The process of collecting or storing water does not degrade the water quality for the enterprise or the environment.
- 1.3 Construction specifications define the work required to make suitable water available to the enterprise in accordance with environmental and **OHS requirements**.
- 1.4 Environmentally sensitive areas are identified and protected according to local, State and National legislation.
- 1.5 Design calculations and decisions are documented to enterprise requirements.

2. Define pumping and power systems

- 2.1 Pumps are selected to move water efficiently when needed to water storage or treatment, at the flow and pressure required to design specifications.
- 2.2 The pump motor combinations are efficient, and the pumps are reliable, functional, serviceable and flexible for the intended application.
- 2.3 Energy requirements are determined, and layout of electricity lines are determined and checked with local authority.
- 2.4 The relationship between capital and operational costs are optimised including a comparison of energy sources.
- 2.5 Structures, valves and accessories are selected and integrated into a functional system that can be monitored and maintained according to enterprise guidelines.
- 2.6 Performance indicators, design calculations and decisions are documented according to enterprise guidelines.
- 2.7 Construction specifications define work required to make suitable pumping and power system available to enterprise.
- 2.8 Power supply **design specification** is checked with power authorities.

- | | |
|---------------------------------------|---|
| 3. Design a drainage system | <p>3.1 Regional geology and geography is investigated to predict drainage parameters.</p> <p>3.2 Site investigations to assess depth of clay, depth of ground water, soil and water salinity, and structural or chemical impediments are used to determine the most cost effective drainage system.</p> <p>3.3 Predictions of leaching fractions and salt movements are documented, and soil amelioration and drainage management plans are developed.</p> <p>3.4 The need for leachate interception and dewatering system is determined and if required, construction specification prepared for interception and collection, disposal, reuse or recycle.</p> <p>3.5 Drains and structures are capable of carrying the design water volumes and intensities according to enterprise standards.</p> <p>3.6 Damage from water logging is minimised according to enterprise standards.</p> <p>3.7 Hydrological calculations predict volumes and rates of surface run-off according to enterprise standards.</p> |
| 4. Determine capital expense budget | <p>4.1 Design calculations and decisions are documented and relevant information is communicated clearly through plans, specifications and manuals.</p> <p>4.2 Design output is checked by a competent designer against enterprise objectives.</p> <p>4.3 Materials requirements are determined and documented from plans and specifications.</p> <p>4.4 Labour requirements are estimated based upon documented work schedule with reasonable allowance for variances in work schedules.</p> <p>4.5 Costing attributed to each component is based upon quoted information from suppliers, or sound analysis of individual elements.</p> |
| 5. Determine operating expense budget | <p>5.1 Operating expense budget indicates all expenses applicable to the completed drainage system.</p> |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through preparation and documentation of design specifications.	3
Collecting analysing and organising information	Identifying environmentally sensitive areas.	3
Planning and organising activities	Developing construction plans and specifications.	3
Working with others and in teams	Obtaining detailed topographic information.	3
Using mathematical ideas and techniques	Calculating design specifications, costings and budgets.	3
Solving problems	Troubleshooting breakdowns and blockages in drainage systems.	3
Using technology	Designing drainage systems and documenting decisions.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What reuse systems might be designed? These may include disinfestation and filtering equipment.

What OHS requirements may be relevant to this standard? Consideration should be given at the design stage to the health and safety of workers who will be involved in activities associated with irrigation installation in respect to machinery, equipment operation and chemical use.

Why might power supply design specification be checked with power authorities? This may require compliance with the standard specification legislation and regulations of the relevant State or Territory water and power authorities.

What drainage systems may apply to this standard?	Drainage systems may include surface drains, culverts, mole drains, sand slit, sub-surface traps, pit and trap systems, dune and swale systems, reed beds, and water-recycling pumps and baffles.
What standards of uniformity and efficiency will apply to water application?	This will vary from system to system.
How might budget expenses be documented?	This may vary according to budget, environmental constraints, owner preferences and quoting procedures.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in designing drainage systems requires evidence that a person can identify design requirements, determine specifications for drainage systems, and determine capital and operating expense budgets for the system designed.

The skills and knowledge required to design drainage systems must be transferable to a different work environment. For example, this could include different systems, components, soil types, irrigation regimes, enterprise requirements, locations and environmental parameters.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- design processes
- developments in drainage technology
- monitoring systems
- waste management and environmental issues
- budgeting, contractual development and obligations
- environmental protection agency regulations
- environmental impacts of drainage
- cost/benefit analysis
- enterprise policies and procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- collect and analyse information
- identify adverse environmental impacts of drainage and appropriate remedial action
- identify design requirements
- develop specifications
- compare costings
- develop budgets
- document outcomes
- develop and implement relevant enterprise OHS and environmental procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5608A

Unit Descriptor

Design water treatment systems

This competency standard covers the process of identifying design requirements, determining specifications for storage and treatment systems, and determining capital and operating expense budgets for the system designed. It requires the ability to collect and analyse information, identify design requirements, develop specifications, compare costings, develop budgets and document outcomes. Designing water treatment systems requires knowledge of design processes, developments in related technology, automatic control and monitoring systems, waste management and environmental issues, budgeting, contractual development and obligations, and environmental protection agency regulations.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-------------------------------------|---|
| 1. Determine design requirements | 1.1 Quality of water to be treated and level of treatment is determined.
1.2 Construction specifications define the work required to treat water for the enterprise in accordance with environmental and OHS requirements .
1.3 Environmentally sensitive areas are identified and protected according to local, State and National legislation.
1.4 Design calculations and decisions are documented to enterprise requirements. |
| 2. Define pumping and power systems | 2.1 Pumps are selected to treat water efficiently and effectively as required, to enable supply at the flow and the pressure required to operate the distribution system.
2.2 The pump motor combinations are efficient and the pumps are reliable, functional, serviceable and flexible for the intended application.
2.3 Energy requirements are determined and layout of electricity lines are determined and checked with local authority.
2.4 The relationship between capital and operational costs are optimised including a comparison of energy sources.
2.5 Structures, valves and accessories are selected and integrated into a functional system that can be monitored and maintained according to enterprise guidelines.
2.6 Performance indicators, design calculations and decisions are documented according to enterprise guidelines.
2.7 Construction specifications define the work required to make a suitable pumping and power system available to enterprise.
2.8 Power supply design specification is checked with power authorities |

- | | |
|---------------------------------------|---|
| 3. Design an water treatment system | 3.1 Treatment systems are evaluated and designed with respect to a range of key variables .
3.2 Pipes, valves and fittings are sized according to design system specifications so that capital cost is balanced against operation costs over the anticipated system life.
3.3 Flows, water levels and pressures are calculated and documented to be within the acceptable tolerances for optimum performance.
3.4 Flows, water levels and pressures are achievable by the pumps operating at optimum efficiency and according to enterprise standards.
3.5 Mechanisms for controlling and adjusting pressure are included. |
| 4. Determine capital expense budget | 4.1 Design calculations and decisions are documented and relevant information is communicated clearly through plans, specifications and manuals.
4.2 Design output is checked by a competent designer against enterprise objectives.
4.3 Materials requirements are determined and documented from plans and specifications.
4.4 Labour requirements are estimated based upon documented work schedule, with reasonable allowance for variances in work schedules.
4.5 Costing attributed to each component is based upon quoted information from suppliers, or sound analysis of individual elements. |
| 5. Determine operating expense budget | 5.1 Operating expense budget indicates all expenses applicable to the completed irrigation system. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Checking power supply design specifications with power authorities.	3
Collecting analysing and organising information	Identifying environmentally sensitive areas.	3
Planning and organising activities	Developing construction plans and specifications.	3
Working with others and in teams	Obtaining detailed water treatment information.	3
Using mathematical ideas and techniques	Calculating design specifications, costings and budgets.	3
Solving problems	Recognising and resolving issues related to changes in water quality and availability, and system breakdowns.	3
Using technology	Designing computerised treatment systems and documenting decisions.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What reuse systems might be designed? These may include disinfestation and filtering equipment.

What OHS requirements may be relevant to this standard? Consideration should be given at the design stage to the health and safety of workers who will be involved in activities associated with irrigation installation in respect to machinery, equipment operation and chemical use.

Why might power supply design specification be checked with power authorities? This may require compliance with the standard specification legislation and regulations of the relevant State or Territory water and power authorities.

What waste water treatment processes might be relevant to this standard?

Waste water treatment processes may include pre-treatment, primary treatment, secondary treatment, chemical precipitation, solids handling, disinfection and advanced treatment.

Pre-treatment may include screens, grit removal, shredding, and odour removal. Primary treatment may include primary sedimentation. Secondary treatment may include trickling filters, rotating biological contactors, and activated sludge and lagoon systems. Solids handling may include aerobic or anaerobic digesters and sludge disposal. Disinfection may include maturation ponds, chlorination, ultraviolet irradiation and ozonation. Advanced treatment may include chemical nitrogen removal, biological nitrogen removal, biological phosphorus removal, chemical phosphorous removal, and micro filtration.

Treatment systems are evaluated and designed with respect to which key variables?

These may include water quality requirements, operational and maintenance cost factors, presence of pollutants, end use of water, and use of specialist irrigation consultants.

How might budget expenses be documented?

This may vary according to budget, environmental constraints, owner preferences and quoting procedures.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in designing water treatment systems requires evidence that a person can identify design requirements, determine specifications for suitable pumping and power systems, design treatment systems, and determine capital and operating expense budgets for the system designed.

The skills and knowledge required to design water treatment systems must be transferable to a different work environment. For example, this could include different treatment processes and systems, enterprise requirements, locations and environmental parameters.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- design processes
- developments in water treatment technology
- automatic control and monitoring systems
- waste management and environmental issues
- budgeting, contractual development and obligations
- environmental protection agency regulations
- environmental impacts of water treatment
- cost/benefit analysis
- enterprise policies and procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- collect and analyse information
- identify adverse environmental impacts of water treatment activities and appropriate remedial action
- identify design requirements
- develop specifications
- compare costings
- develop budgets
- document outcomes
- develop and implement relevant enterprise OHS and environmental procedures.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5807A

Unit Descriptor

Manage staff

This competency standard covers the process of managing staff in an agricultural, horticultural or land management enterprise. It requires the ability to identify skill requirements, prepare task descriptions and person specifications, arrange employment of workforce members, and implement OHS priorities and procedures. Managing staff requires knowledge of job specifications, equal employment opportunity legislation, OHS legislation, relevant industrial awards, employee induction programs, interviewing procedures, contracts of employment and unfair dismissal legislation.

Unit Sector

No sector assigned

ELEMENT	PERFORMANCE CRITERIA
1. Prepare task descriptions and person specifications	<p>1.1 Tasks are identified and described along with the range of conditions under which performance may need to occur.</p> <p>1.2 Most appropriate employment arrangements are determined based on employer and employee needs, and responsibilities and rights.</p> <p>1.3 Person specifications are prepared with due regard to legislation, codes and national standards.</p>
2. Manage workforce performance	<p>2.1 Induction programs are designed for each employee consistent with legislative requirements and enterprise guidelines.</p> <p>2.2 Terms of engagement for consultants and contractors are clarified and established.</p> <p>2.3 Induction programs are conducted for new appointees and appropriate records established.</p> <p>2.4 Strategies for communicating with workers are designed and implemented.</p> <p>2.5 Performance management strategies are designed and implemented.</p> <p>2.6 Processes for the termination of non-performing staff are identified and followed as necessary.</p>
3. Support workforce training programs	<p>3.1 Strategies to identify skill and knowledge gaps are designed and implemented with workers, and strategies to address these gaps are implemented.</p> <p>3.2 On-the-job training is provided to optimise worker performance and to ensure safety and fairness in the workplace.</p> <p>3.3 Off-the-job training requirements are identified and training is sourced and supported as appropriate.</p>
4. Manage administrative support	<p>4.1 Processes and procedures for the administration of staff records are implemented.</p> <p>4.2 Administrative procedures and processes to meet legislated requirements are implemented.</p> <p>4.3 Industrial relations are established and monitored, awards adhered to, enterprise agreements and/or contracts of employment negotiated, and disputes and conflicts resolved.</p>

5. Implement OHS priorities and procedures
- 5.1 Safety policies are developed and communicated within the enterprise.
 - 5.2 Safe work practices are identified/designed for all aspects of the operation of the enterprise.
 - 5.3 Safe work practices are communicated and enforced among all members of the workforce.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through formal and informal processes established by the enterprise.	3
Collecting analysing and organising information	Through establishment and maintenance of filing systems and collection of data required of employers.	3
Planning and organising activities	According to human resource management principles and legislative guidelines.	3
Working with others and in teams	Through consultation in the preparation of job descriptions and OHS activities.	3
Using mathematical ideas and techniques	Through calculations associated with insurance and superannuation.	3
Solving problems	Through resolving conflicting demands on management and dealing with different personality types amongst staff.	3
Using technology	Through the use of computers and communication systems.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What legislation, codes and national standards are relevant to the workplace?

These include award and enterprise agreements and relevant industrial instruments, relevant legislation from all levels of government that affects business operation, especially in regard to OHS and environmental issues, equal opportunity, industrial relations and anti-discrimination and relevant industry codes of practice.

What is included under workforce in this competency standard?

The workforce includes self, family members whether paid or unpaid, employees both permanent and casual, contractors, share-farmers, students on work experience and professional and technical support.

What may be considered under contracts of employment?

Contracts of employment include task specific as well as general contracts of employment.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in managing staff requires evidence that staff have been successfully managed within an enterprise according to the criteria outlined in this standard.

The skills and knowledge required to manage staff must be transferable to a range of work environments and contexts. For example, this could include different enterprises, staff numbers and profiles.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- task descriptions and person specifications
- equal opportunity and equal employment opportunity legislation
- OHS legislation
- relevant industrial awards
- performance management approaches
- personnel management strategies
- employee induction programs
- contracts of employment
- unfair dismissal legislation.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- prepare task descriptions and person specifications
- arrange employment of **workforce** members
- implement OHS priorities and procedures
- review labour productivity.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5901A

Unit Descriptor

Develop a marketing plan

This competency standard covers the process of designing and co-ordinating a marketing plan. It requires the application of skills and knowledge to analyse market conditions and access and evaluate advice on market and potential distribution options. In addition, it requires an awareness of industry structures and business trends. The functions associated with this standard would be performed independently and under limited supervision.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-------------------------------------|--|
| 1. Evaluate commercial information | 1.1 Relevant information is researched and analysed to identify market trends.
1.2 Competing products are identified and evaluated to determine strengths and weaknesses of own products .
1.3 Collated information is presented in a manner which provides clear and concise information.
1.4 Market and situation analysis is conducted using established techniques in accordance with available budget and the need for external assistance. |
| 2. Identify marketing requirements | 2.1 Promotional materials are created that enhance the product and commercial presentation.
2.2 Priorities, responsibilities, timelines and budgets are recorded and communicated to appropriate colleagues. |
| 3. Determine promotional strategies | 3.1 Detailed plans for promotional activities are prepared and recorded according to enterprise guidelines.
3.2 Outlined in the promotional plan are objectives, level of exposure to be achieved and available markets.
3.3 Strategies take account of feedback from operational staff, time management and scheduling issues, and resource constraints.
3.4 Marketing objectives are established based on new and retained business consistent with product and operational business plans. |
| 4. Organise implementation | 4.1 Criteria are established to measure impact and success of promotional activities.
4.2 Adjustments to the promotional strategy product distribution are made promptly to ensure consistency of promotion.
4.3 Required distribution channels are defined and established.
4.4 Product documentation is distributed on time in the specified quantities. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Information and ideas with regard to the marketing strategy may be explained and discussed with other persons involved with planning.	3
Collecting analysing and organising information	Findings and feedback on the results of the marketing plan may be collated and recorded for analysis, and organised by reports.	3
Planning and organising activities	Resources and materials necessary to the marketing plan may need to be scheduled to meet timetables and deadlines.	3
Working with others and in teams	The implementation of the marketing plan may need input and advice from others to meet timetables and deadlines.	3
Using mathematical ideas and techniques	Estimation techniques may be necessary to determine returns expected from the marketing plan.	3
Solving problems	Problems may arise in the course of the program that need to be addressed through adjustments of the resources or timetables.	3
Using technology	Technology may be used to monitor, record and distribute results of the marketing plan.	3

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work contexts.

What information might be relevant to this standard

Sales data, expected revenues, expenditure, attributable costs, market share figures, trends in consumer purchases, demographic data, borrowing costs, transport costs, and delivery times.

How can information be researched?

Through Internet, trade magazines, commercial sources, newspapers, library searches, anecdote, and annual reports of companies.

What strengths and weaknesses of own products might be identified?

Packaging and presentation, relative prices, sales outlets and distribution, proximity to markets, customer feedback, complementarity of other products and services, technical support and warranties, availability of consumer information, and the provision of relevant OHS information.

What promotional materials might be created?

Mass media advertising, Internet advertising and distribution, leaflets and flyers, trade articles, and seminar materials. Information may include region branding, promotion of health benefits, celebrity endorsement, industry compliance, and quality certification.

What product documentation might be distributed?

Content and ingredient information, environmental protection information, food standards compliance, labelling, invoices and orders, discount offers and bulk buying options, enterprise profiles, longevity of suppliers, and company endorsements.

What criteria may be relevant to this standard?

Achieving or not achieving sales targets, increased access to new markets, customer/client feedback, level of public/purchaser awareness, increased recognition rates of products, and market penetration.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence to develop a marketing plan requires evidence of the ability to research, analyse and evaluate market information to compare and contrast data and plan appropriate programs. Evidence must be demonstrated in the presentation of data on markets and the capacity to make decisions. The skills and knowledge required must be transferable to a different work environment. For example, this could include different products, promotional strategies and enterprise procedures and policies.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- financial management and budgeting
- rural organisations policies and procedures for marketing and promotions
- sales and marketing principles and practices
- sound knowledge of promotional activities including, trade shows, in-house promotions, advertising, public relations, familiarisations, signage and display
- relevant State/Territory legislative requirements with regard to OHS and risk management procedures for management of promotional activities
- legal issues that affect marketing activities (trade practices, Fair Trading Acts, Sales of Goods Acts)
- industry and marketing knowledge including sales networks and distribution systems, and customer trends and preferences
- demographic studies and their application in the development of a marketing plan.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These include the ability to:

- analyse, research information and develop a marketing plan
- implement and evaluate a marketing plan
- ability to negotiate at all levels
- research and determine the best marketing options in order to achieve the organisations objectives
- problem solve to overcome impediments
- manage time
- evaluate performance targets and recommend modifications or improvements
- collect and analyse data to assess marketing alternatives
- make presentations to groups
- plan to manage promotional activities
- communicate written and oral information, and prepare reports and documentation
- calculate data and manage budgets.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5902A

Unit Descriptor

Develop and review a business plan

This competency standard covers the process of developing and reviewing business for an agricultural, horticultural or land management business enterprise.

It requires the application of knowledge and skills to determine the scope of the business plan, prepare a business plan, determine goals, trial systems, and document, monitor and review the business plan. Competency must also be demonstrated in communicating business plan objectives to relevant parties.

The work in this standard will be carried out with limited or no supervision, within enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--------------------------|--|
| 1. Determine scope | <p>1.1 Scope of the business plan and associated systems is determined in consultation with key and specialist personnel.</p> <p>1.2 Accurate information is accessed to inform business plan development.</p> <p>1.3 Trends and seasonal variations are accounted for and incorporated into the business plan.</p> <p>1.4 Strategic goals, targets and directions of the enterprise are accounted for in the development of the business plan.</p> <p>1.5 Legal obligations are understood and complied with in developing the business plan.</p> |
| 2. Prepare business plan | <p>2.1 Operational goals and targets that enhance opportunities to meet the enterprise strategic plan are developed.</p> <p>2.2 Supply chains are identified and incorporated into the business plan.</p> <p>2.3 Risk management needs are identified and addressed within the business plan.</p> <p>2.4 Trial systems are incorporated in order to test budgetary impact and operational potential prior to full implementation of the business plan.</p> <p>2.5 Indicators of operational performance are clear and measurable and allow for realistic analysis of performance.</p> |

3. Document and review business plan
 - 3.1 **Fiscal and operational systems** that enhance performance management and suit enterprise requirements are included.
 - 3.2 **Resource considerations** are incorporated into the business plan.
 - 3.3 Business Plan is accurately documented and clearly communicated to all **relevant parties**.
 - 3.4 Performance against the business plan is **monitored** to identify strengths, weaknesses and areas for improvement.
 - 3.5 Recommendations to improve the business plan and associated systems are made as required.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	In discussing and formulating the business plan in consultation with key and specialist personnel.	3
Collecting analysing and organising information	In gathering information for the business plan and in reviewing targets and business plan operation.	3
Planning and organising activities	In developing the business plan and reviewing and redesigning the system.	3
Working with others and in teams	In consulting with key and specialist personnel in trialling systems, and reviewing operational and business plan.	3
Using mathematical ideas and techniques	To evaluate data and results and to ensure appropriate measurement systems are in place.	2
Solving problems	To improve existing systems, to solve communication barriers and to achieve targets and objectives.	3
Using technology	To improve systems performance and to calculate targets and collate data and budget forecasts.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

Which key personnel might be consulted?	Other family members, partners, providers of finance, managers, staff, clients or suppliers may be consulted.
Which specialist personnel might need to be consulted?	Accountants, solicitors, tax agents; regulatory bodies and government authorities; and trade, professional or industry associations might need to be consulted.
What sort of accurate data may be accessed?	Previous business plans, business plan exemplars, equity evaluations, capital return analyses, enterprise gross margins, net present values, internal rates of return, cash flow estimates, profit and loss estimations, sales and product analysis, market information and trends, expense records, previous account records, taxation records, and annual and quarterly returns.
Where might data be accessed from?	Sources may be internal or external to the enterprise.
What trends and seasonal variations might need to be considered?	Markets, consumer trends, technological changes affecting production and sales, climatic conditions, weed, pest and disease outbreaks, water supply, resource and input availability, fluctuations in quantity and quality of crops and livestock quality could all be considered.
Where might relevant strategic goals, targets and directions be sourced from?	May be sourced from existing or complementary strategic plans or related consultations in business/strategic plan development.
What legal obligations might need to be understood and complied with?	State/Territory and Commonwealth taxation law, company and securities legislation and possibly legislation regarding wills and inheritance in regards to succession planning might need to be considered.
What might be covered by operational goals and targets?	Goals and targets may be short, medium or long term and may relate to marketing and production targets, resource and asset development and management, acquisitions, capital, property improvements, and operational systems. Operational goals and targets may link directly to the enterprise strategic plan and also to OHS, environment, quality and customer/market satisfaction key result areas.

What is included within a supply chain?	Supply chains relate to the network of facilities that procure raw materials, transform them into intermediate products (or services) and then finished goods (or services), and delivers them through a distribution system. It covers procurement production and distribution. Supply chains should be viewed as being interlinked as opposed to being discrete units and therefore any analysis should take account of the inter-connectivity within the supply chain.
What risk management needs might there be?	Compulsory formal insurance (third party, workers compensation, public liability, occupational superannuation), personal accident and sickness insurance, and compulsory superannuation need to be considered. The need for formal insurance cover on assets if loss cannot be reduced to an acceptable level through management practices, needs to be addressed. Assessing whether losses without insurance would be too financially great for enterprise to bear is also a consideration. Other areas of risk that need to be considered are market risk, production risk, resource risk, financial risk, personal risk and management risk. Environmental/climactic and OHS concerns also need to be considered, as do resource peaks and troughs.
What trial systems might be utilised?	Trial profit and loss statements, trial budgets, trial cash flow projections and reporting and operational systems.
What indicators of operational performance might there be?	May relate to a range of key result areas both operational and tactical including: OHS, environment, product quality, employee performance and satisfaction levels, customer/market satisfaction levels, market and product expansion, acquisitions and expansion projections, yields and efficiency expectations, cash flow and profit and loss statements, and production and delivery timelines.
What needs to be considered when introducing fiscal and operational systems?	Systems need to be implemented and phased to take account of enterprise production cycles and financial reporting considerations.
What resource considerations might need to be considered?	Human, raw and processed materials, water, land, financial, plant and equipment, time and technological resources may be need to be addressed.
What relevant parties may need to be informed?	Key and specialist personnel.

How might performance be monitored?	By checking against key performance indicators and measuring inputs, throughputs and outputs using reliable and standardised measures incorporated into the business plan.
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EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in develop and review a business plan requires evidence that demonstrates ability to scope the business plan and determine key objectives and targets. It also requires competence in specifying key performance targets, assessing the relevance of the business plan, and trial systems. The business plan also needs to be documented and reviewed.

The skills and knowledge required to develop and review a business plan must be transferable to a different work environment. For example, if competence is demonstrated in developing a business plan for a small enterprise, it must also be evident in reviewing a business plan in medium or large enterprise environment.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- budgeting
- forecasting
- operational systems
- relevant industrial awards and agreements
- communication techniques
- logical and analytic methods
- profit and loss and cash flow systems
- working knowledge of environmental, OHS, industrial relations, taxation, corporate and industry legislation as they relate to the enterprise
- capital investment analysis.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- set realistic goals
- operate manual and/or electronic commercial systems
- consider and evaluate alternatives
- document and communicate plans
- design performance criteria, and operational and tactical plans that are incorporated into a business plan
- analyse information and results
- identify and design risk management and mitigation strategies
- identify and design appropriate operational plans.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5903A**Plan, implement and review a quality assurance program****Unit Descriptor**

This competency standard covers the process of planning, implementing and reviewing a quality assurance program for an agricultural or horticultural enterprise. It requires the ability to determine quality assurance objectives for the enterprise, plan the quality assurance program, develop implementation strategies, implement the quality assurance program, and review the quality assurance program. Planning, implementing and reviewing a quality assurance program requires a knowledge of market projections and customer requirements, cost/benefit of quality assurance implementation, system analysis, enterprise culture and values, leadership and administrative skills, human resource induction and performance monitoring practices.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|---|
| 1. Determine quality assurance objectives for the enterprise | 1.1 Future market requirements for quality assured products are assessed.
1.2 Premiums for quality assurance products are determined.
1.3 Strategic benefits of a quality assurance program are assessed. |
| 2. Plan the quality assurance program and develop implementation strategies | 2.1 Product quality standards are defined.
2.2 Current status of products and operations is audited.
2.3 Industry quality assurance programs are evaluated and costed.
2.4 Required processes and practices are documented in the quality assurance program manual and an implementation plan is prepared. |
| 3. Implement the quality assurance program | 3.1 Instructions are documented defining task and process requirements.
3.2 Contractor and staff training is established and implemented.
3.3 Communication takes account of social, cultural and ethnic backgrounds.
3.4 Changes to processes and practices are introduced.
3.5 Processes to monitor and verify product quality are established.
3.6 Recording systems are introduced.
3.7 Operating instructions are validated under conditions to verify their suitability.
3.8 Problems and issues are analysed and resolved appropriately, promptly and decisively. |
| 4. Review the quality assurance program | 4.1 Reporting formats are established.
4.2 Mechanisms for gaining feedback information are implemented.
4.3 Preparation is made for quality assurance audits. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through interaction with staff and financial service providers.	3
Collecting analysing and organising information	Through analysis of enterprise business records and characteristics.	3
Planning and organising activities	According to industry best practice and codes of practice.	3
Working with others and in teams	In implementing quality assurance practices in the enterprise.	3
Using mathematical ideas and techniques	Through calculations associated with business record keeping systems and data analysis.	3
Solving problems	Through the review and assessment of quality assurance program.	3
Using technology	In maintenance of records and use of computer software applications.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What future market requirements may be relevant to this competency standard?

The assessment of market requirements for quality products should include trends and directions from regional, domestic and overseas markets.

What industry quality assurance programs can be included?

Industry quality assurance programs will include programs developed by a range of entities including industry organisations and marketing authorities, processors, wholesalers/retailers and other stakeholders. Relevant programs include Cattlecare, Flockcare, Freshcare, Graincare and Proven Perfect.

What communication may be relevant to this competency standard?

Communication will be through a range of strategies relevant to the workplace and will include workplace meetings, signage, memoranda, newsletters and interviews.

Which processes and practices are relevant?	All processes and practices impacting on the quality of product produced will be relevant.
What recording systems may be included?	Recording systems will be effective in meeting the quality assurance arrangements established and relevant to the enterprise. They may be computer or non-computer based.
What conditions could be relevant to this competency standard?	Validation should be conducted under the full range of workplace operating conditions and cover variations in work throughput, personnel involved and environmental parameters.
What reporting formats can be used?	Reporting formats will be the responsibility of the enterprise consistent with the quality assurance objectives.
What mechanisms for gaining feedback may be relevant to this competency standard?	Feedback will be sourced from customers/purchasers, internal stakeholders, suppliers and other service providers.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in planning, implementing and reviewing a quality assurance program requires evidence that quality assurance programs have been successfully and appropriately established and managed in an agricultural or horticultural enterprise. The skills and knowledge required to plan, implement and review a quality assurance program must be transferable to a range of work environments and contexts. For example, this could include different rural enterprises and commodity areas.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- market projections and customer requirements
- cost/benefit of quality assurance implementation
- system analysis, HAACCP or related processes
- enterprise culture and values
- leadership and administrative skills
- human resources induction practices
- human resources performance monitoring practices.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- determine quality assurance objectives for the enterprise
- plan the quality assurance program and develop implementation strategies
- implement the quality assurance program
- review the quality assurance program.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5906A

Unit Descriptor

Monitor and review business performance

This competency standard covers the functions associated with identifying and reviewing the business performance of a rural enterprise.

It requires analysing and assessing market conditions and business data to determine the suitability of the business operational structures and the overall potential of the business. It requires an awareness of economic and accounting analysis methods. This work would be undertaken independently, and in some circumstances under broad supervision.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Evaluate commercial performance | 1.1 Data relating to enterprise performance is gathered and analysed to identify historical and current performance.
1.2 Operational structures are reviewed and analysed to determine the suitability of organisational processes to enterprise objectives.
1.3 Enterprise strengths and weaknesses are evaluated against market conditions to determine current and future capacities.
1.4 Enterprise objectives are evaluated to identify variations and scope for future development. |
| 2. Allocate and co-ordinate business resources | 2.1 Roles and responsibilities of personnel are identified and communicated.
2.2 Resource requirements for enterprise are identified and costed using standard financial analysis techniques .
2.3 Costs of ensuring sustainability of enterprise operations are calculated and factored into business planning for the enterprise. |
| 3. Identify performance requirements | 3.1 Performance indicators are developed and are realistic within available timeframes and resources.
3.2 Factors inhibiting performance against objectives are identified and minimised.
3.3 Market conditions are monitored and assessed based on relevant data and assumptions that are transferable and justifiable.
3.4 Strategies and programs to promote the sustainability of operations are prepared and incorporated into enterprise procedures. |
| 4. Review business performance | 4.1 Enterprise operations are regularly reviewed to identify opportunities for improvements in performance.
4.2 Impact of natural conditions on enterprise are monitored and anticipated to assess sustainability of resource use.
4.3 Costs and estimates are compared with resource allocation.
4.4 Operational plans are reviewed to determine schedule of activities. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Information about the enterprises performance may need to be explained to other persons.	3
Collecting analysing and organising information	Data used to evaluate the enterprises performance may need to be collated and recorded for analysis and organised in reports.	3
Planning and organising activities	Specific analyses may need to be scheduled in tandem with related activities, e.g. raising of equity may commence at the same time as the performance evaluation.	3
Working with others and in teams	The assessment of the enterprise may need input and advice from others.	3
Using mathematical ideas and techniques	Estimation techniques may be necessary to determine returns expected from sales.	3
Solving problems	Problems may arise that need to be addressed through adjustments to resources or timetables.	3
Using technology	Technology may be used to monitor and to record and distribute the benefits.	3

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What data may be gathered and analysed?

Sales data, expected revenues, expenditures, attributable costs, market share figures, trends in consumer purchases, borrowing costs, transport costs and delivery times.

What types of enterprise may be applicable to this standard?

Meat production, dairy sheep, wool production, studs, commercial bulls, export beef, vealer production, feedlot, local beef, store production, mohair, cashmere, cashgora, meat production (including capretto), dairy goat, and studs. Other enterprises may include those engaged in floriculture, production horticulture, cropping, landscaping and wholesale nurseries.

What historical information may be included for enterprise performance analysis?	Rainfall, fertiliser, stocking rates, livestock health records, pasture improvement history, soil tests, maintenance records, financial, enterprise plans and enterprise production records.
What operational structures may be included for review and analysis?	Management process, reporting arrangements, decision-making authorities, financial accounting procedures, promotional activities, and operational resources.
What enterprise strengths and weaknesses may be evaluated?	Recording systems, work practices, attitudes to risk, market profile, debt to equity ratios, asset values, and productivity.
What market conditions may be included for analysis?	Product and service demand, availability of funds, cost of financing, supplier costs, delivery constraints, availability of substitutes and competitors.
What standard financial analysis techniques may be applied?	Cost benefit analysis, 'what if' analyses, time series and trend, expenditure and revenue ratios, break-even analysis, accounting standards and cash flow schedules.
How might a sustainable enterprise be determined?	Sustainable enterprises are economically viable enterprises that may be operated for an indefinite period without degrading natural resources.
What performance indicators may be developed?	Sales targets, revenue estimates, waste reduction, erosion replacement and reversal, environmental sustainability, variable cost ratios, investment returns, and diversification.
What impact of natural conditions may be monitored and anticipated?	Rainfall, soil erosion patterns, salinity, weather patterns (frost, fog), geographical aspect (sun), native vegetation, windbreaks, distance, natural pasture, water supply, and topography.
What sustainable resource practices may be considered by the enterprise?	For example, where applicable, the use of livestock as a part of overall land management, and the integration of a livestock enterprise with other livestock or crop enterprises.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence to select the type of enterprise requires evidence that the candidate can research, collate and manipulate business data in order to develop and present an image of the operations of rural businesses. Evidence must be demonstrated in forecasting and estimating resource use and determining opportunity costs. The candidate must be able to identify and track the effects of natural conditions on economic performance. The skills and knowledge required must be transferable to a different work environment. For example, the capacity to review performance indicators in this context will support the ability to identify performance indicators in other contexts, e.g. in evaluating the success of a marketing plan.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- rates of return for products and/or services
- financial analysis techniques
- structure and operation of small businesses
- relevant State/Territory OHS legislative requirements
- environmental conditions, positive environmental practices and negative impact minimisation measures
- human resource requirements for the enterprise
- transport requirements for the enterprise
- enterprise/property improvement requirements.

In addition, where applicable to the activities of the enterprise:

- market performance in commodities
- statutory marketing requirements
- regulations related to exports of Australian agricultural products
- animal husbandry.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- analyse market requirements
- match the enterprise to resources
- set enterprise objectives and make financial and economic determinations
- monitor and manage resources (human, physical, environmental)
- evaluate land capability and natural resources (where applicable to the enterprise)
- research, analyse and evaluate enterprise information and requirements
- communicate orally to present information to and negotiate with management or clients
- document plans and write reports
- calculate and forecast financial and economic data.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5909A**Unit Descriptor****Develop a sales strategy for rural products**

This competency standard covers the process of developing a sales strategy for rural products. It requires the ability to review existing sales plans, devise a sales strategy, and implement and review a sales strategy. Developing a sales strategy for rural products requires knowledge of potential market outlets, customer specifications for products and services, relevant information sources related to markets and market returns, marketing and promotional planning targets, and Occupational Health and Safety (OHS) and relevant commercial law and legislation.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

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|--|--|
| 1. Review existing sales plans | 1.1 Current market returns are reviewed against sales objectives for the property.
1.2 Current performance data is analysed and compared to relevant benchmark information .
1.3 Trends and opportunities in respect to customer requirements are identified.
1.4 Current specifications for products and services are reviewed. |
| 2. Devise a sales strategy | 2.1 Range of market options for farm products and services are identified.
2.2 Alternative market options are analysed for their profitability and feasibility consistent with sales objectives for property.
2.3 Sales plan is developed identifying product specifications and quality assurance strategy, target market outlets, timing and volume of sales, and price risk management strategy.
2.4 Available resource commitments and capacity are determined to implement the sales strategy.
2.5 Contingency arrangements are defined to manage variations in production and market prices. |
| 3. Implement and review a sales strategy | 3.1 Sales are conducted according to the sales strategy and adjusted according to the contingency plan.
3.2 Sales plan is reviewed and amended. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Ideas and information are communicated workplace documents such as sales plans.	3
Collecting analysing and organising information	Information can be collected, analysed and organised by comparative analysis of sales figures and targets.	3
Planning and organising activities	Activities can be planned and organised through workplace meetings.	3
Working with others and in teams	Team work can be applied through workplace meetings.	3
Using mathematical ideas and techniques	Mathematical ideas and techniques can be applied when estimating and calculating sales targets and performance.	3
Solving problems	Problem-solving skills can be applied when developing sales strategies.	3
Using technology	The use of technology can be applied in the collection and storage of data.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What benchmark information may be relevant to this competency standard?

This could include data and information from peers, extension agencies or consultants that provide the opportunity to compare prices received for a comparable product sold through a different sales strategy.

What will be the basis for the specifications for products and services?

The specifications will be focused on the requirements of the customers in the target markets and may include quality and a range of other parameters.

What options may be considered?

Options may include cash markets and other direct customer sales, sales through marketing authorities, sales to processors, wholesalers, sales to related/integrated entities, sales through computer based marketing systems, and other outlets.

What contingency arrangements may be relevant?

Contingency arrangements could include holding product on farm to sell later in a better market, selling a greater proportion of product into a different market outlet, diverting product for other purposes, adjusting production and other strategies.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in developing a sales strategy for rural products requires evidence that a sales strategy been successfully developed and implemented in an enterprise. The skills and knowledge required to develop a sales strategy for rural products must be transferable to a range of work environments and contexts. For example, this could include different rural products, markets and enterprises.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- potential market outlets
- customer specifications for products and services
- relevant information sources related to markets and market returns
- marketing and promotional planning targets
- OHS
- relevant commercial law and legislation.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- research skills
- determine current market position
- review existing strategies and propose improvements
- check relevant business, industrial and legislative requirements
- define and obtain information for use in making effective decisions
- develop plans to implement sales strategies.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5912A

Unit Descriptor

Plan and monitor production processes

This competency standard covers the process of planning for production, and then monitoring the implementation of that plan. It includes the need to act in an environmentally aware manner, while at the same time maximising the production capacity of the organisation. It requires the need to analyse and extract information from a broad range of sources, and to comply with a variety of legislative and regulatory requirements.

Planning and monitoring production processes is likely to be undertaken alone or under broad guidance. Responsibility for the planning and management of the work of others may be involved. Planning and monitoring production processes requires extensive knowledge in some areas such as sustainable land use principles and practices, and a range of technical and other skills such as planning, and cost benefit analysis.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

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| 1. Determine production process requirements | <p>1.1 Information regarding the characteristics of products being grown or refined/manufactured and their respective market requirements is accessed.</p> <p>1.2 Characteristics of the land under production and the quality and amount of existing infrastructure are confirmed from colleagues and other planning processes.</p> <p>1.3 Historical data, including recent data from organisational records is identified and accessed for input to production planning.</p> <p>1.4 Information regarding other organisational planning processes and potential for improvements or innovations is collected and used to inform production planning.</p> <p>1.5 Requirements of the organisation are taken into consideration during analysis.</p> <p>1.6 Production processes required to efficiently achieve the targeted production requirements in line with organisational policies are identified and compared with those that currently exist.</p> <p>1.7 Details regarding production planning are used as input to other organisational planning processes.</p> |
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| 2. Determine monitoring requirements and systems | <ul style="list-style-type: none">2.1 Production targets for each enterprise and each product, crop, herd, or flock are established from the range of organisational management and strategic plans.2.2 Scheduling for production processes is determined taking varying organisational factors into consideration.2.3 Environmental and waste management controls are established and specifically included in the production plan.2.4 Monitoring points and performance indicators for the production process are established using target, environmental management and scheduling information.2.5 Prepared risk management strategies are put into place and acted upon when necessary.2.6 A plan is prepared that documents the decisions taken, the assessments made, the targets established, and any specific issues that relate to environmental and OHS risks. |
| 3. Monitor/evaluate effectiveness of production processes | <ul style="list-style-type: none">3.1 Checks are made to ensure that the performance indicators, targets, and specifications are being met and amendments to the process are made where necessary.3.2 The effectiveness of the production processes is evaluated at key points and adjustments are made as necessary.3.3 Environmental impacts and OHS hazards relating to production processes are identified, monitored and assessed throughout the production cycle.3.4 Modifications are made to the production process when made necessary by shifting priorities and results.3.5 Data, observations and documentation from the production process are analysed against the plan according to organisation guidelines. |
| 4. Record and manage information | <ul style="list-style-type: none">4.1 Recommendations for future plans are prepared based on the analysis of the data.4.2 A report is prepared that documents the plans implementation according to the organisations requirements and guidelines.4.3 Records and documentation are created, maintained and kept as described in the production plan, the OHS requirements, and machinery and equipment management programs.4.4 The recordkeeping system that is used ensures that required information is available, accessible, meaningful and useful. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	By preparing production plans that will be implemented by other people.	3
Collecting analysing and organising information	Using the variety of sources available for input to decision-making.	3
Planning and organising activities	In developing plans and directions for the production of animals, crops and/or products.	3
Working with others and in teams	In working with colleagues during input to the range of other planning processes.	2
Using mathematical ideas and techniques	In calculating production targets and comparing the costs and profitability of different processes.	2
Solving problems	In recognising where and when amendment is required to plans.	2
Using technology	In operating any necessary equipment prior to and during production - communication technology, calculating equipment, measuring equipment, and word processing/spreadsheeting software.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What characteristic of the products might be accessed?	If it is an annual or perennial product, experimental product, yield, financial return, frequency of rotation, harvesting requirements, prevalence of pests and disease, pest and disease control.
To what does the term products refer?	To the crops, stock and/or products under production or refinement/manufacture in the organisation.
What characteristics of the land under production should be accessed?	Accessibility, topography, moisture content, pH levels, nutrient levels, salinity, erosion, drainage, land use history, germination rates, and pest and disease prevalence.

What infrastructure might be in place?	In addition to equipment, machinery and vehicles, the organisations infrastructure may include buildings, sheds, shelters, stock yards, stock handling structures, fences, water supply systems, roads, tracks, soil conservation works, irrigation and drainage channels, silage pits and/or grain and fodder storage, dams, monitoring systems, and information technology systems.
What historical data might be assessed in the planning process?	Crop/stock history, disease and pest history, previous yield data, pesticide use, weather patterns, market information, existence and suitability of previous infrastructure, and financial returns.
What other organisational planning processes might provide input to infrastructure planning?	Activities such as land-use, production systems, production process and strategic planning processes.
What kind of innovations might be researched and implemented?	Equipment, machinery, materials, practices, and systems - including those relating to environmental, OHS, and animal welfare practices and/or related equipment might be researched and implemented.
What requirements might the organisation have in relation to production processes?	Requirements may relate to the preferred approach/policy in regard to animal welfare, environmental management, waste management, and OHS. Legislation and regulation may also impact on, or restrict, production.
What does the production process include?	The production process includes the resources, personnel, methodology, and any interactions between them.
What organisational factors might vary from one production cycle to the next?	Factors such as the calendar of operations for each enterprise production cycle, and seasonal, geographic, resourcing and product factors.
What environmental and waste management requirements should be considered?	Construction activity, as well as the improvement itself, might put the local environment at risk of off-site contamination such as the fouling of surface or ground water bodies with solid material, and/or nutrients, including acid discharges from acid sulfate soils. Any change to the natural lie of the land may affect run-off and drainage to increase erosion or the acidity of the soil, and the way in which effluent is managed to pollute surface and underground catchments. Removal of vegetation and ground cover may affect wind or water erosion and/or an increase in salinity.

How might performance indicators be established?	By examining historical records of production and environmental indicators and data for similar organisations.
What risk management strategies may be put in place?	A variety of strategies may be used which may involve insurance policies, diversified investment, training and development programs, vital records strategies, or recruitment programs.
What information will be included in the plan?	It may include the type, format, frequency and detail of any reporting required by both manager(s) and operators.
What actions could be taken to eliminate or minimise OHS risk?	<p>The range of actions are both systemic and at an operational level. These are listed below:</p> <p><i>Systems</i> should be in place to ensure the safe operation and maintenance of machinery and equipment. Precautions should also be in place to minimise exposure to noise and organic and other dusts. Systems and procedures for handling and storing product, as well as working with and around electricity should also be in place.</p> <p><i>Fixtures</i> should be in place in all silos and storage sheds including appropriate access ladders, hand rails and ladder cages.</p> <p><i>Personal protective equipment</i> should be selected, used and maintained.</p> <p><i>Environmental</i> conditions should be controlled. For example, keeping moisture levels as low as possible will reduce the likelihood of fire and silo collapse.</p> <p><i>Procedures</i> should be in place and used for working with and operating machinery and equipment, including exposed moving parts, noise, transporting and storing hazardous substances (such as pesticides), working within confined spaces, moving vehicles and working at height.</p> <p><i>Record keeping</i> should ensure that requirements in relation to properly observing and using product labels and MSDS's, instruction manuals and written organisational procedures.</p>
How might the effectiveness of the plan be evaluated?	By determining if performance indicators and production targets are being met.
When might modifications need to be made to the production plan?	Situations and priorities can change as a result of environmental, OHS, animal welfare, resourcing, and marketplace reasons

What data might be analysed against the production plan?	Information pertaining to costs, production levels, labour and overhead inputs, environmental and OHS data.
What would be included in the report?	Issues and details such as any difficulties or issues faced, the methods used for treatment, impacts on environmental and OHS, any recommendations for future plans, results, costs, and any available data analysis.
What record keeping systems might be used?	These may include the storage devices, the procedures, operators who enter and update the data, and guidelines and policy for the maintenance and migration of data.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in planning and monitoring production processes requires evidence that the production plan includes appropriate and effective guidelines in relation to environmental and waste management and OHS, and sets in place organisational efficiencies that will meet stated targets.

The skills and knowledge required for planning and monitoring production processes must be transferable to a different work environment. For example, across a range of product types and organisation sizes.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- environmental controls and codes of practice available to the organisation
- relevant legislation and regulations relating to OHS, contractor engagement, chemical use and application, and vehicle and plant use
- sound management practices and processes to minimise noise, odours and debris from production processes
- sustainable land use principles and practices applicable in the region
- relevant legislation and regulations, such as those relating to soil and water degradation issues, animal health and welfare, and chemical use.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- interpret monitored information on production processes
- interpret, analyse and extract information from a range sources such as professional literature, legal documents, discussions and workshops
- identify, build and use network and support groups
- prepare written plans and procedures for implementation by others
- observe, identify and react appropriately to environmental implications and OHS hazards
- assess, then adopt profitable innovations
- set yield targets and objectives and estimate timelines
- prepare enterprise budgets and calculate financial returns
- converse and liaise with industry contacts, colleagues and family regarding the land/farm based business
- write reports to be understood by all levels of the organisation
- communicating detailed and complex information in written and oral form with people both inside and outside the organisation.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5916A**Prepare and monitor budgets and financial reports****Unit Descriptor**

This competency standard covers the process of preparing budgets and financial reports, and the implementation and monitoring of budgets in agricultural, horticultural or land management enterprise.

Work is likely to be undertaken alone or under limited guidance in line with a broad plan, budget or strategy. Responsibility and defined accountability for the work of others may be involved. Competency involves the self-directed development of knowledge with substantial depth across a number of areas with a range of skills. Competencies are usually used independently and are substantially non-routine. Significant judgement is required in planning design, technical or supervisory functions related to products, services, operations or processes.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|-----------------------------------|---|
| 1. Prepare a budget | 1.1 Information on past receipts and payments is obtained from previous records, compared to current prices and cost trends, and compiled in a form that enables projections of future receipts and expenditures.
1.2 A plan is prepared for a period which allows for expected expenditure and financial reporting requirements, using the 'most likely' prices and costs. |
| 2. Implement and monitor a budget | 2.1 Receipts and payments are monitored and reconciled against the original budget.
2.2 Variances against the original plan are identified, and the impact on overall profit/loss and cash flow is calculated.
2.3 Funds are allocated in accordance with budget objectives and parameters.
2.4 Adjustments are made where necessary to respond to unacceptable variations.
2.5 Budgets and plans are renegotiated/restructured where necessary to optimise enterprise performance. |
| 3. Prepare financial reports | 3.1 Records of financial performance are properly maintained within enterprise systems.
3.2 Information with source documents is assembled according to the requirements of the report recipient .
3.3 Documentation is forwarded in a timely and efficient manner.
3.4 Non-financial objectives are reported in the context of overall enterprise performance. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through preparation of budgets and financial reports.	3
Collecting analysing and organising information	Through monitoring of budget performance.	3
Planning and organising activities	Through consultation with others in preparation and monitoring of budgets.	3
Working with others and in teams	Through working with others to review budget performance.	2
Using mathematical ideas and techniques	Through measuring budget performance, calculating variances and presenting outcomes.	3
Solving problems	Through identifying and addressing budget irregularities and non-compliance.	3
Using technology	Through use of computers and communication systems.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What budgets may be relevant to this competency standard?

Budgets may include recurrent operating or project based funds.

How might records be kept?

Records and reports may be paper or computer based.

What report recipients may be relevant to this competency standard?

Report recipients may include Taxation Commissioner, financing agencies, boards of management, committees, councils, and executive management.

Which non-financial objectives might also be reported?

Appropriate non-financial objectives may include environmental, OHS, quality assurance, market share, or other key result area.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in preparing and monitoring budgets and financial reports requires evidence that budgets have been successfully and appropriately developed and monitored in an enterprise, and that financial reports meet industry standards in their content and structure. The skills and knowledge required to prepare and monitor budgets and financial reports must be transferable to a range of work environments and contexts. For example, this could include different enterprises, budgetary processes, and financial reporting requirements and recipients.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- budget formulation
- financial information systems
- business transactions
- banking and reconciliation
- standards for organisational recordkeeping and audit requirements.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- prepare a budget
- implement and monitor a budget
- prepare financial reports.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5917A**Unit Descriptor****Arrange livestock purchases**

This competency standard covers the process of arranging livestock purchases. Competency requires the application of knowledge and skills to identify appropriate purchases against enterprise requirements at the best price from reliable sources. Competency also requires the application of skills and knowledge to research and determine best prices, check on health status and condition of livestock, negotiate the purchase and arrange transportation and insurance.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|--------------------------------------|---|
| 1. Identify purchasing opportunities | 1.1 Number, type and breed of livestock to be purchased are identified and confirmed.
1.2 Agents and sellers of livestock are researched and reviewed to determine appropriate sources.
1.3 Sales schedules for livestock types are monitored and identified.
1.4 Purchasing prices are researched and evaluated to identify comparative values between sellers and agents. |
| 2. Inspect livestock condition | 2.1 Health status of livestock is checked using accepted methods .
2.2 Records and documents relating to livestock histories are obtained and verified.
2.3 Suitability of livestock for purchasing purposes is assessed .
2.4 Prices are assessed against livestock condition and enterprise requirements to identify appropriate purchasing values. |
| 3. Complete documentation | 3.1 Insurance requirements for livestock are sourced and completed.
3.2 Purchases are confirmed at realistic price levels according to estimated livestock values.
3.3 Documentation details are accurate and exchanged promptly with seller. |
| 4. Organise transportation | 4.1 Carriers appropriate to livestock type and quantity are identified and engaged on suitable terms.
4.2 Timing and dates of transportation and delivery are arranged with transporter, vendors and agents.
4.3 Special needs of livestock are assessed and facilities prepared to ensure timely pick up.
4.4 Animal health checks on arrival are undertaken according to enterprise and legislative requirements . |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Sales and enterprise livestock requirements can be discussed and negotiated with owners and colleagues, and prices externally negotiated with breeders and stock agents.	2
Collecting analysing and organising information	Information on sources, breeders and transport arrangements may be collected, analysed and organised for analysis, and organised by records and reports.	2
Planning and organising activities	The co-ordination of livestock purchases includes livestock inspection and health checks, and the subsequent arranging of transport and insurance.	2
Working with others and in teams	Team work may be applied in facilitating purchases and transportation.	2
Using mathematical ideas and techniques	Mathematics may be applied to calculate price and overall costs.	2
Solving problems	In finding solutions to problems relating to budgeting, purchasing inspection and transport.	2
Using technology	To communicate, calculate and record data relating to purchases and costs.	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What types of livestock are covered by this standard? Sheep, cattle and goats.

Where might information be researched from? Stock and station agents, rural radio, rural newspapers, electronic marketing, word of mouth, or private consultants.

What health status considerations might there be?

For sheep and goats: Footrot, scabby mouth, history of chemical applications and chemical residue, endo/exo parasites, brucellosis, susceptibility to flystrike and internal parasites, mastitis, Johnes disease, Q-fever, Caprine arthritis-encephalitis (CAE).

For cattle: history of chemical applications and chemical residue, endo/exo parasites, Johnes disease, mastitis (in dairy cattle).

What might be considered to be accepted methods for checking the health status of livestock?

Physical observation and checking of livestock, and use of veterinary or experienced personnel to check health status. Provision of certificates and vendor declarations concerning clearances, health status and immunisations. Checking on health through owner, word of mouth (neighbours), local veterinarian, agriculture and primary industry government departments, and veterinary suppliers.

What records and documents might need to be obtained and verified?

Issuing of certificates and vendor declarations in relation to footrot, ovine brucellosis, ovine Johnes disease, and chemical residue (external/internal application).

What needs to be considered when assessing livestock for suitability?

Checking age, condition, number, end use considerations, breed/strain/bloodline, size, cost, sex production records, weight, fat cover, muscling, feed history, horns, health anomalies, chemical application history, pregnancy status, coat colour, weed seed contamination, and stage of lactation.

How might prices be set?

At auction or through private sale negotiation.

What will need to be considered in determining realistic price levels?

Current market values and assessment of health, suitability and quantity of livestock.

What might need to be considered when engaging and negotiating with transport carrier?

Cost per kilometre, time for trip, water points on a long trip, number per truck/deck/section, and quality of service.

What enterprise or legislative requirements might need to be considered here?

Isolation and appropriate treatment of sick and/or distressed livestock, and relevant animal welfare legislation and procedures.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in arranging livestock purchases requires evidence of the ability to monitor market trends and potential sound purchases, negotiate with seller, identify best potential product against enterprise requirements and market availability, and check the health status and condition of the intended purchase. In addition, it requires an ability to arrange and prepare for correct and timely transport, and isolate sick and distressed animals.

The skills and knowledge required to arrange livestock purchases must be transferable to another rural workplace. For example, if competence is evident in arranging sheep purchases, it should also be evident for arranging cattle and/or goat purchases in both large and small enterprise operations.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- livestock assessment
- livestock selling procedures
- matching livestock to feed available
- livestock transportation
- animal health procedures
- livestock insurance
- relevant legislative health and OHS requirements especially as they relate to livestock sales, livestock products, animal transportation for local and export markets, and safe livestock handling techniques
- enterprise and industry policies and codes of practice with regard to livestock sales, livestock transportation, and recording and reporting requirements.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- arrange livestock purchases
- match feed supplies to livestock needs
- organise transport
- negotiate on price and terms
- assess livestock and condition
- arrange insurance
- implement health strategies
- complete and understand relevant records and documents including health documentation.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5918A

Unit Descriptor

Arrange marketing of livestock

This competency standard covers the process of arranging for the marketing of livestock and associated products. Competency requires the application of knowledge and skills to identify appropriate markets and sales opportunities, ensuring that the product meets legislative and industry requirements for fitness for sale, selecting sales outlets and negotiating with brokers, sellers and agents, and arranging transport. Competency also requires the application of skills and knowledge to monitor sales trends and analysing and recording sales data to help improve future profit margins, and monitor the effectiveness of the sales strategy.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

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|---|--|
| 1. Determine sales characteristics and demand | 1.1 Potential purchasers and their purchasing requirements are identified from available market information .
1.2 Current and recent sales are observed to monitor market trends and patterns.
1.3 Regulatory requirements for market entry are monitored and reviewed to ensure quality assurance and fitness for sale.
1.4 Ability to deliver product to meet market demand and requirements is determined. |
| 2. Sell product and arrange transport | 2.1 Sale logistics are researched and incorporated into marketing strategy.
2.2 Sale outlets are consulted about market prospects and informed of preferred sale method.
2.3 Transport arrangements are completed in time for sale, and facilities and product are prepared and organised .
2.4 Negotiations with agents, brokers and buyers are completed.
2.5 Payments are arranged and processed. |
| 3. Assess sales performance | 3.1 Sales data is obtained and analysed to facilitate monitoring of performance against marketing plan and enterprise requirements.
3.2 Strengths and weaknesses of performance are analysed.
3.3 Sales strategies are reviewed to maximise future returns.
3.4 Data is recorded for future reference according to enterprise, industry and legislative requirements. |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Sales and market requirements can be discussed and negotiated with livestock agents and processors.	2
Collecting analysing and organising information	Information on markets, transport arrangements, sales analysis and testing may be collected, analysed and organised for analysis, and organised by records and reports.	2
Planning and organising activities	The co-ordination of sales to most appropriate sales outlet, analysis of market trends and arrangement of transport may be required.	2
Working with others and in teams	Team work may be applied in facilitating orderly marketing and arranging transport.	2
Using mathematical ideas and techniques	Mathematics may be applied to calculate production, costs and financial returns.	2
Solving problems	In the identification of market fluctuations and determining effective marketing solutions.	2
Using technology	To communicate, calculate and record data relating to sales, product and marketing.	2

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

Where might marketing information be obtained from?

Market reports, agents, consulting services, processors, buyers, other farmers, and supervisors/owners with current market information.

What regulatory requirements might need to be considered?

The preparation of the sheep wool or goat fibre, minimum residue levels, the welfare and husbandry of sheep or goats, land transport of sheep or goats, the export of live sheep or goats, milk quality assurance, codes of practice for welfare of cattle and land transport, requirements and specification of animal health tests, national residue tests, fleece tests, and AUSMEAT descriptions.

What type of products are covered by this standard?

Cattle: calves, stores, replacement heifers, steers, bulls, specific, and market types.

Goats: kids, chevon, prime kids for meat (capretto), aged goats, replacement does/wethers, bucks for sale, live goats (export trade meat), live goats (seed stock).

Sheep: kids, chevon, prime lambs for meat (capretto), aged sheep, replacement ewes/wethers, rams for sale, live sheep (export trade meat), live sheep (seed stock).

What needs to be considered in sale logistics?

Type of transport needed, market proximity, transport availability, cost of transport, time needed to get the product to sale outlets, and reserve prices.

What type of sale outlets might be utilised or consulted with?

Auction markets, contract sales, processors, deliverable future contracts, paddock/private, and computer aided.

What transport arrangements might need to taken into consideration?

Arranging for collection and delivery in time for market/sale; suitable transport for product type, volume and quality; consigning product and signing appropriate dispatch documents, completion of quality assurance scheme declarations, specifying pick up time, and estimated time of delivery time and delivery point.

What might be included when preparing and organising facilities and product?

Preparation of vehicle loading and unloading facilities and yarding of livestock prior to transport arrival to allow for settling of stock and cleaning out. Packaging of product in preparation for transportation.

What sales data might be analysed?

Objective information, kill sheets, actual prices paid/passed in rates, and market movement by indicators.

What data might be analysed?

Sale price, commissions, saleyard costs, levies, animal health tests, national residue tests, fleece tests, classers' specifications, and tally book.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in arranging marketing of livestock requires evidence of the ability to monitor market trends and potential markets, negotiate with sales outlets and agents, identify best potential sales strategy, and arrange and prepare for correct and timely transport. In addition, it requires an ability to analyse and interpret sales trends and record data.

The skills and knowledge required to arrange marketing of livestock must be transferable to another rural workplace. For example, if competence is evident in arranging marketing of sheep and sheep products, it should also be evident for cattle and cattle products and/or goats in both large and small enterprise operations.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- market specifications
- quality assurance procedures and techniques
- sales outlets and dates
- transport systems
- price risk and sales strategies
- sales analysis
- livestock preparation requirements
- sale methods
- communication techniques
- relevant legislative health and OHS requirements especially as they relate to livestock products, live animals, animal transportation for local and export markets, and safe livestock handling techniques
- enterprise and industry policies and codes of practice with regard to livestock sales transportation and recording and reporting requirements
- awareness and knowledge of minimum residue levels (MRLs) and the variance between countries
- withholding periods after treatment.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- prepare marketing plans
- implement marketing plan
- implement sales and transport logistics for livestock product
- communicate and negotiate strategies.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

**Essential Assessment
Information**

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5920A**Negotiate and monitor contracts/commercial agreements****Unit Descriptor**

This competency standard covers the process of negotiating contracts and/or commercial agreements with clients and others. It requires the ability to establish agreements with sources external to the enterprise, complete contract documentation, and monitor the performance of contracts. Negotiating contracts/commercial agreements with clients and others requires knowledge of contract/commercial law, formulation and negotiation, enterprise business policies and plans including procedures for maintenance of confidentiality, and selection and appropriate application of technology, information systems and procedures.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|--|
| 1. Establish agreements with sources external to the enterprise | 1.1 The enterprise requirements of a business relationship with external sources are identified and defined.
1.2 The range of acceptable outcomes from a negotiation are established.
1.3 Contact is made with individuals, bodies or corporations, the appropriate individual is identified, and requirements of an agreement are discussed and mutually acceptable terms agreed.
1.4 Sound practice and procedure for business meetings are maintained and all agreements are documented. |
| 2. Complete contract/commercial agreement documentation | 2.1 Requirements of the contract/commercial agreement are clearly documented and understood by the relevant parties.
2.2 Areas of ambiguity or concern are clarified and resolved.
2.3 Conditions for service or supply are agreed between the parties including the determination of key performance indicators.
2.4 Alternative processes are undertaken where agreement is unable to be reached in accordance with enterprise procedures.
2.5 Negotiations conform to established enterprise requirements and relevant legislation.
2.6 Contract/commercial agreement documentation is signed and exchanged between the relevant parties. |

3. Monitor the performance of contracts/commercial agreements
 - 3.1 The rights and obligations of parties to a contract/commercial agreement are identified, and appropriate methods of addressing non-performance are implemented.
 - 3.2 Professional and regulatory bodies available to support commercial grievance processes are identified and consulted when required.
 - 3.3 Completion of contract/commercial agreement against key performance indicators is monitored.
 - 3.4 Issues in respect to non-compliance are advised to the other party in writing.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Through contacts with clients and others in management team.	3
Collecting analysing and organising information	Through use of available information sources.	3
Planning and organising activities	Through analysis of work against contract and/or commercial agreement specifications.	3
Working with others and in teams	Through consultation with others on contract and/or commercial agreement preparation.	3
Using mathematical ideas and techniques	Through calculations involved in establishing and monitoring the contract/commercial agreement.	3
Solving problems	Through negotiations to resolve disputes and issues that arise.	3
Using technology	Through use of computers and communication systems.	3

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What external sources may be relevant to this competency standard?

External sources may include banks, accountants, legal representatives, sub-contractors, suppliers of services, suppliers of capital equipment items, and government departments.

What requirements may be relevant to contract documentation?

Contract/commercial agreement requirements may relate to the following:

- quality or enterprise work specifications and procedures
- manufacturers specifications and/or suppliers handling and storage advice
- workplace operating procedures and policies
- supplier and/or client instructions
- legal and contract documentation
- Materials Safety Data Sheets
- communications technology equipment, oral, aural or signed communications
- personal and work area work procedures and practices
- applicable State, Territory and Commonwealth legislative framework concerning contracts and trade practices
- OHS in terms of duties of employers, employees, suppliers and contractors
- contracts
- hazardous substances and dangerous goods
- environment protection
- equal opportunity, equal employment opportunity and affirmative action
- standards and certification requirements
- license, patent or copyright arrangements
- quality assurance procedures
- emergency procedures.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in negotiating contracts requires evidence that contracts/commercial agreements have been successfully and appropriately negotiated and monitored within an enterprise. The skills and knowledge required to negotiate and monitor contracts/commercial agreements must be transferable to a range of work environments and contexts. For example, this could include different services, supplies of goods, contract/commercial agreement formats, and enterprise procedures.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

- contract/commercial law applicable to the type of agreement
- processes of formulation and negotiation of contracts/commercial agreements
- enterprise business policies and plans including procedures for maintenance of confidentiality
- selection and appropriate application of technology, information systems and procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

- establish agreements with sources external to the enterprise
- complete contract/commercial agreement documentation
- monitor the performance of contracts/commercial agreements.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5921A

Unit Descriptor

Market products and services

This competency standard covers the functions required to market products and services in an agricultural, horticultural or land management enterprise.

It requires the application of skills and knowledge to plan and implement a marketing strategy, and monitor and improve market performance. It also requires the ability to collect, analyse and present data in the internal and external business environment. In addition, it requires an awareness of industry structures and business trends. The work will be carried out independently within own area of responsibility and within enterprise guidelines.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-----------------------------------|---|
| 1. Analyse market information | <p>1.1 Markets for existing or new products or services are identified, researched and analysed for possible entry or development.</p> <p>1.2 Past trends and developments are analysed to determine market variability and associated risks.</p> <p>1.3 Market environment is continually monitored in a consistent manner to ensure information is current and reliable.</p> <p>1.4 The legal, ethical and environmental constraints of the market(s) and their effect on the enterprise are identified.</p> <p>1.5 Product mix that suits market requirements/price advantage at the time is adopted</p> |
| 2. Develop a marketing plan | <p>2.1 Alternative marketing strategies and techniques are assessed and interpreted to identify marketing targets and methods.</p> <p>2.2 Marketing strategies are based on reliable data, market environment and substantiated trends.</p> <p>2.3 Marketing options incorporate suitable advice from marketing professionals.</p> <p>2.4 A measurable cost-effective marketing plan is developed incorporating a reasoned analysis of market research and business plan objectives.</p> |
| 3. Implement marketing activities | <p>3.1 Planned marketing activities are scheduled within appropriate timeframes.</p> <p>3.2 Measurable performance targets are developed and meet business plan objectives.</p> <p>3.3 Distribution channels are organised, and product and service information is accurate and readily available to clients.</p> <p>3.4 Marketing activities are implemented within budgetary constraints to meet legal, ethical and enterprise requirements.</p> |

4. Evaluate marketing performance
 - 4.1 Product, pricing and distribution policies are monitored in relation to **market changes**, marketing objectives and enterprise requirements.
 - 4.2 Areas of positive performance are identified and corrective action is taken to remedy poor performance areas.
 - 4.3 An objective assessment of the marketing plan and implementation is made by a comparison of valid and reliable data against performance targets.
 - 4.4 Relevant information is documented for continual analysis and effective planning management.

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	Information about the marketing plan may be explained to other persons involved in the promotional activities.	3
Collecting analysing and organising information	Information on the results of the marketing plan may be documented and organised by reports for future reference and analysis.	3
Planning and organising activities	Resources and materials necessary to implement the marketing plan may be scheduled to meet timetables and deadlines.	3
Working with others and in teams	In the application of methods and procedures to carry out the marketing plan in an effective and efficient manner.	3
Using mathematical ideas and techniques	Estimation techniques may be necessary to determine returns expected from the marketing plan.	3
Solving problems	Problems may arise in the course of the program that may be addressed through adjustments of the resources or timetables.	3
Using technology	Technology may be used to monitor, record and distribute the marketing plan outcomes.	3

RANGE STATEMENT

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available.

What markets may be researched?	Markets may include wholesalers, retailers, exporters, local, national and/or international customers, and private and public sector organisations and enterprises.
What legal constraints may be identified?	This may include compliance with relevant provisions of the Copyright Act and amendments, OHS legislation and regulations, consumer protection, freedom of information, industry codes of conduct, equal opportunity legislation, Trade Practices Act and the Telecommunications Act.
What types of information may be included in a marketing strategy?	Marketing strategies may include various information with regard to pricing, promotion, product quality, service standards and distribution channels.
What types of marketing techniques may be assessed?	Techniques may include vertical integration, exporting, targeting seasonal windows, niche marketing, and total quality management systems.
What market environment features may be assessed?	Market environment may include consumer trends, harvesting, handling and marketing methods, export opportunities, trade policies and seasonal influences.
What marketing options may be relevant to this standard	Options may include public relations, electronic, word of mouth, seminars, promotional material displays, prospectuses, web-site development, customer information brochures, telephone information lines, on-site only, post and fax.
What information may be included in a marketing plan?	This may include marketing objectives, budget, venue and location, agreed price, expected price, break-even price, risk management strategies, timing of sales, cash flow implications, spread sales, quantity and quality of product, and client contact pre-post sales.
What range of business plan objectives may be identified?	This may include sales volumes, market shares, turnover of stock and materials, increasing per capita returns, profits and higher dollar returns.
What types of objective assessment processes may be used?	This may include a review of existing sales data, cost-benefit analysis, break-even analysis, growth projection and asset valuation.

What measurable performance targets may be developed?	This may include price achieved, quantity sold, market demand, quality of product delivered and post-sale feedback.
What distribution channels may be used?	This may include sponsorship, direct marketing, point of sale promotions, newspaper, radio, multi-media (Internet) and television industry publications.
What enterprise requirements may apply to this standard?	SOP, industry standards, Total Quality Management standards, product labels, manufacturers specifications, MSDS, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use), and reporting requirements.
What types of market changes may be applicable to this standard?	This may include consumer trends, harvesting, handling and marketing methods, export opportunities, trade cycles, trade policies, and seasonal conditions.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in marketing products and services requires evidence of the ability to compare and contrast data from markets and determine suitable strategies. Evidence must be demonstrated in the presentation of information for sales and decision-making purposes.

The skills and knowledge required to market products and services must be transferable to a different work environment. For example, analysing industry structures for marketing purposes may also be used in understanding and developing a strategic plan.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- price risk management
- performance evaluation measures
- competitors strengths and weaknesses
- business planning process
- customer relations policies
- market conditions and forces
- enterprise goals, objectives and directions
- markets and market analysis
- communication and promotion skills
- marketing principles and practice
- principles of trend analysis.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- analyse with regard to market research and assessments
- manage information
- communicate effectively in writing and verbally
- converse and liaise with industry network, staff and senior management
- write reports for the understanding of staff and management
- assess financial strategies and prepare budgets.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

RTE5922A

Plan production for the whole land/farm based business

Unit Descriptor

This competency standard covers the process of reviewing and confirming the organisations business goals and vision, and its land-use, human resource development and financial plans. It includes the need to balance production and financial decisions with the organisations goals and values. The work described in this unit brings together a range of planning activities at a global level for a business that operates from a small to medium base, which could be a family business.

Planning production for the whole land/farm-based business is likely to be undertaken either independently, or in collaboration with other managers in the organisation. Responsibility for the planning and management of the work of others will be involved. Planning production requires knowledge in areas such as sustainable land use principles and practices, and the application of analytical skills to a range of personal, financial and natural resources.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

1. Review and confirm the organisations business goals and vision

- 1.1 The organisations documented business goals and vision are accessed and analysed against actual business activities and decisions taken.
- 1.2 The **values** and **community expectations** of the organisation are reviewed and analysed against actual business activities and decisions taken.
- 1.3 The organisations **operating environment** is reviewed to identify potential opportunities and threats.
- 1.4 The overall strengths and weaknesses of the organisation are analysed to identify potential areas for development.
- 1.5 Information on available **innovations** for potential use in the organisation is accessed and discussed with **colleagues**.
- 1.6 The organisations goals and vision are articulated and documented to provide a basis for future planning and decision-making.

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|---|--|
| 2. Prepare human resource development plans | <ul style="list-style-type: none">2.1 Personal values, attributes and skills of the management team are identified and analysed.2.2 Specific areas of expertise in the business are recognised and articulated.2.3 Specific areas of responsibilities are devolved to the most suitable team members based on identified skills and attributes.2.4 The processes for succession planning are discussed and decided with management team members and the process is put in place.2.5 Areas in which skill development and training is required for individual team members, or the entire group, are identified and recorded.2.6 A commitment is made to ongoing skill development of the management team.2.7 Ongoing communication strategies are put in place, and an environment in which all members can contribute is fostered and developed, to ensure the smooth running of the business. |
| 3. Prepare a plan to manage land use | <ul style="list-style-type: none">3.1 Land is surveyed to identify natural resources, soil characteristics, water resources, and cultural heritage values of the property.3.2 Land use capacities are determined from land condition tests and history of yields.3.3 Land use for individual paddocks is determined based on land use capacities, products being produced, and the organisations goals and vision.3.4 A plan to improve the management and use of land on the property is developed, based on property resources and the organisations goals and vision, and incorporated into the production plan.3.5 Organisational policy in relation to the environmental management of the land is developed based on land use, prevalent pests and diseases, and the organisations goals and vision. |

- | | |
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| 4. Plan production processes | <p>4.1 Information regarding the characteristics of the products being grown or refined/ manufactured and their respective market requirements is accessed.</p> <p>4.2 Characteristics of the land under production and the quality and amount of existing infrastructure are confirmed from colleagues and other planning processes.</p> <p>4.3 Historical data, including recent data, from organisational records is identified and accessed for input to production planning.</p> <p>4.4 Information regarding other organisational planning processes and potential for improvements or innovations is collected and used to inform production planning.</p> <p>4.5 Requirements of the organisation are taken into consideration during analysis.</p> <p>4.6 Production processes required to efficiently achieve the targeted production requirements in line with organisational policies are identified and compared with those that currently exist.</p> |
| 5. Develop financial goals and risk management strategies | <p>5.1 The key financial performance indicators of each enterprise in the business are identified from analysis of cash flow, profitability and net worth.</p> <p>5.2 The financial performance of each enterprise in the business is assessed through analysis of key financial performance indicators and their impacts on business performance.</p> <p>5.3 Financial goals for each enterprise in the business are identified from financial performance assessment and the organisations goals and vision.</p> <p>5.4 Areas of risk in the organisation are identified from analysis of the operating environment, production strategies, and skill and ability resources of the organisation.</p> <p>5.5 Risk management strategies are identified and put in place.</p> |
| 6. Prepare and communicate the organisations vision, goals and plans | <p>6.1 Outcomes of all decisions taken are articulated and clearly documented.</p> <p>6.2 The organisations goals and vision, human resource development, land-use, production and financial plans are integrated to reflect the decisions taken in each area.</p> <p>6.3 The organisations goals, vision and plans are clearly articulated to those that will implement them, to ensure a common understanding.</p> <p>6.4 A schedule is put in place to regularly review the organisations vision, goals and plans.</p> |

KEY COMPETENCIES

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	By analysing the skills and abilities of the human resources within the organisation.	3
Collecting analysing and organising information	In gathering financial and budgetary data for each enterprise and analysing it for key performance indicators and business performance.	3
Planning and organising activities	In planning for the production cycle in the organisation.	3
Working with others and in teams	In working with colleagues to ascertain and to assign responsibilities in line with expertise.	3
Using mathematical ideas and techniques	In analysing and making decisions upon financial and production data.	3
Solving problems	In integrating the financial, production, human resource development and land use plans to achieve an operating strategy that is in line with organisational values and goals.	3
Using technology	In operating any necessary equipment for analysis and communication - communication technology, calculating equipment, word processing and spreadsheeting software, and specialist financial/ accounting software.	2

RANGE STATEMENT

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available.

What organisation values might be reviewed?

Those that relate to commercial viability, employment, land management, animal welfare, OHS, social responsibility and community involvement.

What community expectations might there be of the organisation?

The community may expect that the organisation will act in a legal, financially responsible manner, and may also expect that a range of social, environmental and educational obligations are followed.

What might the components of the organisations operating environment be?	Competitors, partners, allies, legislative framework, surrounding land use, market requirements, customer expectations, and industry standards.
What kind of innovations might be considered for use in the organisation?	Innovations to equipment, machinery, materials, practices, and systems - including those relating to environmental, OHS, and animal welfare practices and/or related equipment.
Who are the colleagues with whom issues will be discussed?	They might be family members, fellow managers, employees, professional advisors, partners, allies, mentors, or people in businesses with similar issues.
Who might members of the management team be?	They may be family members, employees or a combination of both.
What materials and information might be used or produced when land is surveyed?	Materials such as maps (including soil maps), plans, aerial photographs, and soil maps and information in relation to soil characteristics and local cultural heritage.
What natural resources might be identified?	These may be permanent or non-permanent features, and may include vegetation (including remnant vegetation), soils, water bodies, pasture drainage channels, or wildlife habitat.
What soil characteristics may be noted?	Moisture content, pH levels, nutrient levels, salinity, erosion, germination rates, aggregate stability, colour, texture, structure, and pest and disease prevalence.
What cultural heritage values might be identified through the survey?	They may be values in relation to natural heritage, historical significance, evidence of aboriginal occupation and ceremonial sites, or structures and ruins.
What might land condition tests include?	They might include testing for soil moisture, pH level, seed borne diseases, tissue and grain nutrient levels, and grain and seed purity and germination rates.
What characteristics of the products might be accessed?	If it is an annual or perennial product, experimental product, yield, financial return, frequency of rotation, harvesting requirements, prevalence of pests and disease, and pest and disease control.
To what does the term products refer?	To the crops, stock, and/or products under production or refinement/manufacture in the organisation.

What infrastructure might be in place?	In addition to equipment, machinery and vehicles, the organisations infrastructure may include buildings, sheds, shelters, stock yards, stock handling structures, fences, water supply systems, roads, tracks, soil conservation works, irrigation and drainage channels, silage pits and/or grain and fodder storage, dams, monitoring systems, and information technology systems.
What historical data might be assessed in the planning process?	Crop/stock history, disease and pest history, previous yield data, pesticide use, weather patterns, market information, existence and suitability of previous infrastructure, and financial returns.
What other organisational planning processes might provide input to production planning?	Activities such as land-use, human resource management and development, financial, risk management, infrastructure, and strategic planning processes.
What requirements might the organisation have in relation to production processes?	Requirements may relate to the preferred approach/ policy in regard to animal welfare, environmental management, waste management, and OHS. Legislation and regulation may also impact on, or restrict, production.
What does the production process include?	The production process includes the resources, personnel, methodology, and interactions between them.
Where might some of the key financial performance indicators be found?	In cash flow, profit, debt history, equity, gross margin, cost of production, target prices, and net worth figures.
What may be some of the areas of risk?	Risks may present in areas such as the market, production, resourcing, financing, management and personal risks.
What risk management strategies may be put in place?	A variety of strategies may be used which may involve insurance policies, diversified investment, training and development programs, vital records strategies, or recruitment programs.

EVIDENCE GUIDE

What evidence is required to demonstrate competence for this standard as a whole?

Competence in planning production for the whole land/farm based business requires evidence that the organisations values and vision are built into operational and resource management plans.

The skills and knowledge required to plan production for the whole land/farm based business must be transferable to a different work environment. For example, across a range of product types and processes.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- holistic business planning and benchmarking
- marketplace in which the organisation operates
- soil nutrient cycling potential and limitations
- chemical and biological methods for removing and arresting infestations
- advantages and limitations of sustainable land management practices
- relevant State/Territory legislative requirements with regard to environmental protection and control standards
- property planning, financial management and enterprise budgeting systems and procedures
- relevant State/Territory legislation, regulations and codes of practice with regard to OHS and the use and control of hazardous substances
- monitoring strategies for financial, production, land-use, and human resource development plans
- methods for assessing skills and expertise
- the reasons and methods for succession planning
- the value and methods of risk assessment.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- assess the skills and expertise of self and colleagues
- facilitate group decision-making within the business
- identify, build and use network and support groups
- assess and evaluate land conditions
- recognise land and soil degradation
- determine land use appropriate to land conditions
- set yield targets and objectives and estimate timelines
- implement sustainable land management practices
- assess environmental impacts and implement impact reduction techniques
- interpret historical data in relation to production, finances, environmental issues, staffing and land use
- recognise potential opportunities to use or install more environmentally efficient systems or equipment
- assess, then adopt, profitable innovations
- interpret, analyse and extract information from a range of sources such as professional literature, legal documents, discussions and workshops
- assess financial strategies and prepare budgets
- prepare enterprise budgets and calculate financial returns
- converse and liaise with industry contacts, colleagues and family regarding the land/farm based business
- write reports to be understood by all levels of the organisation
- communicate detailed and complex information in written and oral form with people both inside and outside the organisation.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

Essential Assessment Information

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.



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