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 7 of 8
Rural Production Volume 7a - Rural Production units of competency for additional sectors

Volume 1: Rural Production Introduction, Qualification Packaging, Assessment Guidelines
Volume 2: Rural Production Units of Competency
Volume 3: 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 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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</tr>
<tr>
<td>Release Date: 21/09/2007</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS

## Version Modification History

6

## Qualifications Framework

13

The Australian Qualifications Framework...

13

Skill Sets...

24

## Assessment Guidelines

25

Introduction...

25

Assessment System Overview...

25

Australian Quality Training Framework Assessment Requirements...

25

Pathways...

27

## Designing Assessment Tools

30

Use of Assessment Tools...

30

Using Prepared Assessment Tools...

30

Developing Assessment Tools...

30

Conducting Assessment...

30

Access and Equity...

32

Further Sources of Information...

32

General Resources...

33

Assessment Resources...

34

Assessment Tool Design and Conducting Assessment...

34

Assessor Training...

34

Assessment System Design and Management...

35

## Units

RTE1107A Support organic production...

36

RTE2031A Handle and move mushroom boxes...

41

RTE2032A Water mushroom crops...

46

RTE2033A Carry out post-harvest operations...

51

RTE2113B Monitor livestock to parturition...

61

RTE2124B Carry out birthing duties...

68

RTE2128B Provide feed for livestock...

75

RTE2131B Care for health and welfare of livestock...

81

RTE2152A Shear alpacas...

90

RTE2153A Carry out alpaca handling and husbandry operations...

94

RTE2154A Support alpaca shearing operations...

101

RTE2155A Undertake basic skirting of alpaca fleece...

106

RTE2156A Support beekeeping work...

111

RTE2157A Open and reassemble a beehive...

116

RTE2217A Construct and repair beehives...

120

RTE2305A Use a bee smoker...

125

RTE2315A Operate a compost bagging process...

129

RTE2503B Observe and report on weather...

137

RTE2505A Perform mushroom substrate process tasks...

141

RTE2506A Assess and receive raw materials for composting...

147

RTE2507A Recognise raw materials, production processes and products on a composting site...

153

RTE2608A Set up, operate and maintain a water delivery system...

161

RTE2707B Follow site quarantine procedures...

166

RTE2708A Work effectively in the mushroom industry...

171

RTE2709A Recognise and respond to fire emergencies on a composting site...

176

RTE2902B Collect and record production data...

183

RTE3115B Implement livestock husbandry practices...

187

RTE3121B Prepare animals for parturition...

194

RTE3124B Rear newborn and young livestock...

201

RTE3133B Prepare livestock for competition...

210

RTE3138B Determine wool characteristics...

215

RTE3150A Class alpaca fleece...

218

RTE3151A Mate and monitor reproduction of alpacas...

225

RTE3152A Plan and prepare for alpaca shearing...

229

RTE3153A Manage honey bee swarms...

234
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Page</th>
</tr>
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<tbody>
<tr>
<td>RTE3154A</td>
<td>Requeen a honey bee colony</td>
<td>238</td>
</tr>
<tr>
<td>RTE3155A</td>
<td>Manipulate honey bee brood</td>
<td>242</td>
</tr>
<tr>
<td>RTE3156A</td>
<td>Rear queen bees</td>
<td>247</td>
</tr>
<tr>
<td>RTE3319A</td>
<td>Ground spread fertiliser and soil ameliorant</td>
<td>251</td>
</tr>
<tr>
<td>RTE3320A</td>
<td>Remove a honey crop from a hive</td>
<td>256</td>
</tr>
<tr>
<td>RTE3321A</td>
<td>Extract honey</td>
<td>261</td>
</tr>
<tr>
<td>RTE3322A</td>
<td>Operate compost processing plant, machinery and equipment</td>
<td>265</td>
</tr>
<tr>
<td>RTE3323A</td>
<td>Dispatch materials and composted product</td>
<td>274</td>
</tr>
<tr>
<td>RTE3407A</td>
<td>Identify and report unusual disease or plant pest signs</td>
<td>280</td>
</tr>
<tr>
<td>RTE3408A</td>
<td>Carry out emergency disease or plant pest control procedures at an infected premises</td>
<td>283</td>
</tr>
<tr>
<td>RTE3409A</td>
<td>Carry out movement and security procedures</td>
<td>288</td>
</tr>
<tr>
<td>RTE3410A</td>
<td>Work effectively in an emergency disease or plant pest response</td>
<td>292</td>
</tr>
<tr>
<td>RTE3415A</td>
<td>Manage pests and disease within a honey bee colony</td>
<td>298</td>
</tr>
<tr>
<td>RTE3504B</td>
<td>Collect samples for rural production or horticulture monitoring program</td>
<td>303</td>
</tr>
<tr>
<td>RTE3511A</td>
<td>Supervise mushroom substrate preparation</td>
<td>308</td>
</tr>
<tr>
<td>RTE3512A</td>
<td>Prepare raw materials and compost the feedstocks</td>
<td>315</td>
</tr>
<tr>
<td>RTE3513A</td>
<td>Prepare value-added compost-based products</td>
<td>323</td>
</tr>
<tr>
<td>RTE3818A</td>
<td>Develop and apply fertiliser and soil ameliorant product knowledge</td>
<td>331</td>
</tr>
<tr>
<td>RTE4013A</td>
<td>Manage mushroom crop development</td>
<td>336</td>
</tr>
<tr>
<td>RTE4027A</td>
<td>Develop a soil health and plant nutrition program</td>
<td>342</td>
</tr>
<tr>
<td>RTE4028A</td>
<td>Implement and monitor a horticultural crop harvesting program</td>
<td>351</td>
</tr>
<tr>
<td>RTE4029A</td>
<td>Assess olive oil for style and quality</td>
<td>357</td>
</tr>
<tr>
<td>RTE4113A</td>
<td>Handle, store and grade deer velvet</td>
<td>361</td>
</tr>
<tr>
<td>RTE4121A</td>
<td>Select and establish an apiary site</td>
<td>365</td>
</tr>
<tr>
<td>RTE4122A</td>
<td>Produce and harvest royal jelly</td>
<td>369</td>
</tr>
<tr>
<td>RTE4126A</td>
<td>Oversee alpaca farm activities</td>
<td>373</td>
</tr>
<tr>
<td>RTE4128A</td>
<td>Provide bee pollination services</td>
<td>378</td>
</tr>
<tr>
<td>RTE4130A</td>
<td>Trap and store pollen</td>
<td>382</td>
</tr>
<tr>
<td>RTE4131A</td>
<td>Collect and store propolis</td>
<td>386</td>
</tr>
<tr>
<td>RTE4132A</td>
<td>Perform queen bee artificial insemination</td>
<td>390</td>
</tr>
<tr>
<td>RTE4133A</td>
<td>Manage organic livestock production</td>
<td>396</td>
</tr>
<tr>
<td>RTE4408A</td>
<td>Supervise activities on infected premises</td>
<td>402</td>
</tr>
<tr>
<td>RTE4409A</td>
<td>Carry out field surveillance for a specific emergency disease or plant pest</td>
<td>408</td>
</tr>
<tr>
<td>RTE4515A</td>
<td>Manage mushroom substrate preparation</td>
<td>412</td>
</tr>
<tr>
<td>RTE4516A</td>
<td>Control Phase II mushroom substrate process</td>
<td>419</td>
</tr>
<tr>
<td>RTE4517A</td>
<td>Manage organic soil improvement</td>
<td>425</td>
</tr>
<tr>
<td>RTE4518A</td>
<td>Manage biodynamic production</td>
<td>430</td>
</tr>
<tr>
<td>RTE4519A</td>
<td>Develop a composting recipe</td>
<td>436</td>
</tr>
<tr>
<td>RTE4520A</td>
<td>Plan and schedule compost production</td>
<td>443</td>
</tr>
<tr>
<td>RTE4814A</td>
<td>Provide information and referrals on environmentally responsible fertiliser and soil ameliorant use</td>
<td>447</td>
</tr>
<tr>
<td>RTE4920A</td>
<td>Develop harvesting and processing specifications to produce an olive oil</td>
<td>454</td>
</tr>
<tr>
<td>RTE5015A</td>
<td>Manage the harvest of agricultural and horticultural crops</td>
<td>458</td>
</tr>
<tr>
<td>RTE5108A</td>
<td>Harvest deer velvet</td>
<td>466</td>
</tr>
<tr>
<td>RTE5406A</td>
<td>Manage the implementation of an emergency disease or plant pest control program</td>
<td>473</td>
</tr>
<tr>
<td>RTE5407A</td>
<td>Manage active operational emergency disease or plant pest sites</td>
<td>477</td>
</tr>
<tr>
<td>RTE5526A</td>
<td>Develop an organic management plan</td>
<td>482</td>
</tr>
<tr>
<td>RTE5527A</td>
<td>Conduct environment and food safety risk assessment of plant nutrition and soil fertility programs</td>
<td>488</td>
</tr>
<tr>
<td>RTE5919A</td>
<td>Identify and secure raw materials supply for compost production</td>
<td>496</td>
</tr>
<tr>
<td>RTE5923A</td>
<td>Prepare the enterprise for organic certification</td>
<td>501</td>
</tr>
<tr>
<td>RTE5924A</td>
<td>Research and apply rural industry knowledge</td>
<td>505</td>
</tr>
<tr>
<td>RTE6401A</td>
<td>Plan and oversee an emergency disease or plant pest control program</td>
<td>509</td>
</tr>
<tr>
<td>RTE6402A</td>
<td>Develop a plant pest survey strategy</td>
<td>515</td>
</tr>
<tr>
<td>RTE6403A</td>
<td>Develop a plant pest destruction strategy</td>
<td>519</td>
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</table>
# 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.

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<th>Version</th>
<th>Release Date</th>
<th>Comments</th>
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</thead>
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| 2       | 21/09/2007   | 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. Assessment Guidelines and Qualifications Framework text updated to conform to new requirements. 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) Deletion of matrix of units from (former) Part F. Addition of four qualifications in commercial composting (refer Qualifications Framework, Volume I):  
  - RTE20807 Certificate II in Commercial Composting  
  - RTE32107 Certificate III in Commercial Composting  
  - RTE40707 Certificate IV in Commercial Composting  
  - RTE50507 Diploma of Commercial Composting. New RTE units added to commercial composting qualifications:  
  - 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 |
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|         |              | • RTE4520A Plan and schedule compost production  
|         |              | • RTE5919A Identify and secure raw materials supply for compost production. |

Additional imported units from other Training Packages included in the commercial composting qualifications:

• 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 |

Addition of new suggested pathways for specialisations:

• 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. |

Addition of one new qualification with a suggested pathway page:

• RTE60307 Advanced Diploma of Production Horticulture specialising in olive production.
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<td></td>
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<td></td>
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<td>RTE3150A Class alpaca fleece</td>
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<td></td>
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</tr>
<tr>
<td>RTE4516A</td>
<td></td>
<td>Control Phase II mushroom substrate process</td>
</tr>
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<td></td>
<td>Provide information and referrals on environmentally responsible fertiliser and soil ameliorant use</td>
</tr>
<tr>
<td>RTE4920A</td>
<td></td>
<td>Develop harvesting and processing specifications to produce an olive oil.</td>
</tr>
<tr>
<td></td>
<td>• RTE50103 Diploma of Agriculture, units added:</td>
<td></td>
</tr>
<tr>
<td>RTE5105A</td>
<td></td>
<td>Comply with deer industry national velvet accreditation requirements</td>
</tr>
<tr>
<td>RTE5108A</td>
<td></td>
<td>Harvest deer velvet</td>
</tr>
<tr>
<td>RTE5406A</td>
<td></td>
<td>Manage the implementation of an emergency disease or plant pest control program</td>
</tr>
<tr>
<td>RTE5407A</td>
<td></td>
<td>Manage active operational emergency disease or plant pest sites</td>
</tr>
<tr>
<td>RTE5526A</td>
<td></td>
<td>Develop an organic management plan</td>
</tr>
<tr>
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<tr>
<td>RTE5527A</td>
<td>Conduct environment and food safety risk assessment of plant nutrition and soil fertility programs</td>
<td></td>
</tr>
<tr>
<td>RTE5923A</td>
<td>Prepare the enterprise for organic certification</td>
<td></td>
</tr>
<tr>
<td>RTE5924A</td>
<td>Research and apply rural industry knowledge.</td>
<td></td>
</tr>
<tr>
<td>• RTE60103 Advanced Diploma of Agriculture, units added:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTE6401A</td>
<td>Plan and oversee an emergency disease or plant pest control program</td>
<td></td>
</tr>
<tr>
<td>RTE6402A</td>
<td>Develop a plant pest survey strategy</td>
<td></td>
</tr>
<tr>
<td>RTE6403A</td>
<td>Develop a plant pest destruction strategy.</td>
<td></td>
</tr>
<tr>
<td>Updated units of competency included in qualifications and suggested pathways for specialisations:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• RTE2113B Monitor livestock to parturition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• RTE2124B Carry out birthing duties</td>
<td></td>
<td></td>
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<tr>
<td>• RTE2128B Provide feed for livestock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• RTE2131B Care for health and welfare of livestock</td>
<td></td>
<td></td>
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<tr>
<td>• RTE2503B Observe and report on weather</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• RTE2707B Follow site quarantine procedures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• RTE2902B Collect and record production data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• RTE3115B Implement livestock husbandry practices</td>
<td></td>
<td></td>
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<tr>
<td>• RTE3121B Prepare animals for parturition</td>
<td></td>
<td></td>
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<tr>
<td>• RTE3124B Rear newborn and young livestock</td>
<td></td>
<td></td>
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<tr>
<td>• RTE3133B Prepare livestock for competition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• RTE3138B Determine wool characteristics</td>
<td></td>
<td></td>
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<tr>
<td>• RTE3504B Collect samples for a rural production or horticulture monitoring program.</td>
<td></td>
<td></td>
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<tr>
<td>Units deleted from qualifications and suggested pathways for specialisations and replaced with new units:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• RTF4004A Develop a plant nutrition program deleted and replaced with RTE4027A Develop a soil health and plant nutrition program</td>
<td></td>
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<tr>
<td>• RTE2003A Carry out postharvest operations deleted and replaced with RTE2033A Carry out post-harvest operations</td>
<td></td>
<td></td>
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<tr>
<td>• RTE4012A Supervise horticultural crop harvesting deleted and replaced with RTE4028A Implement and monitor a horticultural crop harvesting program.</td>
<td></td>
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<tr>
<td>Additional units of competency imported from other Training Packages to the suggested pathways and new qualification noted above:</td>
<td></td>
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<tr>
<td>• BSBCMN304A Contribute to personal skill development and learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• BSBCMN305A Organise workplace information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• BSBFLM404A Lead work teams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• BSBFLM507A Manage quality customer service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• BSBFLM511A Develop a workplace learning environment</td>
<td></td>
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| • 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  
• FDOPTHC63A Participate in a HACCP team  
• FDOPTISP2A 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  
• FPICOT323A 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  
PRMWM07B Implement waste management plan  
PRMWM15A Move waste using load shifting equipment  
PRMWM43B Develop an environmental management strategy  
PRMWM45B Develop site safety plan  
PRSSO323A Lead small teams  
PSPGOV307B Organise workplace information  
PSPGOV417A Identify and treat risks  
PSPPA601A Manage public affairs  
PSPPM405A Administer simple projects  
PUACOM001B Communicate in the workplace  
PUADEFRM205A Manage emergency operations  
PUAOPE001A Supervise response  
PUAOPE005A Manage a multi-team emergency response  
PUAOPE006A Control multi-agency emergency situations  
PUAOPE007A Command emergency personnel within a |
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<td>April 2003</td>
<td>First release</td>
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</table>

**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 section 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.

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**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.

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**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.

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### 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.
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:

<table>
<thead>
<tr>
<th>7.3</th>
<th>The RTO must ensure that assessments are conducted by a person who has:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>• the following competencies* from the Training Package for Assessment and Workplace Training, or demonstrated equivalent competencies:</td>
</tr>
<tr>
<td></td>
<td>• TAAASS401A Plan and organise assessment;</td>
</tr>
<tr>
<td></td>
<td>• TAAASS402A Assess competence;</td>
</tr>
<tr>
<td></td>
<td>• TAAASS404A Participate in assessment validation;</td>
</tr>
<tr>
<td></td>
<td>• relevant vocational competencies, at least to the level being assessed.</td>
</tr>
<tr>
<td>b</td>
<td>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.</td>
</tr>
</tbody>
</table>
* 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.

**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.
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](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**

**Agri-food Industry Skills Council**
7 National Circuit
BARTON ACT 2600
PO Box 5450
KINGSTON ACT 2604
Telephone: (02) 6163 7200
Fax: (02) 6163 7278
Web: [www.agrifoodskills.net.au](http://www.agrifoodskills.net.au)
Email: info@agrifoodskills.net.au

**TVET Australia Ltd**
Level 21, 390 St Kilda Road
MELBOURNE VIC 3004
PO Box 12211
A'Beckett Street Post Office
MELBOURNE VIC 8006
Telephone: (03) 9832 8100
Fax: (03) 9832 8199
Web: [www.atpl.net.au](http://www.atpl.net.au)
Email: sales@atpl.net.au

**Innovation and Business Industry Skills Council**
Building B, Level 2
192 Burwood Road
HAWTHORN VIC 3122
Telephone: (03) 9815 7000
Fax: (03) 9815 7001
Email: virtual@ibsa.org.au

**General Resources**


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


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.


Assessor Training

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


**Assessment System Design and Management**


RTE1107A Support organic production

Unit Descriptor

This unit of competency specifies the outcomes required to support organic production. The unit requires the ability to prepare materials, tools and equipment for organic production work, undertake routine production assistance work, handle materials and equipment, and clean up on completion of work. Supporting organic production work requires knowledge of the principles of organic production, safe work practices relating to basic crop and livestock handling techniques, and the use of associated farm tools and equipment.

The work would be carried out under routine supervision within enterprise guidelines.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the role of a general assistant or farmhand in a farming enterprise conducted according to the principles of organic farming.

Unit Sector

No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare materials, tools and equipment for organic production work.

   1.1 Required materials, *tools and equipment* are identified according to supervisor *instructions*.

   1.2 Checks for serviceability are conducted on all materials, tools and equipment and insufficient or faulty items are reported to supervisor.

   1.3 Techniques used when loading and unloading materials demonstrate correct manual handling techniques and minimise damage to self, load and vehicle.

   1.4 Suitable *personal protective clothing and equipment* are selected and checked prior to use.

   1.5 Occupational health and safety (OHS) hazards are identified and reported to supervisor.

2. Undertake organic production work as directed.

   2.1 Instructions and directions provided by supervisor are followed and clarification is sought when necessary.

   2.2 Work is undertaken in an environmentally appropriate manner and according to *workplace information*, *principles of organic agriculture*, OHS requirements and enterprise guidelines.

   2.3 Site quarantine, biosecurity protocols and farm and personal hygiene requirements are followed as required by enterprise guidelines.

   2.4 Where appropriate to enterprise's activities, food safety requirements are met.

   2.5 Interactions with other staff and customers are carried out in a positive and professional manner.

   2.6 Enterprise policies and procedures in relation to workplace practices, and handling and disposal of materials are observed.

   2.7 Problems or difficulties in completing work to required standards or timelines are reported to supervisor.

   2.8 Clean and safe work site is maintained while working.
3. Handle materials and equipment.

3.1 Waste material produced during work is stored in a designated area according to supervisor instructions.

3.2 Materials, tools and equipment are handled and transported according to supervisor instructions and enterprise guidelines.

4. Clean up on completion of work.

4.1 Materials are returned to store or disposed of according to supervisor instructions.

4.2 Tools and equipment are cleaned, maintained and stored according to manufacturer specifications and supervisor instructions.

4.3 Work outcomes are reported to supervisor.

REQUICKED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- cleaning up on completion of work
- handling materials and equipment
- observing interactions between parts of the farm system
- preparing materials, tools and equipment for work
- undertaking work as directed
- where appropriate to enterprise’s activities, working safely with and around livestock.

Required knowledge:

- principles of organic agriculture, including as they apply to production or amenity horticulture, as well as to agriculture
- safe work practices relevant to the tasks being undertaken, including safe use of tools and equipment
- where appropriate to enterprise's activities, food safety requirements.

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.

**Organic production work** may include assistance with:

- activities associated with organic production such as:
  - harvesting and picking
  - land preparation
  - loading and unloading
  - seeding/planting and maintenance
  - sorting and packing
  - working with livestock
- activities associated with routine maintenance or cleaning of:
  - fences
  - fixtures and fittings
  - sheds and other buildings.
Tools and equipment required for organic production work may include:

- bins and buckets
- boxes
- forks and hoes
- hoses and hose fittings
- knives and secateurs
- ladders
- packing equipment
- spades.

Instructions that can be accessed to clarify procedures include:

- enterprise policies and procedures
- manufacturer instructions
- material safety data sheets (MSDS)
- specifications
- standard operating procedures
- verbal or written instructions from manager or supervisor
- work notes.

Personal protective clothing and equipment may include:

- ear protection
- overalls and gloves
- safety goggles and face masks
- steel capped boots/shoes
- sunhats and sunscreen lotion.

OHS hazards relevant to organic production work may include:

- air
- dust and noise
- hazardous substances
- holes and slippery or uneven surfaces
- livestock
- manual handling
- sharp hand tools and equipment
- soil-borne micro-organisms
- solar radiation.

Workplace information may include:

- enterprise guidelines
- procedures for disposing of waste materials
- verbal or written instructions from supervisor.

Principles of organic agriculture may include:

- demonstrating integrity in organics
- integrating the farm
- learning from nature and human culture
- managing soil to increase the health of the whole system
- reading the landscape
- understanding farm ecology.
Waste material:

• encountered in organic production may include:
  • litter and broken components
  • metal or paper-based materials
  • plant debris
  • plastic

• treatment of waste material may involve:
  • disposal according to enterprise procedures
  • recycling
  • return to manufacturer
  • re-use.

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.

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 principles of organic agriculture to daily work routines
  • follow supervisor instructions
  • follow OHS procedures and, where appropriate, food safety procedures
  • report any variations from required standards or procedures to supervisor.

Context of and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed on an organic farm 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 support organic production. The candidate must also have access to the following resources:

• a farm that is following organic agriculture principles
• personal protective clothing and equipment
• tools and equipment relevant to the tasks undertaken.

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. Assessment should also address understanding and application of the principles of organic agriculture to a variety of work tasks.
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 support organic production must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work on a number of farms producing different commodities or in different agricultural zones.
## RTE2031A Handle and move mushroom boxes

### Unit Descriptor
This unit of competency applies to work in the mushroom industry and specifies the outcomes required to handle and move mushroom boxes as part of the post-harvest process on a mushroom farm. The purpose of the unit is to ensure that picking and packing work proceeds smoothly and efficiently and that mushrooms are handled carefully to maximise quality.

This function is likely to be carried out under routine supervision with some intermittent checking. There will be some responsibility for coordinating own activities with those of others, both in the same team or in another team or work group.

The activities covered in this unit of competency are usually carried out within established routines, methods and farm procedures.

### Employability Skills
This unit contains employability skills.

### Application of the Unit
This unit of competency supports the role of a general assistant or farmhand in a mushroom farming enterprise.

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

### Unit Sector
No sector assigned

### ELEMENT PERFORMANCE CRITERIA

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>PERFORMANCE CRITERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Distribute boxes for filling to picking rooms.</td>
<td>1.1 <em>Materials, tools and equipment</em> appropriate to the task being undertaken are selected, assembled where required, and positioned.</td>
</tr>
<tr>
<td></td>
<td>1.2 Pre-operational and safety checks are carried out on materials, tools and equipment according to manufacturer specifications and <em>farm procedures</em>.</td>
</tr>
<tr>
<td></td>
<td>1.3 Empty boxes are distributed to pickers in a timely and efficient manner to ensure smooth flow of picking work.</td>
</tr>
<tr>
<td></td>
<td>1.4 Personal protective equipment (<em>PPE</em>) and <em>clothing</em> are selected and used.</td>
</tr>
<tr>
<td></td>
<td>1.5 Occupational health and safety (<em>OHS</em>) requirements and hazards associated with the tasks are identified and appropriate action is taken to minimise risks to self and others.</td>
</tr>
<tr>
<td></td>
<td>1.6 Site quarantine protocols and farm and personal hygiene requirements are applied and followed as required by farm procedures and supervisor instructions.</td>
</tr>
<tr>
<td></td>
<td>1.7 All work is performed in an environmentally aware and safe manner according to farm procedures and supervisor instructions.</td>
</tr>
</tbody>
</table>
2. Collect and move filled boxes.

2.1 Collection of filled boxes is coordinated with delivery of empty boxes to minimise trolley trips and ensure smooth flow of picking work.

2.2 Filled boxes are stacked on trolleys to the recommended height.

2.3 Stacked trolleys are moved from picking rooms safely and with consideration for other traffic flow in the area.

2.4 Filled boxes are handled carefully to ensure mushroom quality is maintained.

2.5 Filled boxes are moved in a timely and efficient manner to ensure smooth flow of packing and loading work.

2.6 Filled boxes are stacked in coolroom according to farm procedures.

2.7 Coolroom air and mushroom pulp temperatures are recorded according to farm procedures.

2.8 Variations from expected or required ranges of temperature or any other anomalies observed are reported to supervisor and remedial action is taken as directed.

3. Finalise tasks.

3.1 Trolleys and other equipment are checked, cleaned and returned to store area or positioned for work for next shift.

3.2 Where required, faulty items are reported to supervisor for repair or replacement.

3.3 Daily work records are completed legibly and accurately according to farm procedures.

3.4 Work outcomes are reported to supervisor, feedback on performance is sought, and any required improvements are noted for future action.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- estimating rate at which boxes must be distributed and collected
- estimating when new supplies of boxes will need to be ordered
- following site quarantine procedures, where in place
- giving and receiving information
- tallying and recording data, such as quantities picked
- working as part of a team and with other teams
- using PPE correctly and following farm OHS procedures, including manual handling procedures.

Required knowledge:

- different grades and types of mushrooms
- how to carry out an inventory of mushroom boxes to ensure adequate stocks are available
- how to handle mushrooms to maintain quality and meet food safety requirements
- position and layout of various picking and packing areas in relation to each other and to other parts of the farm.
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.

**Materials, tools and equipment** may include:

- containers
- cutting implements, such as knives and snips
- packaging equipment, such as:
  - grading tools
  - labelling devices
  - lifting aids
  - packing tools
  - pallets
  - scales
  - waste stalk bins
- packaging materials and boxes or other containers, such as:
  - adhesives
  - crates and pre-packs
  - labels
  - pro formas
  - racks
- storage, such as coolrooms and dedicated storage facilities
- trolleys.

The required number of empty boxes is estimated according to:

- orders to be filled (including types and packs)
- particular characteristics of the crop to be picked (such as size, flush and species)
- number of pickers working
- number of rooms to be picked over a shift or a specified period of time.

**Farm procedures** may include:

- enterprise standard operating procedures
- hazard analysis critical control point (HACCP)
- industry best practice guidelines on quality, food safety and hygiene
- legislative and regulatory requirements, such as OHS procedures
- manufacturer service specifications and operator manuals
- post-harvest program or production schedule
- product labels
- material safety data sheets (MSDS)
- routine maintenance schedules
- supervisor's oral or written instructions
- waste disposal, recycling and re-use guidelines
- work notes.
**PPE and clothing** may include:

- aprons
- boots and gloves
- fluoro safety vests
- hats or hair covering
- jackets (for coolroom use)
- overalls.

**OHS requirements** may include:

- appropriate use of PPE
- assessing and reporting risks
- basic first aid
- cleaning, maintaining and storing tools, equipment and machinery
- correct manual handling
- ensuring operational safety exits from coolrooms
- identifying hazards
- maintaining personal hygiene
- reporting problems to supervisors
- safe handling
- safe operation of tools, equipment and machinery.

**OHS hazards** to be anticipated when handling and moving boxes may include:

- chemicals and hazardous substances
- confined spaces
- dust and substrate-borne micro-organisms
- electricity
- machinery and vehicles
- manoeuvring trolleys in a crowded work area
- manual handling
- moving equipment
- noise
- sharp hand tools and equipment
- slippery or uneven surfaces.

Risks may be minimised by:

- wearing appropriate PPE
- using correct manual handling and lifting techniques.
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.

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:

- supply appropriate quantities of empty boxes to mushroom pickers in a number of picking rooms
- collect filled boxes at a rate and in a manner that ensure the continued smooth flow of picking and packing work and that do not impede the movement of other traffic in the area
- handle filled boxes in such a way that mushroom quality is maintained.

Context of and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed on a mushroom farm 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 handle and move mushroom boxes. The candidate must also have access to the following resources:

- boxes to be distributed to pickers and packers
- boxes of mushrooms
- trolleys or racks
- PPE

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 handle and move mushroom boxes must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work on mushroom farms of different sizes, or farms that use different growing systems such as trays, shelves or bags.
RTE2032A Water mushroom crops

Unit Descriptor
This unit of competency applies to work in the mushroom industry and specifies the outcomes required to water mushroom crops using a watering tree or a hand-held hose with attachments. This function is likely to be carried out under routine supervision with some intermittent checking. There will be some responsibility for coordinating own activities with those of others, both in the same team or in another team or work group.

The activities covered by this unit of competency are usually carried out within established routines, methods and farm procedures.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency supports the role of a general assistant or farmhand who has responsibility for watering mushroom crops in a mushroom farming enterprise.

Unit Sector
No sector assigned

ELEMENT

PERFORMANCE CRITERIA

1. Prepare to use watering equipment.

1.1 Watering equipment components are assembled and checked for serviceability, and pre-operational checks are conducted according to farm procedures.

1.2 Watering equipment is connected to water supply.

1.3 Chemicals are added to water according to supervisor instructions and farm procedures.

1.4 Water meter for the area to be watered is read and result is recorded according to farm procedures.

1.5 Rooms that require watering are identified from supervisor instructions.

1.6 Required watering pattern is identified according to supervisor instructions and farm procedures.

1.7 Personal protective equipment (PPE) and clothing are selected and used.

1.8 Occupational health and safety (OHS) hazards associated with watering mushroom crops are identified and appropriate action is taken to minimise the risks to self and others.
2. Operate watering equipment.

2.1 Site quarantine protocols and farm and personal hygiene requirements are applied and followed as required by farm procedures and supervisor instructions.

2.2 Water pressure delivered through the equipment is checked and adjusted to farm standard or manufacturer instructions to ensure correct spray or droplet pattern is achieved throughout the watering operation.

2.3 Water is provided in the correct quantity and pressure and is evenly distributed with minimum waste and minimum adverse environmental impact.

2.4 Faults or variations from required settings or farm quality standards observed at any stage in the process are reported to supervisor and remedial action is carried out as directed.

3. Finalise watering operations.

3.1 Water meter for the area that has been watered is read and actual amount of water used is recorded according to farm procedures.

3.2 Watering equipment is disconnected from water supply and returned to storage area.

3.3 Watering equipment is checked for serviceability for future use and any requirement for maintenance or replacement of equipment or components is reported to supervisor according to farm procedures.

3.4 Work outcomes are reported to supervisor, feedback on performance is sought and any required improvements are noted for future action.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- estimating flow rate of water as delivered by the range of watering equipment in use on mushroom farm
- following farm site quarantine procedures where in place and as required
- giving and receiving information both in writing and orally
- measuring correct doses of additives for water
- organising and manoeuvring watering tree and hose
- recording water use accurately, legibly and in accordance with farm procedures
- using PPE correctly and following farm OHS procedures
- walking at a steady and predictable pace to ensure water is delivered to the mushroom crop at required rate.

Required knowledge:

- basic understanding of effects of water on casing structure, mycelium, yields and quality
- effect on mushrooms of underwatering, overwatering, insufficient evaporation, late watering and moisture imbalance
- factors affecting effective operation of watering tree or other equipment used
- how panning occurs
- 'light', 'medium' and 'heavy' water and when each type is used
- safe and effective use of fungicides and other water additives.
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.

**Watering equipment used in mushroom production** may include:
- additive dosing meters
- hand-held hoses fitted with watering roses
- watering trees and associated components, such as:
  - arms
  - bars
  - filters
  - hoses
  - nozzles
  - wheels.

**Farm procedures** may include:
- enterprise standard operating procedures
- hazard analysis critical control point (HACCP)
- industry best practice guidelines on quality, food safety and hygiene
- legislative and regulatory requirements, such as OHS procedures
- manufacturer service specifications and operator manuals
- post-harvest program or production schedule
- product labels
- material safety data sheets (MSDS)
- routine maintenance schedules
- supervisor’s oral or written instructions
- waste disposal guidelines
- work notes.

**Chemicals** that may be added to the water supply include:
- additives that help to control disease and improve mushroom quality, such as:
  - hypochlorite
  - stabilised chlorine dioxide.

**PPE and clothing** may include:
- aprons
- boots
- fluoro safety vests
- gloves
- hats or hair covering
- overalls
- respiratory protection
- waterproof jackets.
**OHS hazards** to be anticipated when watering mushroom crops may include:

- exposure to concentrated additives and vapours
- wet floors.

Risks may be minimised by:

- following farm procedures
- wearing appropriate PPE.

**Environmental impact of watering** may include:

- unnecessary watering
- waste of water through overwatering.

**Remedial action** may include:

- arrangements for urgent maintenance or short-term repairs for non-serviceable equipment
- checks of machinery and equipment where processes do not comply with farm standards
- following directions from the supervisor or manager.

**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.

**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:

- set up and use watering equipment safely and effectively
- supply specified quantities of water to mushroom crops evenly throughout the room
- record amounts of water supplied to various mushroom crops according to farm procedures.
Context of and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed on a mushroom farm or in a situation that reproduces normal work conditions.

For valid assessment, one must have opportunities to participate in a range of exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge required to water mushroom crops. The candidate must also have access to the following resources:

- copies of farm procedures and work instructions (or samples)
- mushroom crops requiring watering
- watering equipment connected to a water supply
- additives
- PPE.

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, such as RTC2706A Apply chemicals under supervision.

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 water mushroom crops must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within mushroom farms using different growing equipment such as trays, shelves or bags or using a variety of watering equipment.
RTE2033A Carry out post-harvest operations

Unit Descriptor

This unit of competency specifies the outcomes required to carry out routine postharvest operations in a horticultural enterprise. It covers the grading, labelling, treatment and weighing of harvested produce, packing procedures and correct delivery and storage of harvested produce.

Post-harvest operations are likely to be carried out under routine supervision with intermittent checking. Responsibility for some roles and coordination within a team may be required. Post-harvest operations are usually carried out within established routines, methods and procedures. Competency at this level requires the application of knowledge and skills to a range of post-harvest tasks and roles.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit applies to post-harvest operations in large or small enterprises which may produce any of a wide variety of crops, including those intended for human consumption.

Where work requires the use of load-shifting equipment, appropriate training/certification is required.

Unit Sector

No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare for post-harvest operations.

1.1 Post-harvest operations to be performed and **client specifications** are identified according to **enterprise work procedures**.

1.2 **Materials, tools, equipment and machinery** appropriate to the task being undertaken are selected.

1.3 Pre-operational and safety checks are carried out on tools, equipment and machinery according to manufacturer specifications and enterprise work procedures.

1.4 Where applicable to crop under cultivation, hazard analysis critical control point (HACCP) and food safety requirements are complied with.

1.5 Occupational health and safety **(OHS) hazards** are identified, and risks are assessed and reported to supervisor.

1.6 Suitable personal protective equipment (PPE) is selected, used and maintained.

1.7 All work is performed in an environmentally aware and safe manner according to enterprise procedures.

1.8 Site quarantine protocols, and farm and personal hygiene requirements, are applied and followed as required by enterprise procedures and supervisor instructions.
2. Transport harvested produce.

2.1 Safe manual handling techniques are employed when handling containers.

2.2 Field handling practices are conducted in a way that minimises damage to harvested produce.

2.3 Temperature of harvested produce is maintained at levels set by industry and enterprise work procedures.

2.4 Produce is transported with due care from field to post-harvest processing or storage area.

2.5 Containers are maintained according to enterprise requirements.

3. Grade, label, treat, weigh and pack produce.

3.1 Harvested produce is graded and labelled according to client specifications and enterprise work procedures.

3.2 Post-harvest treatments are applied to produce according to enterprise work procedures and industry best practice.

3.3 Post-harvest practices are economical, methodical, meet established work schedules and minimise damage to produce.

3.4 Post-harvest operations are undertaken according to OHS requirements.

3.5 Tools, equipment and machinery are cleaned and maintained according to enterprise work procedures.

3.6 Quality parameters of produce and specifications for packaging materials, containers, filling techniques and labelling of packed produce are identified and confirmed according to enterprise work procedures.

3.7 Correct packaging materials and containers for specific produce are selected.

3.8 Filled containers are weighed, weight recorded and repacked to correct weight, if required.

3.9 Correct filling techniques for specific containers and produce are used to fill and arrange produce within containers according to client specifications, enterprise work procedures and industry best practice.

3.10 Where required, wraps and lids are applied and containers are labelled according to client specifications, enterprise work procedures and industry best practice.

4. Store produce in a facility.

4.1 Containers are placed onto pallets or racks to ensure stability and optimum airflow.

4.2 Pallets or racks are transported to, and arranged in, storage facility according to enterprise work procedures.

4.3 Storage facility monitoring gauges are read accurately and efficiently with abnormal readings reported to supervisor.

4.4 Condition of stored produce is checked and damaged produce and containers are removed from storage facility according to enterprise work procedures.

4.5 Storage facility and packing containers are cleaned to a level of hygiene acceptable to enterprise and industry standards, without damaging monitoring or refrigeration equipment.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• communicating orally with team members and supervisors
• correctly disposing of chemical and hazardous substances, their containers and other waste materials to minimise environmental impact
• counting and calculating quantities, treatment application rates and storage requirements
• interpreting and confirming information from chemical labels, material safety data sheets (MSDS), work instructions and enterprise work procedures
• participating in teams and contributing to team objectives
• recording information about work activities on pro formas.

Required knowledge:

• attributes of enterprise produce in relation to desired quality of produce to be presented to client
• characteristics and procedures for the use of coolrooms
• cool chain principles and practices
• correct storage temperatures for a range of enterprise produce
• environmental effects of post-harvest treatments
• how to dispose of waste materials to minimise damage to external environment
• humidity levels and their effect on quality of enterprise produce
• hygiene issues in the handling and storage of plant produce
• importance of maintaining quality of produce, including handling and cooling requirements
• industry standards for packaging
• relationship between quality attributes of produce and packing techniques and packaging
• storage methods relevant to different enterprise produce.
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.

Client specifications that affect post-harvest operations include:

- process specifications such as:
  - preferred packaging materials/containers and filling techniques
  - labelling and storage requirements from field to client
  - quality, grading and plant produce specifications
- variables subject to seasonal and market forces such as:
  - bud count and health
  - colour
  - maturity and ripeness
  - moisture content and texture
  - shape and size
  - skin condition and blemishes
  - variety
  - weight and length.

Enterprise work procedures may include:

- industry best practice guidelines on quality, food safety and hygiene
- manufacturer service specifications and operator manuals
- OHS procedures
- procedures based on sound horticultural principles and practices such as:
  - enterprise standard operating procedures
  - post-harvest program or production schedule
  - routine maintenance schedules
  - supervisor's oral or written instructions
  - work notes
- product labels
- MSDS
- productivity rates required by the enterprise
- waste disposal, recycling and re-use guidelines.
Materials, tools, equipment and machinery used to carry out post-harvest operations may include:

- materials and consumables such as:
  - cleaning agents
  - containers
  - gases
  - labels and adhesives
  - packaging materials
  - preservatives and chemicals
  - pro formas
- basic tools such as:
  - labelling devices
  - packing tools
  - scales
  - snips and knives
- equipment and machinery such as:
  - chemical applicators
  - forklifts
  - gassing chambers
  - grading machinery
  - hand trolleys and lifting aids
  - light trucks
  - pallets
  - tractors and trailers
  - washers, brushes and dryers
  - storage such as coolrooms and dedicated storage facilities.

OHS hazards associated with carrying out post-harvest operations may include:

- chemicals and hazardous substances
- confined spaces
- dust and pollen
- incorrect manual handling
- moving equipment, machinery and vehicles
- noise
- sharp hand tools and equipment
- slippery or uneven surfaces
- soil-borne micro-organisms
- solar radiation
- wet working environment, including electricity.

PPE required when carrying out post-harvest operations may include:

- face guard and goggles
- hard hats
- boots and gloves
- hearing protection
- jackets (for coolroom use)
- overalls and aprons
- respirators or face masks
- spray clothing
- sunscreen lotion
- waterproof clothing.
Field handling practices employed to minimise damage to produce may include:

- correctly stacking containers on transport to reduce the risk of bruising, squashing or damaging produce
- lifting rather than dragging containers to avoid contact with dirt
- observing fill level of containers
- smoothly transporting harvested produce to post-harvest processing or storage facility.

Produce requiring post-harvest operations may include:

- bulbs
- flowers and foliage
- fruit
- herbs
- mushrooms
- nuts
- tubers
- vegetables
- wild harvest plants and oils.

Temperature of harvested produce may be maintained in the field and upon delivery at the post-harvest processing or storage area by:

- placing in a shed
- storing in the shade, in water-filled or covered containers in the field
- temperature-controlled environment such as:
  - forced air coolrooms for table grapes
  - hydro coolrooms for stone fruit
  - vacuum coolrooms for mushrooms.

Harvested produce is transported from the field to the post-harvest processing area by:

- forklift
- tractor
- trailer
- truck.
- Team members involved in the operation of vehicles should comply with operator manuals, and enterprise work and OHS procedures.
Produce may be graded by:

• checking with supervisor
• hand or mechanical techniques
• removing out-of-type plants or physically damaged, unhealthy, rotten or immature produce (any rejected produce should be disposed of according to enterprise procedures)
• selecting characteristics influenced by seasonal and market forces such as:
  • bud count
  • colour
  • health
  • maturity
  • moisture content
  • ripeness
  • shape, size, weight and length
  • texture, skin condition and blemishes
  • variety.

Post-harvest treatments may include:

• applying fungicides and insecticides by spraying or dipping
• applying preservatives
• brushing
• drying
• observing quarantine requirements
• removing dirt and foreign material
• ripening or de-greening with ethylene gas
• storing in a controlled environment
• stripping excess leaves and/or trimming
• washing/hydration
• waxing and polishing.

Enterprise work procedures at this stage of the operation may cover:

• disposal of rejected produce
• disposal of waste material such as:
  • broken components and packaging
  • chemical containers
  • chemicals and hazardous substances used in post-harvest treatments
  • litter
  • plant debris
  • processing and cleaning water run-off
• removal of waste to designated areas for recycling, re-use, disposal or return to manufacturer.

Post-harvest practices employed to minimise damage to produce may include:

• arranging produce and packing instructions for containers
• correctly stacking containers on transport
• cutting fingernails
• maintaining sharp tools
• observing fill heights
• placing rather than dropping produce into containers
• wearing gloves.
OHS requirements may include:

- appropriate use of PPE
- assessing and reporting risks
- basic first aid
- cleaning, maintaining and storing tools, equipment and machinery
- correct manual handling
- ensuring operational safety exits from coolrooms and gassing chambers
- identifying hazards
- maintaining personal hygiene
- reporting problems to supervisors
- safe handling, use and storage of chemicals and hazardous substances
- safe operation of tools, equipment and machinery.

Containers used for packing produce may include:

- boxes and cartons
- bulk bins
- customised packaging
- net bags
- pre-packs
- trays and crates.

Information included in produce labelling may include:

- container number
- packing date
- produce details such as:
  - grade
  - number
  - origin
  - variety
  - weight
- producer details
- quality assurance and handling instructions.

Storage facilities used to store produce may include:

- coolrooms of various sorts depending on type and suitability of produce being stored
- storage sheds
- coolroom environmental conditions, including:
  - humidity
  - light
  - temperature.

Procedures used to ensure storage facilities and containers are adequately cleaned include:

- techniques to ensure dust, pests, diseases and waste material are removed, such as:
  - dusting
  - fumigating
  - sterilising
  - sweeping
  - washing
- techniques to ensure a level of hygiene that protects the quality and health status of stored produce.
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.

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 transport, grade, treat, pack and store harvested produce according to market requirements and industry and enterprise standards.

Context of and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in the workplace or in a situation that reproduces normal work conditions.

For valid assessment, one must have opportunities to participate in a range of exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge required to carry out post-harvest operations.

The candidate must also have access to the following resources:

• produce to be graded
• containers
• scales or other measuring or grading equipment appropriate to the crop
• customer specifications
• PPE.

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 such as:

• RTC2309A Operate tractors
• RTC2706A Apply chemicals under supervision
• TDTD1097A Operate a forklift.

Assessment should also provide opportunities to address compliance with enterprise and industry quality assurance requirements and, where applicable, food safety requirements.
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 carry out post-harvest operations must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work on a property growing different types of crops or handling produce for different customers.
RTE2113B Monitor livestock to parturition

This unit of competency specifies the outcomes required to monitor animal health, wellbeing and welfare during gestation.

Competency requires the application of knowledge and skills to observe livestock health and wellbeing from joining and to maintain appropriate nutritional and environmental requirements. The work is likely to be carried out under routine supervision within enterprise guidelines.

Pregnancy testing of animals is covered by other units of competency.

**Employability Skills**

This unit contains employability skills.

**Unit Sector**

No sector assigned

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**ELEMENT PERFORMANCE CRITERIA**

1. Check health status of animals.
   - 1.1 *Condition and health status of animals* is checked and confirmed against enterprise health strategies and records.
   - 1.2 Signs of poor health and condition or abnormal behaviour are recognised and reported to the supervisor for remedial action.
   - 1.3 *Preventative health treatments* are arranged and administered according to manufacturer specifications and the supervisor’s instructions.
   - 1.4 Existing and potential *hazards* in the workplace are identified and risk is assessed and controlled according to OHS requirements.
   - 1.5 *Environmental implications* associated with production are identified, assessed and reported to the supervisor.

2. Identify pregnant animals
   - 2.1 Animals are identified and separated on basis of *pregnancy* status according to enterprise guidelines.
   - 2.2 Dry animals are identified and *procedures* implemented according to *enterprise requirements*.
   - 2.3 Additional assistance required for assessing pregnancy status is reported to the supervisor for remedial action.

3. Feed pregnant animals.
   - 3.1 *Nutritional needs* of pregnant animals are identified and confirmed against the *feeding plan* according to enterprise requirements.
   - 3.2 Animals with special feeding needs are identified and given preferential feeding, and are recorded according to enterprise requirements.
   - 3.3 *Supplementary feeding* is implemented as required and recorded according to enterprise requirements.
   - 3.4 A *safe and secure environment* for pregnant animals is maintained according to enterprise requirements.
   - 3.5 *Handling* is conducted with minimum stress and discomfort to the animals without excessive yarding or shedding according to animal welfare and enterprise requirements.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- administer preventative health treatments
- calculate animal numbers, measure feed, assess rate and frequency of feeding, and calculate animal gestation
- carry out basic repairs to paddocks, shelter, and housing
- communicate orally and in writing animal behaviour and identified abnormalities
- control environmental impacts associated with animal production
- dispose of sharps, other contaminated items and unused prepared chemicals or medication safely and in an environmentally correct manner
- handle pregnant animals with due care
- observe and accurately report animal behaviour
- observe local climatic conditions.

Required knowledge:

- effects of adverse weather conditions and inadequate nutrition on pregnant animals and their newborn
- effect of local climatic conditions on the timing of shearing, separating and transporting pregnant animals
- environment codes of practice with regard to animal production
- handling techniques for dry and pregnant animals
- health and nutritional requirements for pregnant animals
- housing requirements for intensively produced animals
- livestock identification methods
- OHS and animal welfare legislative requirements
- pregnant animals behaviour and abnormalities
- pregnancy checking and confirmation procedures (including scanning)
- preventative health treatments, procedures and methods.

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.

What aspects of animals' condition and health status might be assessed?

This may include weighing and condition scoring, the presence of flystrike, pregnancy toxaemia, any occurrences of abortion, identifying animals in oestrus, and the observation of general condition, animal soundness and wellbeing.

Which animals are covered?

Animals covered may include cows and heifers (beef and dairy cattle), ewes (sheep), alpaca, does (goats), and brood mares (horses), pigs (sows and gilts).
What relevant information may be detailed in records?

Relevant information may include current and historical details of condition and health status, feeding plan including supplementary feeding requirements, administered health treatments, pregnancy status (including estimated date of birthing, parentage identification), pedigrees, and stud book entries. Relevant information may also include the number of pregnant animals in enterprise, the number of abortions, newborn deaths, twins, multiple births, assisted births and predator attacks.

What remedial action might be taken?

This may include sourcing advice and information from veterinary professionals, and the Departments of Agriculture and Primary Industries.

What preventative health treatments might be administered?

Vaccinations, drenching, and blowfly control for sheep.

Which existing and potential hazards may be encountered in the workplace?

Animal movement and handling, solar radiation, organic and other dusts, excessive noise, hazardous substances (veterinary chemicals), moving machinery and vehicles.

Which OHS requirements may be relevant?

Safe systems and procedures for:

- animal handling including zoonoses control (Q Fever, leptospirosis)
- hazard and risk control
- manual handling including lifting
- horse and working dog handling
- the operation of motorcycles and other vehicles
- handling, application and storage of hazardous substances (drenches, vaccines)
- safe and environmentally correct disposal of unused prepared chemicals or medications, sharps and other contaminated items
- protocols for notification of needle stick injuries
- outdoor work including protection from solar radiation, dust and noise
- the appropriate use and maintenance of personal protective equipment.

Which environmental implications may be associated with production?

Negative environmental impacts may result from the unsafe use and disposal of veterinarian chemicals. Impacts may also result from high concentrations of animals, particularly in holding or confined areas, causing odours, 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.
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>How might pregnancy be determined in animals?</td>
<td>This may include conducting pregnancy ultrasound scanning, or the observation of typical signs of pregnancy.</td>
</tr>
<tr>
<td>Which enterprise procedures might apply to dry animals?</td>
<td>This may include rejoining procedures or being run separately.</td>
</tr>
<tr>
<td>Which enterprise requirements may be applicable?</td>
<td>Standard operating procedures (SOPs), industry standards, enterprise quality assurance manual, 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.</td>
</tr>
<tr>
<td>How might the nutritional needs of pregnant animals vary?</td>
<td>This may depend on the breed, weight and condition of the animals, stage of pregnancy, number of embryos, condition of pasture and weather conditions.</td>
</tr>
<tr>
<td>What might be included in a feeding plan?</td>
<td>Target weights, amount and type of feed, feed supplements or trace element nutrition requirements, feeding frequency and rates, feeding methods and procedures, weed control strategy, supervisors instructions, reporting and recording requirements.</td>
</tr>
<tr>
<td>What type of feed supplements might be provided?</td>
<td>Hay, grain, predetermined rations, trace elements, vitamins and sources of nutrients including silage, paddock feed, grain legumes, mineral blocks, protein meals, calcium and other nutrient supplements, and specific purpose feeds.</td>
</tr>
<tr>
<td>What provisions might be made for a safe and secure environment for animals?</td>
<td>This may include the provision of paddocks and yards suitable to the size of the herd/flock with secure fencing, farrowing housing, the provision of a safe and predator-free environment, the provision of shelter and housing for protection against adverse weather conditions, and the availability of adequate and clean feed and water supplies.</td>
</tr>
<tr>
<td>How might animals be appropriately handled?</td>
<td>Procedures may include the appropriate use of handling equipment with minimum force, a reasonable amount of time for animals to complete movement, and the use of positive and calming techniques to foster the physical and mental wellbeing of animals. Dogs may also be used to assist in the controlling and directing of animals.</td>
</tr>
</tbody>
</table>
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.

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

Competence in this unit requires evidence of the ability to effectively observe and report animals' condition, health and behaviour during gestation, and maintain nutritional requirements. In addition, it requires the ability to recognise and report abnormalities for remedial action and to provide a safe and secure environment for the promotion of the welfare and wellbeing of pregnant animals through to birthing.

Evidence must also be demonstrated in the employment of positive environmental, safe workplace practices and humane animal handling methods.

The skills and knowledge required to monitor animals to parturition must be transferable to another rural workplace. For example, if competence is evident in providing and maintaining appropriate nutritional and environmental requirements for cows during gestation, it should also be evident in providing care for pregnant sheep and goats.
What processes should be applied to this unit of competency?

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 unit of competency.

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.

- How can communication of ideas and information (1) be applied?
  - Animals’ abnormal behaviour may be observed and accurately reported to the supervisor for remedial action.

- How can information be collected, analysed and organised (1)?
  - Details of animals’ condition and health status, gestation, and feeding routines may be observed and monitored for analysis and organised by records and reports.

- How are activities planned and organised (1)?
  - Animal monitoring activities may be planned and organised to ensure regular and effective observation.

- How can team work (1) be applied?
  - Team work may be applied in methods and procedures for handling animals to administer preventative health treatments.

- How can the use of mathematical ideas and techniques (1) be applied?
  - Mathematics may be applied to calculate gestation periods, and to measure feed and feed supplements provisioning.

- How can problem-solving skills (1) be applied?
  - Animal feeding abnormalities may require remedial action to maintain adequate nutrition ingestion.

- How can the use of technology (1) be applied?
  - To communicate, calculate and record animal gestation data.
Are there other units of competency that could be assessed with this one?

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

There is essential information about assessing this unit of competency for consistent performance and where and how it may be assessed, in the Assessment Guidelines for this Training Package. All users of these units of competency must have access to the Assessment Guidelines. Further advice may also be sought from the relevant sector booklet.
RTE2124B Carry out birthing duties

Unit Descriptor
This unit of competency specifies the outcomes required to care for and assist animals and their newborn at birthing. Competency requires the application of knowledge and skills to provide and maintain nutritional and environment requirements for birthing animals. In addition, it requires an awareness of safe workplace practices, legislated animal welfare requirements, and environmental implications associated with animal production. The work would be carried out under routine supervision within established enterprise procedures.

Employability Skills
This unit contains employability skills.

Unit Sector
No sector assigned

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>PERFORMANCE CRITERIA</th>
</tr>
</thead>
</table>
| 1. Prepare for birthing. | 1.1 *Animal records* are checked and anticipated birthing date confirmed.  
1.2 *Condition and status* of pregnant *animal* is assessed and monitored prior to *imminent birthing* and recorded in line with *enterprise requirements*.  
1.3 Animals are *prepared* for birthing in accordance with *birthing plan* and enterprise requirements.  
1.4 Birthing *equipment, resources and materials* are checked and prepared for use to manufacturer specifications and enterprise requirements.  
1.5 Existing and potential *OHS hazards* in the *birthing environment* are identified and reported to the supervisor. |
| 2. Assist with birthing process. | 2.1 Environment and animals are monitored to maintain *optimum conditions* during birthing process in accordance with enterprise requirements.  
2.2 Animals experiencing birthing difficulties are identified and *contingency* measures for assistance implemented.  
2.3 *Environmental implications* associated with animal husbandry practices are identified and reported to the supervisor. |
| 3. Provide post-birthing assistance. | 3.1 *Post-birthing condition* of animals and newborn is monitored and reported in line with enterprise requirements.  
3.2 Birthing environment, facilities and equipment are maintained in a safe, hygienic and operational state and faults are reported in line with enterprise requirements.  
3.3 Animal birthing process and outcomes are recorded and reported in accordance with enterprise requirements. |
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

Required skills include:

- apply contingency measures for birthing in the event of birthing difficulties or adverse weather conditions
- assess and calculate animal numbers, feed measurement, rate and frequency of feeding, and animal gestation
- carry out animal husbandry procedures
- clean, maintain and store equipment and materials
- communicate abnormalities, equipment faults and workplace hazards, and report and maintain animal records
- demonstrate safe and environmentally responsible workplace practices
- identify hazards in the birthing environment
- maintain a safe and secure post-birthing environment
- monitor animal condition and recognise abnormal behaviour
- monitor and minimise impacts to the environment associated with animal production
- prepare birthing environment, materials and resources to industry standards
- provide due care and handle animals humanely
- provide feed and feed supplements to meet nutritional needs of pregnant animals as directed
- recognise abnormalities in newborn animals
- recognise signs of imminent birthing of animals
- safely implement predator control strategies
- select birthing equipment and materials and check for operation

Required knowledge:

Required knowledge and understanding include:

- animal behaviour and basic health and nutritional requirements as directed
- birthing environment requirements for animals
- birthing equipment and materials, their components and functions
- birthing intervention and non-intervention strategies
- effects of adverse weather conditions on birthing process and newborn animals
- effects of inadequate nutrition on animals and newborn
- enterprise policies with regard to treating animals, recording and reporting routines
- environmental impacts and minimisation measures associated with animal production
- hazards associated with handling animals
- livestock gestation and birthing and husbandry procedures
- personal protective clothing and equipment, and when and how it should be used
- problems associated with birthing and remedial treatment
- procedures for cleaning and maintaining treatment equipment and materials
- predator behaviour and control procedures
- relevant State/Territory legislation, regulations and codes of practice with regard to workplace OHS and animal welfare.
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.

What type of information may be included in animal records? Estimated date of birthing, parentage identification, pedigrees, stud book entries, nutritional requirements, feeding plan, administered health treatments, number of pregnant animals in enterprise, abortions, newborn deaths, twins/multiple births, still births, mummified foetuses, assisted births and predator attacks.

What aspects of condition and status may be assessed prior to birthing? Weighing and condition scoring, general observation of behaviour and health soundness including feeding behaviour.

Which animals are covered? Animals covered by this unit of competency may include pigs, horses, goats, alpaca, sheep, dairy and beef cattle.

How may imminent birthing be anticipated in animals? Animal records (estimated gestation period), and general observation of full udder, waxing of teats, running milk, unusual restlessness, relaxed muscles and ligaments under tail, flaccid vulva, ‘water’ bursts, appearance of amnion bag, frequent trips to the dung pile and changes in behaviour such as humming, sitting on one hip or adopting an unusual posture.

Which enterprise requirements may apply? Standard Operating Procedures, industry standards, production schedules, Material Safety Data Sheets, work notes, product labels, manufacturers specifications, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), OHS procedures, supervisors oral or written instructions, and birthing plan.

What may be involved in preparing animals for birthing? Shearing and crutching (sheep/goats), application of tail bandaging (horses), monitoring of contractions, vaccinations, predator watch and control, providing calming techniques where required, moving males out of the paddock, and weaning previous young.

What may be included in a birthing plan? Animal placements, penning/yarding of animals, mismothering policy, drafting policy of wet cows, human resource requirements, policy for assisting difficult births, the use of veterinary assistance, identification of newborn animals (to keep, to dispose of, to remove for artificial rearing), policy for monitoring newborn animals, and the treatment of carcasses.
What range of equipment, resources and materials may be prepared for use at birthing?

Equipment may include lubricating oil, teats, binoculars, restrainers, scales, ear tags, temporary collars, marking paint, examination gloves, antiseptic and knives, digital thermometer, surgical clamps, bottles, stomach tube (for veterinary use) and colostrum replacer.

Preparation of equipment may include checks for faults and correct operation. Materials may include animal health treatments, gloves and suturing material. Resources may include staff assistance, and sourced industry information from the Departments of Agriculture/Primary Industries, veterinarians, breeding associations, and enterprise records.

Which OHS requirements may be applicable?

These may include:

- safe animal handling techniques and procedures to avoid physical injury and zoonoses, including Q Fever and leptospirosis
- identifying hazards, assessing and reporting risks
- meeting industry standard hygiene requirements
- adopting suitable precautions for outdoor work including protection from solar radiation, protection from dust, and the appropriate use of personal protective clothing and equipment.

Which potential and existing OHS hazards may be encountered in the workplace?

Animal movement and handling, solar radiation, organic dust, excessive noise, predator activity and adverse weather conditions.

What range of animal birthing environments are relevant?

Paddocks, yards or pens (cows, does, sheep and alpaca), foaling areas (horse), and farrowing crates (sows).

What range of optimum conditions should be maintained?

Adequate clean water, feed and nutrition supplies, appropriate hygienic standards, security and safety (fencing, predator activity, lamb/kid/calf proof water troughs and away from large open water sources such as dams or creeks), shelter (weather protection), shade, appropriate heating and cooling systems, control and restraint of working dogs, and minimise stress in and around birthing area. Opportunities for natural birthing should be provided wherever possible.

What contingencies may be prepared for in the event of birthing difficulties?

Emergency procedures in the event of bad weather and birthing difficulties requiring human intervention, such as colostrum collection and administering, assistance with birthing, resuscitation of animals and veterinarian assistance.
Which **environmental implications** may be relevant?

Negative environmental impacts may result from the unsafe use and disposal of veterinary chemicals and disposable items, the loss of ground cover, increased run-off flows, soil disturbance, pugging, dust problems, weed seeds in animal manure, contamination of ground and surface water supplies, and odours as a result of high density animal activity in holding or confined areas.

What **post-birthing conditions** may be monitored?

Animal milk supply, mothering ability, non-milking teats, harmful behaviour towards newborn animals by parent, abnormal signs, prescribed medications, expulsion of afterbirth membranes, post-birthing environment conditions, and predator movement.

**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.

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

Competence in this unit requires evidence of the ability to assist birthing animals and perform animal husbandry procedures. It involves the ability to monitor and record the health status of birthing animals, prepare the birthing environment and equipment to industry standards, provide appropriate nutritional requirements, minimise stress in the birthing area, humanely handle animals, monitor post-birthing animals and their newborn, and maintain enterprise records. Evidence must also be demonstrated in the employment of safe workplace and environmentally responsible practices associated with animal husbandry.

The skills involved in carrying out birthing duties with animals should be **transferable** to another rural workplace. For example, if competence is demonstrated in caring for and assisting cows at birthing, it should also be evident in carrying out birthing duties for ewes, does, horses and pigs.
What processes should be applied to this unit of competency?

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 unit of competency. 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.

- How can communication of ideas and information (1) be applied?
  - Information and ideas with regard to the birthing process and birthing difficulties may be discussed with colleagues and veterinarians.
- How can information be collected, analysed and organised (1)?
  - Information with regard to the gestation of animals may be observed, monitored, and recorded and organised by reports.
- How are activities planned and organised (1)?
  - Maintenance activities to the birthing environment may be planned and coordinated around feeding routines.
- How can team work (1) be applied?
  - In the application of methods and procedures to handle animals to achieve a successful birthing.
- How can the use of mathematical ideas and techniques (1) be applied?
  - Mathematics may be applied in the measurement of feed and water quantities, and the calculation of animal (including newborn) numbers, feed frequency rates and gestation period.
- How can problem-solving skills (1) be applied?
  - Contingencies may be applied in the event of adverse weather conditions and birthing difficulties to ensure a successful birthing process.
- How can the use of technology (1) be applied?
  - To access information, record information, to communicate and inform on the birthing process, to anticipate duration of gestation, and to monitor substantial weather changes.
Are there other units of competency that could be assessed with this one?

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

There is essential information about assessing this unit of competency for consistent performance and where and how it may be assessed, in the Assessment Guidelines for this Training Package. All users of these units of competency must have access to the Assessment Guidelines. Further advice may also be sought from the relevant sector booklet.
RTE2128B Provide feed for livestock

**Unit Descriptor**
This unit of competency specifies the outcomes required to prepare and provide feed for livestock in an extensive agricultural environment. It requires the application of knowledge and skills to check livestock condition, assess feed availability and provide supplementary feeding where required, and report and maintain records. In addition, it requires an awareness of animal welfare and behaviour, and safe workplace and sustainable environmental practices associated with livestock production. The work is likely to be carried out under close supervision with regular checking within enterprise guidelines.

**Employability Skills**
This unit contains employability skills.

**Unit Sector**
No sector assigned

### PERFORMANCE CRITERIA

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>PERFORMANCE CRITERIA</th>
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| 1. Prepare for feeding. | 1.1 *Condition and health status of livestock* is checked and recorded in line with *enterprise requirements*.  
1.2 *Feed and feed supplements* are confirmed and prepared in line with *feeding plan*.  
1.3 *Water supply, quality and quantity* is checked and maintained to meet livestock requirements and enterprise requirements.  
1.4 Existing and potential *OHS hazards* in the workplace are identified and reported to the supervisor. |
| 2. Feed livestock | 2.1 Suitable *personal protective clothing and equipment* is selected, used and maintained in accordance with OHS requirements.  
2.2 Feed and feed supplements are provided in accordance with feeding plan and enterprise requirements.  
2.3 Feeding process is monitored to ensure livestock are feeding effectively in accordance with feeding plan.  
2.4 *Procedures* to minimise feed wastage and spillage, and dispose and recycle feed waste are followed in line with enterprise requirements.  
2.5 Variations to individual eating and drinking patterns are noted and reported. |
| 3. Complete the feeding process. | 3.1 Feeding process is evaluated and recorded in accordance with workplace procedures.  
3.2 Feeding is recorded and reported to the supervisor in line with enterprise requirements.  
3.3 A clean and safe area is maintained during and on completion of feeding in accordance with OHS and enterprise requirements. |
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

Required skills include:

- assess and calculate herd/flock numbers, measure feed and rate and frequency of feeding.
- communicate and report livestock feeding abnormalities and workplace hazards, and maintain livestock records
- employ safe and environmentally responsible systems and procedures with regard to the handling of livestock and feed
- monitor availability of and access to feed and water
- monitor livestock health and condition, and recognise abnormalities
- provide feed and feed supplements in accordance with feeding plan
- read and interpret feeding plan, work plan and supervisors instructions
- recognise and report environmental implications associated with livestock production

Required knowledge:

Required knowledge and understanding include:

- enterprise policies with regard to feeding livestock, recording and reporting routines
- environmental impact of livestock on ground cover and minimisation measures
- hazards associated with handling livestock and control measures
- how to introduce a change in diet or feed,
- livestock health and behaviour
- livestock scoring and weighing methods
- nutritional requirements for livestock (including water)
- personal protective clothing and equipment and when and how it should be used
- safe livestock handling techniques and procedures
- State/Territory legislation, regulations and codes of practice with regard to OHS and animal welfare
- types of feed and feed supplements (including pastures and grazing)
- types of noxious and toxic plants relevant to feeding areas and the species of animal.

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.

How might livestock condition and health status be checked?

Condition may be checked by weighing and condition scoring, and health status may be determined by general observation of animal soundness and well being.

What livestock are covered?

Animals covered by this unit of competency may include sheep, dairy and beef cattle, horses, goats, deer and alpacas.
Which **enterprise requirements** may apply?

Standard Operating Procedures, industry standards, production schedules, work notes, product labels, manufacturers specifications, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), OHS procedures, supervisors oral or written instructions, work and feeding plans.

What type of **feed and feed supplements** may be checked and provided to livestock?

Feed and feed checks may include identifying species of grass/legume, quantity of feed, quality of feed, the incidence of toxic species and weeds, and checking for cleanliness and freshness including the removal of stale or contaminated food.

Feed supplements may include hay, grain, trace elements, vitamins and sources of nutrients including silage, paddock feed, grain legumes, mineral blocks, calcium and other nutrient supplements, and specific purpose feeds. Supplementary feeding may be required to cover seasonal, drought or other feed shortages and trace element deficiencies.

What might be included in a **feeding plan**?

Target weights, amount and type of feed and feed supplements, how to introduce livestock to supplementary feeding, how to introduce a change in diet or feed, feeding frequency and rates, feeding methods and procedures, weed control strategy, supervisors instructions, and reporting and recording requirements.

What might be included in checking **water supply, quality and quantity**?

This may include the observation of availability, quantity, reserves, flow rate, serviceability, number of livestock using water point, the presence of algal bloom, contamination, signs of deterioration, and checking water supply sources and systems for correct operation.

Checks must also be made to ensure that water is supplied to livestock in a manner and at a height that allow safe ease of access by all livestock (e.g. ensuring that young/small animals are able to drink freely).

Which **OHS requirements** may be applicable?

Safe livestock handling systems and procedures including zoonoses (Q Fever), identify hazards and report risks, safe manual handling systems and procedures, safe livestock handling procedures, safe systems and procedures for handling and storage of grain and feed to reduce risk associated with organic and other dusts, safe systems and procedures for outdoor work including protection from solar radiation, protection from dust, and the appropriate use of personal protective clothing and equipment.

Which existing and potential and **hazards** may be encountered in the workplace?

Livestock movement and handling, solar radiation, organic and other dusts, excessive noise, and moving machinery and vehicles.
<table>
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<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What personal protective clothing and equipment may be relevant?</strong></td>
<td>Boots, overalls, gloves, protective eyewear, hearing protection, respirator or face mask, and sun protection (sun hat, sunscreen).</td>
</tr>
<tr>
<td><strong>What procedures might be implemented to minimise feed wastage and spillage?</strong></td>
<td>The accurate measurement of feed quantities, the use of precise measurement devices and apparatus, and the accurate determination of livestock feed requirements.</td>
</tr>
<tr>
<td><strong>What feeding abnormalities may be observed?</strong></td>
<td>This may include the general observation of sick animals, shy feeders, weight loss, scouring, greedy (bossy) feeders, and ill thrift.</td>
</tr>
</tbody>
</table>

**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.

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

Competence in feeding livestock requires evidence of the ability to follow a feeding plan accurately to meet the nutritional requirements of livestock. It involves the ability to monitor and record livestock condition, apply methods and procedures to provide feed and feed supplements, safely handle livestock, recognise hazards, report feeding abnormalities and maintain records. Evidence must also be demonstrated in the employment of safe workplace and positive environmental practices associated with livestock production. The skills and knowledge required must be transferable to another rural environment. For example, this may include different breeds, animals, enterprises and feed stuffs.
What processes should be applied to this unit of competency?

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 unit of competency. 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.

- How can communication of ideas and information (1) be applied?
  - Information and ideas about the feeding plan can be communicated to feed suppliers and other people in the workplace.
- How can information be collected, analysed and organised (2)?
  - Information regarding the observation and monitoring of feeding is gathered and analysed, and organised by records and reports.
- How are activities planned and organised (2)?
  - Activities can be planned and coordinated with feeding and monitoring routines.
- How can team work (2) be applied?
  - Teamwork could be involved in implementing and monitoring procedures to achieve feeding requirements.
- How can the use of mathematical ideas and techniques (1) be applied?
  - Mathematics could be applied in the measurement and calculation of feed, and feed frequency requirements.
- How can problem-solving skills (1) be applied?
  - Problems of supply and demand will need to be anticipated and addressed quickly to ensure the adequate provision of feed and water requirements.
- How can the use of technology (1) be applied?
  - The use of technology can be applied to assist in the calculation and development of a feeding plan, in the recording of information, and to communicate and inform on the feeding process.
Are there other units of competency that could be assessed with this one?

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

There is essential information about assessing this unit of competency for consistent performance and where and how it may be assessed, in the Assessment Guidelines for this Training Package. All users of these units of competency must have access to the Assessment Guidelines. Further advice may also be sought from the relevant sector booklet.
RTE2131B Care for health and welfare of livestock

Unit Descriptor
This unit of competency specifies the outcomes required to monitor the health and welfare of livestock, provide the optimal environment for them, administer medications as and when necessary, and maintain clear and accurate records about the work undertaken.

The maintenance of the health and welfare of livestock is likely to be under limited supervision. Overall progress may be checked periodically. The maintenance of the health and welfare of livestock will usually follow set routines, methods and procedures. Some discretion and judgement is required in the selection of equipment and materials, organisation of work, and services.

Employability Skills
This unit contains employability skills.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Monitor and assess livestock health and welfare.
   1.1 Regular checks are taken to assess livestock health and welfare according to the requirements of the organisation.
   1.2 Symptoms of ill health and common diseases, disorders or parasite infestations are recognised and reported.
   1.3 Sick livestock are safely treated and humanely destroyed, if necessary.
   1.4 Dead livestock are removed and disposed of according to enterprise procedures.
   1.5 Post-mortem assistance is provided, where necessary, according to organisational practice.
   1.6 Livestock health and welfare status is recorded in accordance with enterprise procedures.

2. Provide an optimal environment for livestock.
   2.1 Optimal environment is correctly and safely provided for livestock according to organisation practice, the code of welfare and relevant regulations.
   2.2 Where applicable, temperature control equipment is correctly monitored, maintained and operated to ensure optimal temperatures for livestock.
   2.3 Where applicable, equipment and housing are installed in accordance with established organisation quality assurance programs.
   2.4 Information that is relevant, complete, legible and accurate is recorded on shed or other environment conditions, according to enterprise procedures.
3. Establish and maintain shed hygiene.

   3.1 Organisational **OHS** procedures, practices, policies and precautions are observed and followed, including the use of **personal protective equipment**.

   3.2 **Cleanliness and hygiene** are maintained by selecting and using appropriate methods according to organisation practice and relevant regulations.

   3.3 **Quarantine** procedures are maintained as instructed to minimise the risks of **disease** introduction to the shed.

   3.4 Thorough personal hygiene practices are maintained in all activities associated with handling livestock, including reducing risks from diseases transmissible to humans.

   3.5 Equipment and fittings are dismantled, cleaned and replaced correctly.

   3.6 Rooms, machines and surfaces are cleaned to industry standards.

   3.7 **Pest and vermin** control measures are taken, when necessary, according to organisation practice and supervisors instructions.

   3.8 All waste and debris is placed in allocated containers and disposed of, and run-off is dealt with according to the Biosecurity Code of Practice, organisation and public health hygiene standards.

4. Assist with administering medication to livestock.

   4.1 **Vaccines** and veterinary chemicals appropriate to the operation are stored or frozen and labelled in controlled or refrigerated conditions.

   4.2 Killed and live **vaccines are stored** separately to maintain maximum efficacy of the product.

   4.3 **Routine prevention procedures** for disease, disorders or parasite infestation are safely carried out.

   4.4 Quantities of medication are accurately measured for administration according to clear organisation instruction and manufacturers instructions.

   4.5 Vaccination is carried out under instruction, as required, according to organisation procedures.

   4.6 Vaccinated and non-vaccinated livestock are identified in shed records.

5. Collect samples for analysis.

   5.1 **Blood samples are collected** from random samples as required by organisation and instructed by the supervisor.

   5.2 Swabs are taken from surfaces and work areas on a regular basis and prepared for **laboratory testing** as required by organisation and industry standards.

   5.3 Swabs and samples are clearly and accurately labelled and prepared for dispatch to the laboratory as directed by veterinary staff, organisation practice, and quality assurance program.
6. Keep and maintain records.

6.1 Disease incidence, livestock losses, and treatments are recorded accurately according to organisation practice and relevant regulations.

6.2 Disease information is reported to the unit manager so that prevention strategies can be planned and implemented.

6.3 All records made, kept and maintained are clear, accurate, and follow the guidelines laid down by industry and the organisation.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

Required skills include:

- accurately livestock numbers
- complete worksheets clearly and accurately
- detect possibility of disease through parameters such as behaviour and length of time required to eat food
- dispose of unused prepared chemicals or medications, sharps and other contaminated items safely and in an environmentally correct manner
- observe, identify and react appropriately to environmental implications and OHS hazards
- recognise clinical symptoms (normal vs. abnormal)
- recognise heat stress
- survey workplace for hygiene and OHS issues
- tag livestock of varying ages
- use computing technology to create, maintain and amend workplace records.

Required knowledge:

Required knowledge and understanding include:

- environmental controls and codes of practice applicable to the enterprise
- euthanasia of livestock.
- how to handle livestock
- potability of water
- quality of feed
- relevant legislation and regulations relating to waste and environment management, livestock health and welfare, and employment of staff and contractors
- relevant OHS legislation, regulations and codes of practice
- safe handling of sick and dead livestock
- signs of fear and aggression
- signs of heat stress
- symptoms of ill-health in livestock
- the organisations livestock production and management plans - sound management practices and processes to minimise noise, odours and debris from the livestock operations
- the range of diseases affecting the class and age of livestock
- vaccination programs, vaccines and mode of action in use in the organisation
- withholding periods for use of antibiotics
- zoonotic diseases and mode of transmission.
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.

What practices can influence diseases? Disease may be influenced by management practices such as wild bird exclusion, vaccination, maintaining bait stations for rodents, replacing sanitisers in footbaths, laundering protective clothing, maintaining truck and other vehicle wash facilities, maintaining fencing, and maintaining personal hygiene.

What disorders may be observed? Disorders affecting livestock may include vitamin/mineral deficiencies. These may be managed by supplementing diet, cutting toenails, trimming teeth, trimming fleece from eye area.

When should post mortems be performed? Routine post mortems should be performed on freshly dead birds or animals and culls.

What practices can influence welfare? Welfare may be influenced by management practices such as handling of livestock, water suitable for their needs, food appropriate for the physiological requirements of livestock, vaccination, and prevailing weather conditions.

What does optimal environment involve? It involves accommodation, group sizes, stocking rates, temperature, ventilation, sick bay access and access to food, water and shade.

What does temperature control equipment involve? It involves spray cooling, heating and ventilation.
What are the OHS hazards that might exist?

Hazards might include:

• accidental infection of skin lacerations by employees handling livestock
• accidental inoculation or stabbing with needles or scalpels
• accidental poisoning or burning with hygiene agents
• cleaning areas above head level
• killed vaccines may cause severe tissue reactions in humans if accidentally injected.

These may be eliminated or minimised through:

• 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
• safe and environmentally correct disposal of unused prepared chemicals or medications, sharps and other contaminated items
• protocols for notification of needle stick injuries.

What personal protective clothing and equipment may be relevant?

This may include boots, helmet, overalls, gloves, protective eyewear, hearing protection, respirator or face mask, and sun protection (sun hat, sunscreen).

What should be cleaned in the and around the shed?

Applied chemicals should be cleaned, complex equipment should be dismantled and re-assembled to assess areas to be cleaned, routine cleaning programs should be performed such as sweeping, dusting and vacuuming, washing amenities and facilities including protective clothing, hand basins, toilets, showers, offices, dusting superstructure, and cleaning air filters and ducts.

What is involved in livestock cleanliness?

It involves the hygiene of amenities and facilities, fly control and tidiness, sweeping, dusting in all work areas, lawn and environment maintenance, and checking incoming equipment for cleanliness (such as hatchery fillers).

What determines quarantine and control strategies?

In the case of emergency disease outbreaks, legislative requirements will dictate the quarantine and control strategies that must be implemented. Some sheds draw product and materials from several locations and can spread disease back to organisations if equipment is not cleaned adequately to Biosecurity Code.

What agents do disease prevention procedures use?

Such agents as vaccines, sprays, medicated feed and water, nutrient drenches and injections, antibiotics and therapeutic drugs.
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>What pests and vermin might need to be controlled?</td>
<td>Pests and vermin may include flies, other insects, birds and other vertebrate pests such as mice, rats, feral cats, foxes and dogs.</td>
</tr>
<tr>
<td>What medications may be administered?</td>
<td>Medications include vaccines, antibiotics and other prescribed medicines.</td>
</tr>
<tr>
<td>Routine prevention procedures</td>
<td>Administration of vitamins A,D&amp;E, selenium supplements, drenches or injections for internal and external parasites, vaccinations etc</td>
</tr>
<tr>
<td>What forms may vaccination include?</td>
<td>Vaccination is carried out by several methods, depending on the disease, including injection, water, spraying, and stabbing.</td>
</tr>
<tr>
<td>How must vaccines be stored?</td>
<td>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.</td>
</tr>
<tr>
<td>What is involved when collecting blood samples?</td>
<td>It involves selecting suitable holding pens, catching livestock when not in pens using suitable equipment, holding livestock, responsibility of assessing livestock by monitoring signs, and taking corrective action when the stress due to close confinement is excessive.</td>
</tr>
<tr>
<td>Why is sample collection necessary?</td>
<td>Sample collection is often a result of verbal instructions from employer, unit manager or veterinary staff. Samples required for disease diagnosis may vary depending upon the disease and livestock type or breed.</td>
</tr>
<tr>
<td>What is required to enable laboratory testing?</td>
<td>Swabs and samples for laboratory testing are collected and packed, as required, including blood and tissue together with routine swabs.</td>
</tr>
<tr>
<td>How is treatment of disease determined?</td>
<td>The primary cause of disease may be difficult to detect and the symptoms are often treated. Treatments may include vaccination, medicating water, adding medication to feed, and euthanasia.</td>
</tr>
<tr>
<td>What relevant information might be recorded and reported?</td>
<td>Dates, times and periods of operation and maintenance, livestock numbers, chemicals and other substances used including quantities and methods, and readings from temperature and flow-rate gauges.</td>
</tr>
<tr>
<td>How might information be documented?</td>
<td>Record keeping systems used may be either paper-based or digital, and information will be recorded into logbooks or other records.</td>
</tr>
</tbody>
</table>
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.

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

Competence in maintaining health of livestock requires evidence that livestock remain at optimum health, and that outbreaks of disease are minimised through the effective use of hygiene and quarantine procedures. Competence in maintaining welfare of livestock requires evidence that livestock are looked after and that problems are minimised through effective use of livestock knowledge and handling skills.

The skills and knowledge required to maintain good health and welfare of livestock must be transferable to a different work environment. For example, across a range of breeds and classes of livestock, and a range of shed and production system types.
What processes should be applied to this unit of competency?

There are a number of processes that are learnt throughout work and life that 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 unit of competency. 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.

- How can communication of ideas and information (1) be applied?
- In interpreting and clarifying the work that is to be done, and the specific requirements that there are for a particular situation.
- How can information be collected, analysed and organised (2)?
  - In working with information that details feed amounts and times of feeding, medication records, livestock losses, stocking rates, shed temperatures, and other details critical to the health and welfare of the livestock.
- How are activities planned and organised (2)?
  - In preparing to administer medications according to the schedules provided.
- How can team work be applied (2)?
  - When working alongside other operators to ensure that required team outcomes are achieved.
- How can the use of mathematical ideas and techniques (1) be applied?
  - In calculating ratios, percentages and amounts required when dealing with medications and other chemical compounds.
- How can problem-solving skills (1) be applied?
  - In providing an optimal environment including temperature control and ventilation rates. Also to ensure that stocking rates for the season are adjusted appropriately.
- How can the use of technology (1) be applied?
  - In measuring and calculating amounts required when dealing with either medications or cleaning compounds.
Are there other units of competency that could be assessed with this one?

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

There is essential information about assessing this unit of competency for consistent performance and where and how it may be assessed, in the Assessment Guidelines for this Training Package. All users of these units of competency must have access to the Assessment Guidelines. Further advice may also be sought from the relevant sector booklet.
RTE2152A Shear alpacas

Unit Descriptor
This unit of competency specifies the outcomes required to select, handle and shear alpacas. It requires the application of skills and knowledge to rectify shearing complications. Competency requires an awareness of enterprise and legislative requirements with regard to shearing practices and shearing shed procedures.

The work would be carried out under routine supervision within enterprise guidelines.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit applies to a shearing specialist or an alpaca stud farm owner or employee who will be shearing the stud's animals.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare for shearing.
   1.1 Shearing materials, tools and equipment are checked for serviceability and prepared in readiness for shearing operations.
   1.2 Alpacas to be shorn are identified, drafted and moved according to occupational health and safety (OHS), animal welfare and enterprise requirements.
   1.3 Alpacas are positioned for shearing according to industry agreed shearing methods.
   1.4 Potential and existing hazards in the workplace are identified, assessed and controlled according to OHS requirements.
   1.5 Suitable personal protective equipment (PPE) is selected, used and maintained according to OHS and enterprise requirements.

2. Perform shearing operations.
   2.1 Alpacas are shorn using shearing methods that minimise damage to the alpaca and fleece and ensure that volume of shearing meets enterprise requirements.
   2.2 Safe and humane handling techniques are used at all times according to OHS and animal welfare requirements.
   2.3 Own shearing performance is monitored and posture, shearing rate or speed and position of alpaca are adjusted as required.

3. Respond to complications.
   3.1 Where contamination is identified during shearing operations, it is reported to owner according to enterprise requirements.
   3.2 Cuts to alpacas are treated according to industry standards and animal welfare requirements.
   3.3 Problem alpacas are identified and appropriate measures are taken.
4. Complete shearing operations.

4.1 Fleece is placed correctly for collection by handlers to avoid contamination and according to enterprise and industry requirements.

4.2 Shearing handpiece is set to non-operational position and stored according to manufacturer specifications and enterprise requirements.

4.3 Alpacas are safely released from the board into holding yards.

4.4 Shearing grievances and difficulties are reported to supervisor according to enterprise requirements.

4.5 Environmental implications associated with shearing activities are monitored and controlled according to enterprise requirements.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

Required skills include:

- appropriately treating injured alpacas
- avoiding contamination, second cuts and damage to fleece, alpacas and people
- demonstrating safe and environmentally responsible workplace practices
- effectively communicating with work teams and supervisor, and comprehending and applying task instructions
- handling alpacas with due care
- maintaining safe and hazard-free equipment
- observing signs of alpaca diseases and disorders
- reading and interpreting material safety data sheets (MSDS), manufacturer specifications and shearing schedules
- selecting, setting up and operating equipment appropriate to shearing tasks.

Required knowledge:

Required knowledge includes:

- alpaca anatomy and behavioural characteristics
- alpaca diseases and treatments
- codes of practice for alpaca shearing
- components and functions of shearing equipment and machinery
- environmental codes of practice with regard to livestock production
- industry-accepted handling and shearing techniques and positions
- OHS and animal welfare legislative requirements
- relevant industry awards
- types of shearing sheds, boards and catching pens.
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 such as:

- RTE2302A Grind combs and cutters for machine shearing
- RTE2310A Prepare handpiece and downtube for machine shearing.

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:
  - handle and shear alpacas using industry-accepted methods and procedures
  - safely operate shearing equipment
  - avoid damage to alpacas and fleece
  - meet volume and productivity expectations
  - recognise problem alpacas and take appropriate action
  - use safe workplace and positive environmental practices.

Context of and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed on an alpaca farm 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 shear alpacas. The candidate must also have access to the following resources:

- alpacas to be shorn
- alpaca handling and restraint equipment
- shearing equipment and consumables
- shearing facilities, such as a shearing shed.
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 shear alpacas must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work with different fleece types.
RTE2153A  Carry out alpaca handling and husbandry operations

Unit Descriptor
This unit of competency specifies the outcomes required to move and control alpacas using basic handling methods and procedures. It also covers observing and reporting on herd health and carrying out basic husbandry tasks. It requires the application of skills and knowledge so that alpaca handling and husbandry operations are carried out safely and humanely in prepared handling areas using appropriate equipment and techniques. Competency requires an awareness of animal welfare legislative requirements and workplace safety practices.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit applies to a general farm worker on an alpaca stud farm.

Unit Sector
No sector assigned

ELEMENT

PERFORMANCE CRITERIA

1. Prepare for handling alpacas.

1.1 **Alpaca** handling areas, gates and access routes are identified, *prepared and maintained* according to *enterprise requirements*.

1.2 Alpacas are located *and identified* for handling according to supervisor instructions.

1.3 **Behavioural characteristics** of alpacas are observed and anticipated, and appropriate handling methods are selected.

1.4 **Handling equipment** is selected, checked for soundness and prepared for use according to manufacturer and supervisor instructions.

1.5 Occupational health and safety (*OHS*) *hazards* in the workplace are recognised and reported to supervisor, and action is taken to *minimise risks* to self and others.

1.6 Hazards to animals are recognised and reported to supervisor, and action is taken to minimise risks to animals.

1.7 Site quarantine and other biosecurity protocols are observed.
2. Handle alpacas.

2.1 Suitable personal protective equipment (PPE) is selected, used and maintained according to OHS requirements.

2.2 Procedures to control and sort alpacas are followed according to OHS and animal welfare requirements.

2.3 Alpacas are classified according to age, sex and husbandry tasks to be performed.

2.4 Restraint procedures are carried out with minimum stress and discomfort to alpacas, and according to OHS and animal welfare requirements.

2.5 Alpacas are transported when required according to animal welfare requirements.

2.6 Alpaca behaviour is continually monitored and anticipated during moving and handling processes to ensure wellbeing of alpacas and safety of handlers.

2.7 Alpaca count is conducted and recorded according to enterprise requirements.

2.8 Environmental impacts of alpaca handling and husbandry tasks are recognised and reported to supervisor.

3. Carry out basic alpaca husbandry tasks.

3.1 All basic alpaca husbandry is carried out according to enterprise, OHS and animal welfare requirements.

3.2 Unhealthy stock and abnormal conditions and/or behaviour are identified and reported to supervisor.

3.3 Stock is fed and adequate clean water is provided.

3.4 Plants poisonous to alpacas are recognised and reported to supervisor.

4. Complete alpaca handling activities.

4.1 Alpaca husbandry tasks are completed as instructed, and gates and access routes are prepared for alpacas’ departure according to enterprise requirements.

4.2 Handling areas and equipment are cleaned and maintained and surplus materials are stored according to OHS and enterprise requirements.

4.3 Handling area maintenance requirements and equipment faults or malfunctions are detailed and reported according to enterprise requirements.

4.4 Alpaca residues and waste are disposed of according to OHS and enterprise environmental practices.

4.5 Relevant information about particular animals and the husbandry tasks performed is recorded and reported according to enterprise requirements.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- assessing and calculating alpaca numbers
- carrying out typical basic alpaca husbandry tasks
- controlling environmental impacts associated with alpaca handling and husbandry
- feeding and providing adequate clean water to alpacas
- identifying a range of plants poisonous to alpacas
- providing due care in the handling of alpacas
- reading and comprehending oral and written information and instructions, writing basic statements and maintaining alpaca handling records
- recognising abnormal behaviour and signs of ill health in alpacas
- using enterprise alpaca identification systems.

Required knowledge:

- alpaca behavioural characteristics and movement in handling areas
- classes of alpacas and their basic nutritional and welfare requirements
- components and functions of handling equipment
- enterprise identification systems for alpacas
- environmental codes of practice with regard to alpaca production
- handling techniques and restraint methods
- OHS and animal welfare legislative requirements
- plants poisonous to alpacas
- range of typical basic alpaca husbandry tasks and why they are carried out
- regulatory controls relating to the transport of animals on public roads.

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.

Groups of alpacas include:

- all classes of animal, including:
  - entire males and wethers
  - pregnant and dry females
  - young.
- all fleece types, including:
  - crossbred
  - huacaya
  - suri.

Procedures involved in preparing and maintaining alpaca handling areas include:

- ensuring yards and pens are kept in good repair
- ensuring gates and access routes are clear of any obstructions that may cause injury to alpacas or handlers
- maintaining feed and water troughs to industry standards
- removing contaminants
- settling dust by watering down.
Enterprise requirements may include:

- enterprise policies and procedures, including waste disposal, recycling and re-use guidelines
- industry standards
- manufacturer specifications
- material safety data sheets (MSDS)
- operator manuals
- product labels
- production schedules
- standard operating procedures (SOP)
- supervisor's oral or written instructions
- work notes and plans.

Alpacas may be identified for handling by:

- colour, breed and sex, or individual name recognition
- computerised collars or anklets
- ear tags or ear marks
- freeze or paint branding
- leg bands
- numbering
- raddles
- silicon chip implants
- sprays
- tail or collar tags
- tattoos.

Behavioural characteristics that may be observed include:

- characteristics of dominance
- composition of the mob
- effect of weather conditions
- fear of handlers
- spitting, kicking and making noises such as humming, orgling and alarm calls.

Handling equipment may include:

- branding equipment
- crush/bail, gates, pens, races and loading ramps
- drenching and dipping equipment
- feet and teeth trimming equipment
- foot baths
- inoculating equipment
- jetting
- leg ropes, halters and leads
- scales
- tag applicators.

Existing and potential OHS hazards that may be encountered in the workplace include:

- alpaca movement and handling
- moving machinery and vehicles
- noise
- organic and other dusts
- solar radiation.
Procedures used to minimise risks to self and others include:

- following safe systems and procedures for:
  - handling alpacas
  - handling, applying and storing hazardous substances, including chemicals and alpaca medications
  - manual handling, including heavy lifting
  - operating handling and husbandry equipment
  - outdoor work, including protection from solar radiation, dust and noise
  - using and maintaining PPE
  - reporting hazards to supervisor.

PPE may include:

- boots, overalls and gloves
- hearing protection
- mobile phones for personnel working unaccompanied
- protective eyewear/goggles
- respirators or face masks
- rubber gloves
- sun protection such as:
  - sunhats
  - sunscreen lotion.

Procedures implemented to control and sort alpacas may include:

- allowing a reasonable amount of time for alpacas to complete movement
- appropriate use of handling equipment with minimum force
- use of positive and calming techniques to foster the physical and mental wellbeing of alpacas.

Alpaca restraint procedures may involve:

- safe and humane handling techniques
- use of alpaca industry-accepted restraint equipment.

Abnormal alpaca behaviour or conditions may include:

- abnormal behaviour due to heat stress and dehydration
- eye discharge
- head rubbing
- holding ears down
- infections
- lameness and ill thrift associated with vitamin D deficiency
- separation from the herd
- unusual rolling.
Environmental impacts associated with alpaca handling and husbandry may include:

- contamination of ground and surface water supplies
- dust problems
- increased run-off flows
- loss of ground cover
- negative environmental impacts from continuous high density alpaca activity in holding or confined areas
- odour
- pugging
- soil disturbance
- weed seeds in animal manure.

Basic alpaca husbandry tasks include:

- administering drenches, vaccinations and other veterinary preparations
- condition scoring
- ear tagging according to the International Alpaca Register database or enterprise requirements
- training of stock using halters
- trimming toenails
- weighing alpacas.

Alpaca residues may include:

- dung
- fleece
- spit
- toenail clippings.

Relevant information may include:

- alpaca numbers
- any observed abnormalities
- details of administered preventative health treatments and outcomes
- weight and condition scoring.

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.
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:

- follow work instructions
- follow OHS procedures and contribute to positive environmental practices
- identify, sort, move and control alpacas for handling and husbandry operations using correct equipment, and calming and humane methods to minimise undue stress and risk to alpacas or handlers
- prepare handling areas, gates and access routes for alpaca movement
- monitor and anticipate alpaca behaviour in handling operations
- recognise and report signs of unusual behaviour, unhealthy animals or abnormal conditions.

Context of and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed on an alpaca stud farm or in a situation that reproduces normal work conditions.

For valid assessment, one must have opportunities to participate in a range of exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge required to participate in maintaining alpaca health and husbandry.

The candidate must also have access to the following resources:

- alpacas needing a range of typical husbandry activities to be performed
- tools and equipment appropriate to tasks to be performed
- alpaca handling equipment, such as halters.

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 maintain alpaca health and husbandry must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within large or small alpaca enterprises and dealing with different classes of alpacas.
RTE2154A Support alpaca shearing operations

**Unit Descriptor**

This unit of competency specifies the outcomes required to support alpaca shearing operations under supervision. It requires the ability to work in a safe manner, including with and around animals, undertake tasks as directed, handle materials and equipment, and clean up on completion of alpaca shearing. Supporting alpaca shearing requires knowledge of safe work practices, alpaca fleece types, shearing tools and equipment, and basic fleece handling practices.

The work will be performed under routine supervision and according to established enterprise procedures.

**Employability Skills**

This unit contains employability skills.

**Application of the Unit**

This unit may apply to owners or employees who are assisting with alpaca shearing. Individuals may be working under the supervision of or providing support to a specialist contract shearer or to an enterprise supervisor or manager.

**Unit Sector**

No sector assigned

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>PERFORMANCE CRITERIA</th>
</tr>
</thead>
</table>
| 1. Prepare materials, tools and equipment for alpaca shearing support activities. | 1.1 Required **materials, tools and equipment** are identified according to lists provided and/or supervisor **instructions**.  
1.2 Checks are conducted on all materials, tools and equipment, and insufficient or faulty items are reported to supervisor.  
1.3 Suitable personal protective equipment (PPE) and clothing are selected and checked prior to use.  
1.4 Occupational health and safety (OHS) hazards in the workplace are recognised and reported to supervisor, and actions are taken to **minimise risks** to self and others. |
| 2. Carry out alpaca shearing support duties. | 2.1 Supervisor instructions are followed and clarification is sought when necessary.  
2.2 Work is undertaken in a safe and environmentally appropriate manner, using correct manual handling techniques and according to enterprise and OHS guidelines and animal welfare requirements.  
2.3 Interactions with others are carried out in a positive and professional manner.  
2.4 Problems or difficulties that may impact on completion of work to the required standards or achievement of timelines are reported to supervisor and remedial action is taken as directed.  
2.5 Site quarantine and other biosecurity protocols are observed.  
2.6 **Waste material** produced during alpaca shearing is stored in a designated area according to supervisor instructions.  
2.7 Own work area is kept clean and tidy while working and assistance is provided as instructed to keep the general work area clean and tidy. |
3. Clean up on completion of alpaca shearing.
   3.1 Materials are returned to store or disposed of according to supervisor instructions.
   3.2 Tools and equipment are cleaned, maintained and stored according to manufacturer specifications and supervisor instructions.
   3.3 Work outcomes are reported to supervisor, feedback on performance is sought and any required improvements are noted for future action.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

**Required skills:**
- cleaning up during and on completion of alpaca shearing
- handling, penning and working around alpacas
- preparing and handling materials, tools and equipment for alpaca shearing support tasks.

**Required knowledge:**
- alpaca fleece types
- basic fleece handling practices
- safe work practices associated with alpaca shearing activities
- shearing tools and equipment.

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.

**Alpaca** shearing support activities may include assisting with:
- catching and penning alpacas
- cleaning up as directed by shearer, fleece handler and/or supervisor
- fleece handling and classing, for example by sorting and moving fleece
- holding alpacas in place
- other general rouseabout duties as directed
- restraining alpacas
- treating cuts on alpacas.
Materials, tools and equipment required for alpaca shearing operations may include:

- bale fasteners
- bins
- boards
- butts and butt frame
- current histograms
- first aid kit
- old towels and cloths
- rubbish bins and garbage bags
- rulers
- sack trucks
- scales
- shearing handpieces, combs and cutters
- show floor bags and sample bags
- vacuum cleaners and brooms.

Instructions may include:

- enterprise policies and procedures
- manufacturer instructions
- material safety data sheets (MSDS)
- specifications
- standard operating procedures (SOP)
- work notes
- written and spoken directions from manager or supervisor.

PPE associated with alpaca shearing may include:

- ear protection
- face masks
- gloves
- overalls
- safety glasses or goggles.

OHS hazards associated with alpaca shearing may include:

- ammonia from animal urine and zoonoses
- continual bending, lifting and reaching
- dust, noise and airborne micro-organisms
- electric leads and cables
- fumes, smoke and exhaust gases from machinery
- manual handling
- obstacles and tripping hazards
- overhead gear and other machinery
- presses
- sharp hand tools and equipment
- slippery surfaces and changes in floor level
- working shearsers.

OHS risks may be minimised by:

- following safe systems and procedures for:
  - working around alpacas being shorn
  - manual handling
  - reporting hazards to supervisor.
**Waste materials** may:

- include:
  - fleece litter
  - metal and paper-based materials
  - plastic
- be:
  - disposed of according to enterprise work procedures
  - recycled
  - returned to manufacturer
  - re-used.

**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.

**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:

- follow work instructions
- work cooperatively with other members of the shearing team
- work safely with and around animals.

**Context of and specific resources for assessment**

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in an alpaca workplace.

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 support alpaca shearing operations.

The candidate must also have access to the following resources:

- functioning shearing shed or room
- alpacas needing to be handled and penned for shearing
- PPE.
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 support alpaca shearing operations must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events.
RTE2155A Undertake basic skirting of alpaca fleece

Unit Descriptor

This unit of competency specifies the outcomes required to undertake basic skirting of alpaca fleece during and after shearing. The unit also covers the sorting of fleece in preparation for sale to a processor. Fleece may also be sent to a classer after basic skirting and sorting are completed.

Basic skirting will be carried out under supervision and according to enterprise procedures and industry guidelines for harvesting alpaca fleece.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency applies to an alpaca stud farm owner or employee who may also be providing assistance during shearing.

Unit Sector

No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare for skirting.
   1.1 Midside fleece samples are taken from each alpaca prior to shearing.
   1.2 All tools, equipment and materials required for basic skirting are assembled and checked for serviceability prior to beginning skirting and fleece handling.
   1.3 Existing and potential occupational health and safety (OHS) hazards in the workplace are recognised and reported to supervisor, and actions are taken to minimise risks to self and others.
   1.4 Site quarantine and other biosecurity protocols are observed.

2. Collect fleece during shearing.
   2.1 Fleece is picked up as blanket, neck and pieces during shearing.
   2.2 Blanket, neck and pieces are kept and weighed separately, labelled and weight is recorded according to enterprise procedures.
   2.3 Severely contaminated fleece is discarded.
   2.4 Unavoidable bending, reaching and lifting are carried out in line with safe work practices.
   2.5 Blanket is carried to classing table to enable skirting.

3. Skirt saddles under supervision and according to industry guidelines.
   3.1 Blanket is lightly thrown onto classing table exposing entire fleece so as to enable loose sand or dirt to fall through without disturbing structure of saddle.
   3.2 Fleece with excessive medullation, or not consistent with general style, character, micron and length of staples, is removed and placed in pieces bag.
   3.3 Fleece with major faults and of no commercial value (NCV) is discarded.

4.1 Individual pieces are separated into small bags.
4.2 Small bags containing pieces are placed into a larger bag regardless of colour, micron or length.
4.3 Neck pieces are placed in appropriate classing line.
4.4 Feedback on skirting outcomes and compliance with industry standards is sought from owner, classer or processor and any required improvements are noted for future action.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• ability to lightly throw an entire fleece
• carrying out skirting of alpaca fleece to industry standards
• communicating faults, malfunctions and workplace hazards
• demonstrating safe and environmentally responsible workplace practices
• reporting and maintaining operational records.

Required knowledge:

• Alpaca Industry Best Practice Standards for Harvesting of Alpaca Fibre
• enterprise policies with regard to recording and reporting routines
• equipment and bag requirements for skirting and handling fleece to industry standards
• relevant state and territory legislation, regulations and codes of practice with regard to workplace OHS.
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.

Tools, equipment and materials needed for skirting may include:

- classing table
- clear strong plastic bags
- clip lock sample bags
- current histograms
- dust masks
- first aid kit
- grower fibre consignment notes
- large garbage bags
- large rubbish bins
- new or second-hand wool packs
- newspaper
- old towels and cloths
- postcard-size cards, marker pens and pens
- ruler pre-marked: A, B, C and D according to current guidelines
- scales
- vacuum cleaner or brooms
- wool bale fasteners.

Existing and potential OHS hazards encountered in the workplace may include:

- alpaca movement and handling
- moving machinery and vehicles
- noise
- organic and other dusts.

OHS risks may be minimised by:

- following safe systems and procedures for:
  - working around alpacas that are being shorn
  - manual handling
  - reporting hazards to supervisor.

Fleece from the body of alpaca or blankets may include:

- bellies
- tops of legs
- any other fleece that is consistent with style, character, micron and length of staples of the body.
**Major faults** of fleece may include:

- aprons
- bellies
- contaminated fleece e.g. with vegetable matter
- cotted fleece
- fleece with excessive medullated fibre (guard hair)
- locks (second cut)
- lower legs
- moth or mouse ridden fleece
- tender fleece.

**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, such as RTE2154A Support alpaca shearing operations.

**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:

- remove parts of an alpaca fleece which are of poor quality or condition and of NCV
- bag fleece according to classer and/or processor requirements and industry guidelines
- handle fleece without disturbing structure of saddle.

**Context of and specific resources for assessment**

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in an alpaca 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 undertake basic skirting of alpaca fleece.

The candidate must also have access to the following resources:

- alpaca fleeces for skirting
- skirting table
- bags.
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 undertake basic skirting of alpaca fleece must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events.
RTE2156A  
**Support beekeeping work**

This unit of competency specifies the outcomes required to support beekeeping work under supervision. The unit requires the ability to prepare materials, tools and equipment for work, assist with routine beekeeping activities, handle materials and equipment, and clean up on completion of work. Supporting beekeeping work requires knowledge of safe work practices relating to working with bees and bee husbandry tasks.

**Employability Skills**

This unit contains employability skills.

**Application of the Unit**

This unit of competency applies to beekeeping assistants who may be working by themselves or as part of a small team. Work may be performed in a workshop or similar facility or in the field.

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

**Unit Sector**

No sector assigned

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**ELEMENT**

**PERFORMANCE CRITERIA**

1. Prepare materials, tools and equipment for beekeeping work.
   - 1.1 Required materials, **tools and equipment** are identified according to lists provided and/or supervisor **instructions**.
   - 1.2 Checks are conducted on all materials, tools and equipment, and insufficient or faulty items are reported to supervisor.
   - 1.3 Correct manual handling techniques are used when loading and unloading materials to minimise damage to self, others, load and vehicle.
   - 1.4 Suitable personal protective equipment (PPE) is selected and checked prior to use.
   - 1.5 Work support is provided according to occupational health and safety (OHS) requirements and supervisor instructions.

2. Undertake beekeeping work as directed.
   - 2.1 Instructions and directions provided by supervisor are followed and clarification is sought when necessary.
   - 2.2 Work is undertaken in a safe and environmentally appropriate manner and according to enterprise guidelines.
   - 2.3 Interactions with other staff, apiary site owners and customers are carried out in a positive and professional manner.
   - 2.4 Enterprise policies and procedures in relation to workplace practices in the handling and disposal of materials are observed.
   - 2.5 Problems or difficulties in completing work to required standards or timelines are reported to supervisor.
3. Handle materials and equipment.
   3.1 Waste material produced during work is handled according to supervisor instructions.
   3.2 Materials, tools and equipment are handled and transported according to supervisor instructions and enterprise guidelines.
   3.3 Clean and safe work site is maintained while working.

4. Clean up on completion of work.
   4.1 Materials are returned to store or disposed of according to supervisor instructions.
   4.2 Tools and equipment are cleaned, maintained and stored according to manufacturer specifications and supervisor instructions.
   4.3 Work outcomes are reported to supervisor, feedback on performance is sought and any required improvements are noted for future action.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- cleaning up on completion of work
- handling bees
- handling materials, tools and equipment
- preparing materials, tools and equipment for work
- undertaking work as directed.

Required knowledge:

- appropriate tools and equipment
- bee-handling techniques
- repair and maintenance of buildings, fixtures or fittings
- safe work practices.

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.

*Tasks involved in beekeeping* work may include:

- assembling and repairing frames and beehives
- carrying out routine maintenance and cleaning of buildings, sheds, fixtures and fittings
- cleaning, sanitising and maintaining tools and equipment, in particular the hive tool, to reduce spread of disease and parasites
- loading and unloading beehives from transport
- operating equipment
- performing bee husbandry tasks
- providing supplementary food and water for bees.
**Tools and equipment** required for beekeeping work may include:

- bee escape boards
- bee smoker, hive tool and bee blower
- brushes
- buckets, brooms and wheelbarrows
- hoses and hose fittings
- knives
- loaders and vehicles
- queen rearing equipment
- spades, forks, rakes and hoes
- spray equipment.

**Instructions** may include:

- honey bee industry quality assurance program (BQUAL)
- enterprise policies and procedures
- manufacturer instructions
- material safety data sheets (MSDS)
- OHS standards and procedures
- specifications
- standard operating procedures (SOP)
- verbal directions from manager or supervisor
- work instructions and standards
- work notes.

**PPE** requirements associated with beekeeping support include:

- bee veils
- bee-proof overalls and gloves
- ear protection
- face masks
- safety goggles
- steel capped boots/shoes
- sunhats
- sunscreen lotion.

**OHS** hazards associated with beekeeping work may include:

- bee stings
- chemicals and hazardous substances
- dust, noise, airborne and soil-borne micro-organisms
- holes and slippery and uneven surfaces
- incorrect manual handling
- sharp hand tools and equipment
- snakes
- solar radiation.

**Waste material** may:

- include:
  - litter and broken components
  - plant debris
  - plastic, metal and paper-based materials
- be:
  - disposed of according to enterprise work procedures
  - recycled
  - returned to manufacturer
  - re-used.
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. Assessment should provide opportunities to demonstrate competency in the broad range of beekeeping support tasks that may be performed in the workplace.

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:

• carry out work according to instructions and within the required timelines
• work safely around and with bees
• apply knowledge of food safety regulations when handling frames and honey or other hive products for human consumption.

Context of and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a beekeeping workplace or in a situation that reproduces normal work conditions.

For valid assessment, one must have opportunities to participate in a range of exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge required to support beekeeping work.

The candidate must also have access to the following resources:

• beehives
• equipment used in beekeeping operations
• PPE.
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 support beekeeping work must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include supporting a variety of tasks associated with beekeeping, in different locations or enterprises or as part of a small or large team.
RTE2157A Open and reassemble a beehive

Unit Descriptor

This unit of competency specifies the outcomes required to open and reassemble a beehive in order to carry out routine bee husbandry and related tasks. Work is likely to be performed under supervision and/or following standard operating procedures (SOPs).

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency applies to beekeeping assistants who may be working by themselves or as part of a small team. Work may be performed in a workshop or similar facility or in the field. Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector

No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare to open a beehive.

1.1 Required tools and equipment are identified according to supervisor instructions or SOPs.

1.2 Checks are conducted on all tools and equipment and insufficient or faulty items are reported to supervisor or addressed according to SOPs.

1.3 Weather conditions and nectar availability are assessed, and planned activities are adjusted if needed to minimise risk of robbing and hive stress.

1.4 Correct manual handling techniques are used and damage to beehive is minimised.

1.5 Suitable personal protective equipment (PPE) is selected and checked prior to use.

1.6 Occupational health and safety (OHS) hazards are identified and reported, and appropriate action is taken to minimise risks to self and others.

1.7 Where in effect, site quarantine/biosecurity protocols are followed.

2. Open the beehive

2.1 Bees are controlled throughout the opening process by using smoke according to OHS requirements and SOPs.

2.2 Work is carried out from a safe and appropriate position in relation to beehive.

2.3 Beehive lid is raised using hive tool, and queen excluder, frames and/or supers are removed as required, according to specific task to be undertaken.

2.4 All removed frames and supers are placed on upside down lid to ensure they remain dirt free.
3. Reassemble the beehive.

3.1 Bees are controlled throughout reassembling process by using smoke according to OHS requirements and SOPs.

3.2 Brood frames are placed back into hive in the same position from which they were removed unless manipulation is being undertaken.

3.3 All frames are replaced in appropriate boxes and, where used, queen excluders and/or supers are replaced.

3.4 Beehive lid is replaced and, where used, hive fasteners are done up securely.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- complying with OHS requirements, including manual lifting
- following work instructions and SOPs
- selecting and using appropriate PPE and beekeeping tools, including a bee smoker
- working safely around bees.

Required knowledge:

- bee behaviour, particularly when beehive is disturbed
- components of a beehive.

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.

**Tools and equipment**

required when opening and reassembling a beehive may include:

- bee blower
- bee escape boards
- bee smoker
- brushes
- buckets
- hive tool
- loaders
- queen excluder
- vehicles
- wheelbarrow.

**PPE requirements**

associated with opening and reassembling a beehive may include:

- bee veils
- bee-proof overalls and gloves
- ear protection
- steel capped boots/shoes
- sunhats
- sunscreen lotion.
**OHS hazards** may include:

- bee stings
- manual lifting of heavy beehives.

**Safe and appropriate position** from which to carry out work is:

- while standing at the side of the hive.

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**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 such as:

- RTC2701A *Follow OHS procedures*
- RTE2156A *Support beekeeping work*
- RTE2305A *Use a bee smoker.*

Assessment should be practical in nature.

**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 open and reassemble a beehive without damage to the hive or bees and according to OHS requirements.

**Context of and specific resources for assessment**

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a beekeeping 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 open and reassemble a beehive.

The candidate must also have access to the following resources:

- a beehive with bees
- beekeeping tools, particularly a hive tool and a bee smoker
- PPE.
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 open and reassemble a beehive must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include opening and reassembling beehives in the field or at other locations such as a processing facility.
RTE2217A Construct and repair beehives

Unit Descriptor
This unit of competency specifies the outcomes required to construct and repair beehives under supervision. It requires the ability to prepare materials, tools and equipment for work, handle materials and equipment, and clean up on completion of work. Constructing and repairing beehives require knowledge of safe work practices, including the use of related materials and equipment.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to beekeeping assistants who may be working by themselves or as part of a small team. Work may be performed in a workshop or similar facility or in the field.

Unit Sector
No sector assigned

ELEMENT   PERFORMANCE CRITERIA

1. Prepare to construct or repair beehives.
   1.1 Required materials and equipment are identified according to lists provided and/or supervisor instructions.
   1.2 Beehive components for assembly or use in repairs are checked to ensure that they are suitable for use.
   1.3 Faulty or incorrect components are returned to storeroom and replaced, repaired or disposed of according to enterprise policy.
   1.4 Checks are conducted on all other materials and equipment and insufficient or faulty items are reported to supervisor.
   1.5 Suitable personal protective equipment (PPE) is selected and checked prior to use.
   1.6 Occupational health and safety hazards are identified and reported to supervisor.

2. Construct or repair beehives.
   2.1 Beehives requiring repair are inspected visually to identify scope of job and materials and tools required.
   2.2 Where visual inspection indicates presence of American foulbrood disease, beehives are burned or sent for irradiation.
   2.3 Beehive components are assembled or repaired using appropriate replacement parts, nails, joins, glues and construction techniques.
   2.4 Appropriate timber treatments are applied to beehive.
   2.5 Constructed or repaired beehive and all components are correctly and legibly marked in accordance with state and territory requirements.
   2.6 Work is undertaken in a safe and environmentally appropriate manner according to enterprise guidelines.
   2.7 A clean and safe work site is maintained while working.
   2.8 Problems or difficulties in completing work to required standards or timelines are reported to supervisor.
3. Clean up on completion of work.

3.1 Materials are returned to store or disposed of according to enterprise procedures and/or supervisor instructions.

3.2 Equipment is cleaned, maintained and stored according to manufacturer specifications and supervisor instructions.

3.3 Work outcomes are reported to supervisor or noted in enterprise records, feedback on performance is sought and any required improvements are noted for future action.

**REQUIRED SKILLS AND KNOWLEDGE**

This describes the essential skills and knowledge and their level, required for this unit.

**Required skills:**

- cleaning up on completion of work
- handling materials and equipment
- preparing materials and equipment for work
- selecting and using tools appropriate to task being performed
- undertaking work as directed.

**Required knowledge:**

- construction and health standards to be maintained for beehives
- hive components and materials required to construct or repair them
- safe work practices.

**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.

**Equipment** needed to construct and repair beehives includes:

- comb foundation sheet (wax or plastic) suitable for intended use (worker or drone)
- electric wire embedder
- frame wiring board
- hand or small power tools such as:
  - drills
  - hammers
  - paint brushes
  - pliers
  - wire cutters
- nail gun
- nails or staples
- woodworking glue.
Typical beehive components may include:

- accessories such as:
  - entrance encloser
  - hive covers
  - hive mats
  - queen excluders
- straps and clips
- additional hive bodies or supers
- bottom board
- comb foundation, either wax or plastic
- frame supports, self-spacing frames or solid plastic frames (frames consist of two end bars and a top and bottom bar)
- hive body (brood box)
- lid and fasteners
- moveable frames (usually 8, 10 or 12).

Criteria to be checked to ensure hives are suitable for use may include:

- construction materials present no risk of contamination to environment or apiculture products
- hive condition, size, number, completeness and timber treatment
- organic production requirements such as:
  - no particle board construction
  - no toxic wood preservatives
- paint/coating on exterior surfaces only using approved materials such as:
  - naturally compounded paints
  - non-contaminating acrylic paints (subject to approval)
  - paraffin or beeswax mixtures
- standards and requirements for different countries.

PPE required when assembling or repairing beehives may include:

- face masks
- gloves
- overalls
- safety goggles
- steel capped boots
- sunhats and sunscreen lotion.

Joining, gluing and construction techniques recommended include:

- dovetailing
- gluing (using a waterproof/weatherproof glue where appropriate)
- nailing
- planing
- rebating
- wiring and embedding wires into comb foundation sheets.
Timber treatments used may include:

- approved wood preservatives
- copper naphthenate or combination treatments (copper naphthenated material should be painted)
- hot wax dipping (using molten slack, microcrystalline or paraffin)
- painting (oil or water-based)
- priming.

Hive components are marked according to state or territory regulations that may include:

- cancelling method (previous owner should remain legible)
- chiselling or punching
- fire branding
- operator’s registration number to ensure that:
  - disease outbreaks are traceable
  - owners of apiary material can be located
  - stolen hives are traceable
- stencilling.

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.

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 carry out work according to instructions and within the required timelines.
Context of and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a beekeeping 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 construct and repair beehives.

The candidate must also have access to the following resources:

- unassembled new hive components
- used hives requiring repair
- sample of correctly constructed beehive and frames with foundations
- materials and equipment
- paint and timber treatments
- PPE.

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 construct and repair beehives must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include supporting a variety of tasks associated with beekeeping, in different locations or enterprises or as part of a small or large team.
RTE2305A
Unit Descriptor
Use a bee smoker
This unit of competency specifies the outcomes required to use a bee smoker when undertaking bee husbandry tasks. Work is performed under supervision, following established routines and according to standard operating procedures (SOPs).

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to beekeepers who may be working by themselves or as part of a small team. Work is most likely to be performed in the field. It is an important competency for almost all beekeeping job roles.

Specific requirements for tools, equipment and processes may be included in relevant legislation and regulations.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare bee smoker for use.

1.1 Confirmation is sought that climatic and other conditions permit the use of a bee smoker and planned activities are adjusted if required.

1.2 Bee smoker and components are checked to ensure that they are in good repair and serviceable, and any faults are addressed according to SOPs.

1.3 Personal protective equipment (PPE) is checked for serviceability and worn and used correctly.

1.4 Occupational health and safety (OHS) hazards associated with the use of a bee smoker are identified and appropriate action is taken to minimise risks to self and others.

1.5 Adequate water supply and tools are available for fire control.

1.6 Suitable fuel is added to bee smoker and lit.

1.7 Bee smoker bellows are operated to produce and maintain a steady and dense stream of cool smoke.

2. Use bee smoker to manage bees.

2.1 Smoke is blown into entrance of hive and sufficient time is allowed before hive is opened.

2.2 After opening hive, additional smoke is puffed over frames and/or supers and directed at bees.

2.3 Bee smoker is placed within easy reach while working on hives to ensure bees remain under control.

2.4 Bee smoker is kept alight and producing cool smoke until operations are complete.

2.5 After completion of operations, bee smoker is made safe according to fire, biosecurity and other enterprise procedures.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• interpreting impact of weather, nectar flow and strain of bee on defensive behaviour of colony
• keeping a bee smoker alight and functioning while carrying out bee husbandry tasks
• monitoring effects of smoke on bees, including the wearing off of the effects
• selecting suitable fuel.

Required knowledge:

• effects of smoke on bees and hive products
• legislation and regulations relating to use of bee smokers, especially in relation to fire protection and bushfires
• suitable fuel for bee smokers
• when and why to use a bee smoker.

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.

Climatic and other conditions that impact on the use of a bee smoker include:

• regulations and legislation such as relevant state and territory bushfire or fire protection regulations
• urban areas where care must be taken to prevent smoke drifting into open windows or doors.

PPE required may include:

• bee-proof overalls
• ear protection
• safety goggles or face masks
• socks and gloves
• steel capped boots/shoes
• sunhats
• bee veils
• sunscreen lotion.

OHS hazards associated with use of a bee smoker may include:

• dust, airborne and soil-borne micro-organisms
• holes and slippery and uneven surfaces
• risk of burns and smoke inhalation
• snakes and bee stings
• solar radiation.
Tools, equipment and processes required for adequate fire control and prevention may include:

- for weather conditions that present reasonable possibility of the spread of fire there should be available for immediate use:
  - minimum of one knapsack spray pump with tank:
    - capacity of not less than nine litres
    - fully charged with water
    - complies with Australian Standard 1687-1991
  - one rake hoe or similar implement capable of removing grass, shrubs, vegetation and other flammable material from fire area
  - procedure of placing bee smoker:
    - on an area of ground that is clear of all flammable material for a distance of 1.5 metres
    - in a fire-proof container when not in use.

Suitable fuel for a bee smoker may include:

- dry bark
- fuel that meets the requirements of certifying body in the case of certified organic honey or hive products
- gum leaves
- hessian or old bagging
- pine needles.
- Any unburned fuel in the bee smoker should be secured so that it does not present a hazard.

When lit, recharged or alight a bee smoker must be placed safely and:

- always stood upright
- kept with an adequate amount of fuel to prevent sparks
- on an inflammable surface.

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, such as PUAWER001A Identify, prevent and report potential workplace emergency situations.
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:

• light a bee smoker
• keep it alight and producing a dense stream of cool smoke while undertaking bee husbandry tasks
• follow all legislative and regulatory requirements relating to the use of bee smokers
• place bee smoker in a safe location when lit but not being held.

Context of and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a beekeeping 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 use a bee smoker.

The candidate must also have access to the following resources:

• bee smoker
• beehive
• hive tool
• PPE
• matches or lighter
• suitable fuel.

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 use a bee smoker must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include using a bee smoker under a number of different circumstances and in association with different bee husbandry tasks.
## RTE2315A Operate a compost bagging process

### Unit Descriptor
This unit of competency specifies the outcomes required to set up, operate, adjust and shut down a compost bagging process. The unit also covers the process of handling and bagging bulk mulches, compost products and other value-added products such as potting mixes.

The unit involves applying well-developed skills with some discretion and judgement and routine supervision. It requires taking responsibility for own work output.

### Employability Skills
This unit contains employability skills.

### Application of the Unit
Compost is used as a general expression and includes recycled organic products from aerobic and anaerobic composting and vermiculture technologies.

This unit of competency applies to an employee of an enterprise engaged in commercial-scale composting operations. Work is likely to be performed as a part of a team.

This unit must be read in conjunction with the National Guidelines for Occupational Health and Safety Competency Standards for Operation of Load-Shifting Equipment and Other Types of Specified Equipment [NOHSC: 7019 (1992)].

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

### Unit Sector
No sector assigned

### ELEMENT PERFORMANCE CRITERIA

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<th>ELEMENT</th>
<th>PERFORMANCE CRITERIA</th>
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| 1. Organise for bagging operations. | 1.1 *Job sheet* or work order is reviewed to clearly identify product bagging requirements.  
1.2 Product for bagging is confirmed and available to meet job requirements.  
1.3 Equipment, materials and personnel requirements for safe, effective and efficient bagging operations are identified and organised.  
1.4 Suitable *personal protective clothing and equipment* are selected, used, maintained and stored according to occupational health and safety (OHS) procedures. |
2. Prepare bagging plant for use.

2.1 Machine components and related attachments are fitted and adjusted to meet safety requirements.

2.2 Materials for bag are fitted and adjusted to ensure efficient operation, according to manufacturer specifications.

2.3 Safety devices and alarm systems are checked for correct operation according to manufacturer specifications, enterprise procedures and relevant statutory requirements.

2.4 Routine **pre-operational checks** are carried out to meet enterprise procedures and manufacturer specifications.

2.5 Operational systems are checked, cleaned and calibrated, and batch number and operating parameters are entered as required to meet production requirements.

2.6 Faulty plant or machinery is identified, safety tagged and reported promptly to supervisor according to enterprise procedures.

2.7 OHS hazards are identified, reported to supervisor and managed according to enterprise procedures.

2.8 Environmental implications associated with machinery operation are identified and reported to supervisor.

2.9 Product to be bagged is obtained and positioned as required to meet production requirements.

3. Start and operate bagging plant.

3.1 Operational area is checked, and personnel in operational area are informed of initiation of plant operation.

3.2 Risks to self, others and the environment are recognised and minimised according to enterprise and OHS procedures.

3.3 Product for bagging is loaded into the bagging plant hopper in required quantities.

3.4 Bagging plant is started up using correct sequence according to manufacturer specifications and enterprise procedures.

3.5 Bagging plant is operated in a **safe and controlled** manner, and monitored for performance and efficiency.

3.6 Input materials are monitored, and non-conformances clearly identified and handled according to enterprise procedures and manufacturer specifications.

3.7 Processing outputs are monitored and adjustments to plant operation are made to meet job specifications.

3.8 Out-of-specification product or process outcomes are identified and reported to supervisor and appropriate action is taken as directed.

3.9 Bagged product is labelled, palletised or stacked and wrapped according to enterprise procedures and customer requirements.
4. Shut down bagging plant.  
   4.1 Bagging plant and machinery shut-down procedures are carried out to manufacturer specifications and enterprise procedures.
   4.2 Routine maintenance of bagging plant and machinery is carried out to remove debris and contaminants and ensure safe and efficient operation.
   4.3 Bagging plant and equipment is cleaned, secured and stored according to manufacturer specifications and enterprise procedures.
   4.4 Unsafe plant or equipment is reported to supervisor and tagged or locked out.

5. Maintain records.  
   5.1 Bagging plant operational records are maintained accurately and promptly according to enterprise procedures.
   5.2 Any required maintenance, damage, malfunctions and irregular performance of machinery is recorded and addressed according to enterprise procedures.

6. Check product to confirm readiness for distribution.  
   6.1 Palletised or stacked product is inspected and checked to confirm compliance with job sheet and enterprise procedures.
   6.2 Product is transported to and positioned in holding area with labels and bar codes clearly visible.
   6.3 Supervisor or product dispatcher is informed of product readiness for dispatch according to enterprise procedures.
   6.4 Product awaiting distribution is checked for temperature rise during storage and any out-of-range readings are reported to supervisor.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- calibrating bagging components
- communicating with work team and supervisor
- completing workplace records
- correctly using emergency and personal protective equipment
- demonstrating batch/product changeovers that maintain product quality and hygiene
- demonstrating safe and environmentally responsible workplace practices
- maintaining work area to meet housekeeping standards
- operating machinery and equipment to industry standards
- reading and applying manufacturer specifications, work instructions, maintenance plans and material safety data sheets (MSDS)
- recording and reporting equipment faults and workplace hazards and accidents.

Required knowledge:

- basic principles of the bagging process
- characteristics of product that is fit for bagging
- product quality and hygiene
- purpose of packaging, coding requirements and related legal requirements, including product weight
- basic operating principles of the equipment which may include:
  - operational understanding of main equipment components, status and purpose of guards, equipment operating capacities and applications
  - purpose and location of sensors and related feedback instrumentation
  - knowledge of services required and action to take if services are not available
  - methods used to monitor the process
  - inspection or test points (control points) in the process and related procedures and recording requirements
  - equipment cleaning requirements
  - flow of this process and effect on downstream processes
  - packaging quality and seal integrity
  - effect of variation in inputs which may include ingredient quality and condition, packaging components and consumables, and/or services on process performance
  - OHS hazards and controls
  - emergency and routine shutdowns and procedures to follow in the event of a power outage
  - product and batch changeover procedures
  - lock-out and tag-out procedures and responsibilities.
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.

Typical job sheet information may include:
- authorisation
- bag specification
- batch number
- packaging instructions
- product specification
- product type and availability
- quantity required
- work schedule.

Personal protective clothing and equipment may include:
- appropriate footwear
- emergency procedure guides (EPGs) and emergency equipment such as:
  - fire extinguisher
  - first aid kit
  - eye wash kit
  - eye and hearing protection
  - face shields or masks
  - gloves
  - hard hats
  - high visibility clothing
  - MSDS
  - overalls
  - respirator.

Typical bagging plant components may include:
- bagging closure
- chute
- control mechanisms
- hopper
- pallet.

Typical bagging machine components may include:
- compressor
- pallet tacking hot glue
- sewing dolly
- shrink wrapper
- stapler.

Bag materials that may be fitted include:
- pre-printed film
- woven plastic (single) bags.
Safety devices and controls to be checked may include:

- alarms
- barriers
- earth leakage devices
- emergency stop devices and cords/lanyards
- lock-out or tag-out procedures
- reverse alarms
- warning lights.

Routine pre-operational checks of machinery and equipment may include:

- checking and confirming equipment calibration settings
- checking fuel, oils and lubricants, electrolyte levels, wheels, tyre pressure, fanbelts, leads, lines, connections, air filters, brakes, clutch and lighting
- identifying and segregating unsafe or faulty equipment for repair or replacement
- inspecting safety guards
- observing and monitoring noise levels for correct operation
- preparing independently powered tools, which may include cleaning, priming and tightening, as well as basic repairs and adjustments
- pre-start and safety checks, including the service and maintenance of cooling system.

OHS hazards:

- may include:
  - biological hazards associated with compost
  - dust
  - ergonomic hazards associated with:
    - manual handling
    - posture and vibration
  - exposure to loud noise and fumes
  - mechanical malfunctions and exposed moving parts
  - other machinery, including hydraulics and conveyors
  - physical hazards such as:
    - vehicles and mobile machinery
    - underfoot conditions
    - compressed air and water
  - sharps or other physical contaminants in materials
- may be addressed by implementing systems and procedures for:
  - appropriate use, maintenance and storage of personal protective equipment
  - ensuring working loads are secure and within working specifications
  - hazard identification, assessment and reporting
  - outdoor work, including protection from solar radiation
  - protection from hazardous noise, mechanical vibration, and organic and other dusts
  - protection of people in the workplace
  - safe lifting, carrying and handling
  - safe operation and maintenance of machinery and equipment including hydraulics, and guarding of exposed moving parts.
Environmental implications associated with the operation of plant and machinery may include:

- negative environmental impacts resulting from:
  - excessive noise and exhaust emissions
  - hazardous substances such as:
    - fuel
    - fertiliser
  - organic dusts
  - incorrect use and disposal of maintenance debris such as:
    - oils containers
    - chemical residues
  - run-off flows of water and cleaning agents from servicing, maintenance and cleaning activities
  - soil disturbance and dust problems from high speed and frequent traffic (including irrigation equipment).

Procedures for safe and controlled operation of machinery and equipment may include:

- appropriate selection and use of machinery and equipment
- effective communication between work team members
- maintaining working loads within specifications and operating at the correct height.

Plant operational records may include:

- amount of bagging materials used
- equipment non-conformances
- faults and breakdowns
- odometer legislation, including:
  - rights and responsibilities of employers and employees
  - hierarchy of control as it applies to distances, hours of operation, incidents, stoppages and down time
- type and volume/amount of material processed.

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 such as:

- RTC2210A Maintain properties and structures
- RTC2701A Follow OHS procedures
- RTE2507A Recognise raw materials, production processes and products on a composting site.
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:

- select and use various features and controls of a range of bagging plant
- carry out work plans
- determine appropriate operating methods
- carry out routine maintenance and adjustments
- report faults and workplace hazards
- monitor operations
- maintain records
- apply safe and environmentally responsible workplace practices.

Context of and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and must be assessed in a commercial-scale composting facility or in a situation that reproduces and/or simulates operational conditions.

For valid assessment, one should have opportunities to participate in exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge specified in this unit.

The candidate should also have access to the following resources:

- compost bagging plant
- load-shifting machinery
- personal protective equipment
- products and materials for handling and bagging
- bagging plant cleaning equipment
- job sheets.

Guidance information for assessment

To ensure consistency in 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 demonstrate competency must allow for application in a broad industry context, and should be transferable to a range of work environments, including the ability to deal with unplanned events. For example, this could include work within compost bagging operations of varying scale; producing a range of different composts and value-added products to meet the demands of different markets; located in an urban or rural context with varying environmental constraints; and using various equipment, practices, technologies and management systems.
RTE2503B Observe and report on weather

Unit Descriptor

This unit of competency specifies the outcomes required to observe and report on weather and climate conditions for an agricultural, horticultural or land management enterprise. It also requires the application of skills and knowledge to recognise adverse weather and climate conditions and to monitor, record and report on weather and climate information. The work is likely to be carried out with limited supervision, within enterprise guidelines.

Employability Skills

This unit contains employability skills.

Unit Sector

No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Check weather and climate information.
   1.1 Weather and climate information is checked to determine likely conditions.
   1.2 Changed weather and climate situations are recognised.
   1.3 Likely impact of changes in weather and climate are anticipated in respect to work tasks, safety of others, property, natural resources and local environment.
   1.4 Report is made to supervisor of anticipated impact of weather and climate.

2. Carry out preventative action.
   2.1 Information and advice is promptly disseminated to relevant personnel.
   2.2 Preventative action is determined according to the known effects on livestock, crops and work tasks.
   2.3 Actions to minimise loss and damage are implemented.
   2.4 Livestock, horticultural or crop management program or schedule of work tasks are adjusted and revised according to weather and climatic changes.

3. Monitor weather and climate.
   3.1 Regular updates are accessed to determine ongoing suitability of current programs.
   3.2 Viability of livestock, horticultural or crop management practices are reviewed to ensure suitability within meteorological conditions.
   3.3 Research on forecasting techniques is undertaken to maintain currency of information.
   3.4 Relevant information is documented and recorded according to enterprise requirements.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- communicate information.
- monitor physical signs in the context of available information
- relate forecasts to impact on current operations and activities

relate weather and climate conditions and changes to decision-making and prevention of loss and damage

Required knowledge:

- effects of wind and rain on wind chill
- effects of wind shear and wind chill exposure
- enterprise and industry policies for monitoring weather and climate conditions, and recording and reporting weather and climate conditions.
- relevant legislative health and OHS requirements, especially as they relate to weather and climate monitoring and preparations for hazardous weather
- weather and climate conditions and its impact upon farming and grazing activities
- working knowledge of climate and weather
- If applicable to the enterprise:
  - effects of wind chill on metabolism of animals
  - effects of prolonged dry periods on pastures and animal production, and natural resources

effects of extreme heat on animals, including during birthing, and effects of heat stress on neonates.

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.

Where might weather and climate information be sourced from?

Radio, T.V., Internet, email, fax, telephone, newspapers, word of mouth, weather station on property and interpretive tools.

What might weather and climate information include?

Reports, warnings, data collected from property weather station, and grazer alerts.

What preventative actions might be reviewed?

Provision of shelter, shedding animals, covering fodder, moving fodder, fire fighting equipment, auxiliary power, supplies, moving stock, securing equipment and buildings, preparing fire breaks and assured water supply, rescheduling work tasks, operating sprinklers in order to cool animals in extreme heat.
Who might be considered to be relevant personnel?

Other staff and colleagues, owners and managers, and neighbours.

What loss and damage may need to be minimised?

To staff, livestock, crops, fodder, produce, buildings sheds and/or other physical resources.

Where might regular updates be obtained from?

Radio, T.V., Internet, email, fax, telephone, newspapers, word of mouth, weather station on property, and interpretive tools.

What warnings might be issued or relevant?

Fire, flood, wind, rain, hail, storm, cyclones, heat waves, snow, dust, frost, gale, grazier alerts, and rapid changes in temperature or weather conditions.

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.

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

Competence in feeding livestock requires evidence of the ability to follow a feeding plan accurately to meet the nutritional requirements of livestock. It involves the ability to monitor and record livestock condition, apply methods and procedures to provide feed and feed supplements, safely handle livestock, recognise hazards, report feeding abnormalities and maintain records. Evidence must also be demonstrated in the employment of safe workplace and positive environmental practices associated with livestock production. The skills and knowledge required must be transferable to another rural environment. For example, this may include different breeds, animals, enterprises and feed stuffs.
What processes should be applied to this unit of competency?

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 unit of competency. 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.

• How can communication of ideas and information (2) be applied?
  • In discussing conditions and changes with weather and climate information agencies and colleagues.

• How can information be collected, analysed and organised (2)?
  • In analysing and interpreting data from weather and climate information sources on weather predictions and changes.

• How are activities planned and organised (2)?
  • To plan activities and resources to minimise impact of adverse weather and climate on livestock, crops and staff.

• How can team work be applied?
  • To collate all available information on weather and climate, and to organise resources and minimise loss and damage.

• How can the use of mathematical ideas and techniques (2) be applied?
  • To analyse and interpret weather and climatic condition, and changes in weather and climate.

• How can problem-solving skills (2) be applied?
  • To minimise impact of adverse weather and climate, and to implement appropriate tactics and strategies when weather and climate changes unexpectedly.

• How can the use of technology (2) be applied?
  • To access a range of information resources and record information.

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

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

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

This unit of competency applies to work in the mushroom industry and specifies the outcomes required to perform tasks associated with filling, spawning and casing as part of mushroom substrate preparation (Phase II). Depending on the growing system used on the farm, either trays, shelves or tunnels may be used in the earlier stages of this process. Later stages may involve the use of trays, shelves or bags. All work must be performed in accordance with farm procedures, including those addressing food safety, hazard analysis critical control point (HACCP), quality assurance, environmental sustainability and occupational health and safety (OHS).

Work is likely to be performed as a member of a team and under supervision with some checking. Work will follow established routines.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency supports the role of a general assistant or farmhand who is involved in the preparation of mushroom substrate either in a general mushroom farming enterprise or in a specialist substrate preparation enterprise.

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare for each process stage.

1.1 Task requirements are sought from and clarified with supervisor.

1.2 All tools, **machinery and equipment** required for process stage are **checked and prepared** according to **farm procedures**.

1.3 **Faults or variations** from required settings or farm quality standards observed at any stage in the process are reported to supervisor and **remedial action** is carried out as directed.

1.4 Personal protective equipment (**PPE**) and **clothing** are selected and used according to farm OHS procedures.

1.5 **OHS requirements and hazards** associated with tasks are identified and appropriate action is taken to minimise risks to self and others.

1.6 Site quarantine protocols and farm and personal hygiene requirements are applied and followed as required by farm procedures or supervisor instructions.

1.7 All work is performed in an environmentally aware and safe manner according to farm procedures.

2. Fill units with mushroom substrate.

2.1 Filling equipment is operated safely and at a speed that maintains continuous operation according to farm procedures, and supervisor and manufacturer instructions.

2.2 Units are **filled** with mushroom substrate according to farm procedures and to required farm standards.
3. Assist with spawning processes.

3.1 Spawn is visually inspected for abnormalities and any abnormalities found are reported to supervisor.

3.2 Spawn is applied and mixed into mushroom substrate according to farm procedures.

3.3 Spawn usage rate is checked and any observed variation from farm standard is reported to supervisor.

3.4 If applicable, supplement is applied and mixed as directed by manager.

3.5 Spawned mushroom substrate is installed in spawn run rooms according to farm procedures.

3.6 Samples of mushroom substrate are taken according to farm procedures.

3.7 Mushroom substrate is checked for presence of pests and where pests are found, supervisor is advised and remedial action is taken as directed.

4. Prepare and apply casing mixture.

4.1 Required quantities of pesticides, peat, limestone and additives for casing are assembled and checked according to farm procedures, material safety data sheets (MSDS) and OHS requirements.

4.2 Casing ingredients are blended according to farm procedures.

4.3 If applicable, supplement is applied and mixed as directed.

4.4 Casing depth, structure and consistency are checked and any variation from farm standards is reported to supervisor and remedial action is taken as directed.

4.5 Samples of prepared casing and mushroom substrate before casing has been added are taken according to farm procedures.

5. Finalise mushroom substrate processes.

5.1 Equipment and tools are returned to storage area after cleaning, checking for future serviceability and carrying out basic preventative maintenance according to farm procedures, and supervisor and manufacturer instructions.

5.2 Faults are reported to supervisor or maintenance personnel for remedial action.

5.3 Clean-up activities are carried out at the end of each process stage according to farm procedures and supervisor instructions.

5.4 Records are completed legibly and accurately according to farm procedures.

5.5 Work outcomes are reported to supervisor, feedback on performance is sought and any required improvements are noted for future action.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
• following work instructions and schedules
• maintaining quality standards
• maintaining safety of self and others
• observing variations from required quality standards
• reading production schedules and farm procedures
• recording data
• reporting faults and variations to supervisor.

Required knowledge:
• farm standards and procedures, including those relating to OHS, food safety, HACCP, quality systems, emergency procedures, organisational structure and workplace communication channels and protocols
• impact on the rest of mushroom production cycle of deviations of mushroom substrate quality from farm standards for substrate
• industry and workplace awards and conditions
• overview of mushroom production cycle
• overview of substrate production
• site quarantine protocols.

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.

Machinery and equipment required when undertaking mushroom substrate processing tasks may include:
• casing mixer
• conveyors and casing applicators
• forklifts
• front-end loaders
• spawning hopper
• tunnel and tray filling equipment.

Checking and preparing machinery and equipment for use may involve:
• checking that all required repairs have been done
• checking that machinery and equipment are set up and functioning correctly
• checking that probes are correctly placed
• cleaning and disinfecting
• lubricating and basic servicing
• moving machinery and equipment into correct position.
**Farm procedures** may include:
- enterprise standard operating procedures
- HACCP
- industry best practice guidelines on quality, food safety and hygiene
- legislative and regulatory requirements such as OHS procedures
- manufacturer service specifications and operator manuals
- product labels and MSDS
- production schedule
- routine maintenance schedules
- supervisor’s oral or written instructions
- waste disposal, recycling and re-use guidelines
- work notes.

**Faults or variations** in materials and equipment that may be observed include:
- mushroom substrate being over-wet or having poor structure
- trays requiring repair.

**Remedial action** is taken at direction of supervisor or manager and may include:
- adjustments where processes do not comply with farm standards such as:
  - checking machinery and equipment
  - altering density of filling
  - adding more or less water to casing mixture
- arranging for urgent maintenance or short-term repairs for equipment that is not serviceable.

**PPE and clothing required** may include:
- aprons
- boots
- fluoro safety vests
- gloves
- hats or hair covering
- overalls
- waterproof jackets.

**OHS requirements** may include:
- appropriate use of PPE
- assessing and reporting risks
- basic first aid
- cleaning, maintaining and storing tools, equipment and machinery
- correct manual handling
- identifying hazards
- maintaining personal hygiene
- reporting problems to supervisors
- safe handling
- safe operation of tools, equipment and machinery.
**OHS hazards:**
- that may be anticipated when carrying out these tasks include:
  - chemicals and hazardous substances
  - confined spaces
  - dust and substrate-borne micro-organisms
  - electricity
  - manual handling
  - moving equipment, machinery and vehicles
  - noise
  - sharp hand tools and equipment
  - slippery or uneven surfaces.
- associated risks may be minimised by:
  - restricting access of non-essential personnel during operations
  - using correct manual handling techniques
  - wearing appropriate PPE.

**Procedures** for how units should be filled involve:
- ensuring consistency of fill across all units filled
- removing filled trays from the line efficiently to keep line moving
- setting machines to achieve filling at required density, weight per unit and clearance.

**Clean-up activities** may include:
- cleaning, sanitising or disinfecting tools, equipment, machinery and work areas
- removing products that have not met farm quality requirements
- removing spilt mushroom substrate or spawn.

**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, such as **RTC2706A Apply chemicals under supervision**.
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:

- understand and follow farm standard operating procedures
- understand and follow OHS procedures
- safely operate equipment and machinery required to process mushroom substrate
- work as part of a team to meet productivity and workflow requirements.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed on a mushroom farm 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 perform mushroom substrate process tasks.

The candidate must also have access to the following resources:

- machinery and equipment used for mushroom substrate process tasks appropriate to growing system in use on farm
- copies or samples of farm procedures and work instructions
- PPE.

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 perform mushroom substrate process tasks must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within mushroom farms using different growing equipment such as trays, shelves or tunnels.
RTE2506A Assess and receive raw materials for composting

Unit Descriptor
This unit of competency specifies the outcomes required to receive raw material for processing at a compost facility, including measuring quantity for billing and assessing material quality for acceptability against specified enterprise requirements. It also covers following procedures for handling non-conformance.

The unit involves the application of knowledge and skills to a limited range of defined tasks and responsibility.

Employability Skills
This unit contains employability skills.

Application of the Unit
Composting is used as a general expression for the processing of organic materials; with this unit being relevant for both aerobic composting and vermiculture technologies.

This unit of competency applies to an employee of an enterprise engaged in commercial-scale composting operations. Tasks are likely to be performed by a yard hand or general hand under supervision of an operations team leader or site foreman. Work is likely to be performed as a part of a team.

This unit must be read in conjunction with the National Guidelines for Occupational Health and Safety Competency Standards for Operation of Load-Shifting Equipment and Other Types of Specified Equipment [NOHSC: 7019 (1992)].

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Organise for work.

1.1 Specifications for raw materials for composting operation, acceptance criteria and receival procedures are confirmed according to supervisor instructions and enterprise procedures.

1.2 Hand tools appropriate to job requirements are selected and checked for serviceability according to manufacturer specifications and enterprise procedures.

1.3 Existing and potential hazards to health and safety are identified, assessed and reported according to occupational health and safety (OHS) and enterprise procedures.

1.4 Suitable personal protective equipment (PPE) is selected, used, maintained and stored according to OHS procedures.
2. Receive raw materials.
   2.1 Raw materials are accurately identified and assessed against specified acceptance criteria.
   2.2 Unacceptable (non-conforming) materials are rejected according to enterprise procedures.
   2.3 Non-conformances are documented and reported according to enterprise procedures.
   2.4 Acceptable raw materials are measured, and quantity is recorded according to enterprise procedures.
   2.5 Fee is calculated based on raw material type and quantity, and charged to customer according to enterprise procedures.
   2.6 Correct fee payment is received and recorded, and receipt is provided according to enterprise procedures.

   3.1 Drivers are given clear directions for unloading safely at a specific location.
   3.2 Unloading assistance is provided as required.
   3.3 Raw materials are inspected and assessed against specified acceptance criteria according to enterprise procedures.
   3.4 Unacceptable (non-conforming) materials are rejected according to enterprise procedures.
   3.5 Non-conformances are documented and reported according to enterprise procedures.
   3.6 Designated unloading areas are clearly identified and monitored to ensure compliance with unloading instructions, containment and segregation of materials, and availability of storage capacity.

4. Remove contaminants and stockpile acceptable raw materials.
   4.1 Physical contaminants are removed from raw materials according to enterprise procedures.
   4.2 Raw materials are segregated, stockpiled and contained in appropriate areas or otherwise managed according to enterprise procedures.
   4.3 Raw material stockpiles are monitored to ensure adequate available storage capacity and containment, and non-conformances are reported to supervisor.
   4.4 Raw material stockpiles are clearly labelled according to job and enterprise procedures.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

**Required skills:**

- basic mathematics for volume estimation and calculation of quantities and fees
- literacy levels sufficient to:
  - read and follow enterprise policies and procedures
  - read site operating guidelines to confirm acceptance criteria
- operating a weighbridge
- oral communication skills to:
  - give directions to drivers
  - confirm instructions from supervisor
- performing basic administration procedures such as producing a receipt and operating a cash register.

**Required knowledge:**

- characteristics of a range of raw materials
- enterprise policies and procedures, including OHS procedures
- safety risks to self and product posed by contaminants in raw materials and products
- standard risk control measures used in the industry to minimise risk associated with handling raw materials and products.
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.

**Raw materials** assessed and/or received on the site may include:

- animal mortalities
- biosolids such as sewage sludge
- crop residuals
- dairy waste
- fats and oils
- food organics:
  - food waste
  - kitchen waste
  - food processing waste
- forestry residuals
- manures
- organic sludges
- paper mill wastes
- paper-based materials
- plant materials such as:
  - garden organics
  - green organics
  - green waste
  - yard waste
- sawdust and wood shavings
- sewage facility grit and screenings
- wood and timber (non-treated)
- other organic waste or by-product of processing.

**Hand tools** required may include:

- bins and buckets
- grabbers
- mechanical hands
- other physical contaminant removal hand tools and receptacles
- shovels and scoops.

**OHS hazards** may include:

- biological hazards
- ergonomic hazards associated with manual handling
- physical hazards such as:
  - compressed air and water
  - dust
  - hammer mills and grinders
  - hot or cold weather conditions
  - noise
  - shredders
  - underfoot conditions
  - vehicles and mobile machinery
- sharps or other physical contaminants in materials.
**PPE** required may include:
- dust masks
- earmuffs
- fire extinguishers
- gloves
- hard hats
- high visibility vests
- protective clothing
- safety footwear
- safety glasses.

Methods for **measuring**
raw materials may include:
- scale
- volume estimates
- weighbridge.

**Contaminants** that may need to be removed from raw materials include:
- biological contaminants such as pathogens
- chemical contaminants such as:
  - pesticides
  - heavy metals
- physical contaminants such as:
  - glass, plastics and metals
  - rubble, stone and soil
  - sharps
  - other non-biodegradable materials.

**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. For example it may be assessed with **TDTD2298B Conduct weighbridge operations and after RTE2507A Recognise raw materials, production processes and products on a composting site.**
## 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:**

- inspect and assess raw materials for contamination and acceptability against established criteria
- measure and assess quantity of raw material
- handle and report non-conformances
- record raw material quantity and calculate fee
- maintain appropriate documentation
- identify hazards in handling raw materials and implement risk control measures
- provide clear directions to drivers entering site.

## Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and must be assessed in a commercial-scale composting facility or in a situation that reproduces and/or simulates operational conditions.

For valid assessment, candidates should have opportunities to participate in a range of exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge specified in this unit.

The candidate should also have access to the following resources:

- weighbridge and scales
- load-shifting equipment
- hand tools/equipment for removing physical contaminants
- PPE
- raw materials for assessment
- acceptability criteria and procedures for raw materials
- forms (e.g. for recording quantity and reporting non-conformance).

## Guidance information for assessment

To ensure consistency in 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 demonstrate competency must allow for application in a broad industry context, and should be transferable to a range of work environments, including the ability to deal with unplanned events. For example, this could include work within composting operations of varying scale; processing a range of different raw materials; producing a range of different composts and value-added products to meet the demands of different markets; located in an urban or rural context with varying environmental constraints; and using various equipment, practices, technologies and management systems.
RTE2507A Recognise raw materials, production processes and products on a composting site

Unit Descriptor
This unit of competency specifies the outcomes required to recognise raw materials and products, their characteristics, potential contamination, site location, and handling and management requirements; and recognise the function and relative location of key production processes. It also covers carrying out basic site maintenance.

The unit involves identifying the nature of enterprise processes and products in order to carry out day-to-day work responsibilities, including site maintenance.

Employability Skills
This unit contains employability skills.

Application of the Unit
Composting is used as a general expression for the processing of organic materials; with this unit being relevant for aerobic and anaerobic composting and vermiculture technologies.

This unit of competency applies to an employee of an enterprise engaged in commercial-scale composting operations. Tasks are likely to be performed by a yard hand or general hand under supervision of an operations team leader or site foreman. Work is likely to be performed as a part of a team.

This unit must be read in conjunction with the National Guidelines for Occupational Health and Safety Competency Standards for Operation of Load-Shifting Equipment and Other Types of Specified Equipment [NOHSC: 7019 (1992)].

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Recognise, handle and locate raw materials on site

1.1 Raw materials are identified for potential purpose.

1.2 Characteristics of raw materials, including handling risks and potential or common contaminants, are compared to site operating guidelines.

1.3 Potential hazards in handling raw materials are identified and reported to supervisor.

1.4 Initial handling requirements, stockpiling location and arrangement on site are confirmed from site operating guidelines.

1.5 Visible or physical contaminants present in raw materials are identified and recorded.

1.6 Physical contaminant handling, stockpiling location and arrangement on site are confirmed from site operating guidelines.
2. Recognise and locate key processes and technologies.

2.1 Composting technologies and methods, key process control steps and technologies are identified and locations on site are confirmed from site map.

2.2 Windrows or vessels are identified by reference to batch or code numbers.

2.3 Machinery, plant and equipment and their functional uses are confirmed from site operating guidelines.

3. Recognise, handle and locate compost and other products on site.

3.1 Compost and other products are identified for their intended use.

3.2 Characteristics of products, including handling risks and potential or common contaminants, are compared to site operating guidelines.

3.3 Potential hazards in handling products are identified and reported to supervisor.

3.4 Handling requirements, stockpiling location and arrangement on site are confirmed from site operating guidelines.

3.5 Potential for contamination of products is identified and action is taken according to enterprise procedures.

3.6 Batching sheets or other product formulas are matched to end product.

3.7 Visible or physical contaminants present in products are identified and reported to supervisor.

3.8 Physical contaminant handling, stockpiling location and arrangement on site are identified.

4. Identify and carry out site maintenance requirements.

4.1 Site maintenance requirements are identified and carried out according to enterprise procedures.

4.2 Traffic access routes and site traffic/pedestrian safety rules are identified from site operating plan and maintained according to enterprise and occupational health and safety (OHS) procedures.

4.3 Vehicle access routes on site are maintained according to enterprise procedures.

4.4 Machinery and site security requirements are identified and maintained according to enterprise procedures.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• applying communication skills including active listening, questioning and asking for clarification from supervisor
• applying literacy and numeracy skills sufficient to read and follow enterprise policies and procedures
• identifying and handling physical contaminants
• identifying and handling raw materials and products
• recognising and complying with site traffic and security requirements.

Required knowledge:

• characteristics of a range of raw materials
• company policies and procedures, including OHS requirements
• key process control stages critical to consistent quality in compost production
• overview of systems and technologies used in compost production, particularly as relevant to workplace
• range and characteristics of products
• risks associated with movement of vehicles and machinery on site
• safety risks to self and product posed by contaminants in raw materials and products
• standard risk control measures used in the industry to minimise risk associated with handling raw materials and products.
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.

**Raw materials** may include:

- animal mortalities
- biosolids such as sewage sludge
- crop residuals
- dairy waste
- fats and oils
- food organics such as:
  - food waste
  - kitchen waste
  - food processing waste
- forestry residuals
- manures
- organic sludges
- paper mill wastes
- paper-based materials
- plant materials such as:
  - garden organics
  - green organics
  - green waste
  - yard waste
- sewage facility grit and screenings
- wood and timber (not treated)
- other organic waste or by-product of processing.
**OHS hazards:**
- may include:
  - biological hazards
  - compressed air and water
  - dusts
  - ergonomic hazards associated with manual handling
  - hazards to pedestrians
  - hot or cold weather conditions
  - mechanical hazards such as:
    - grinders
    - hammer mills
    - shredders
  - noise
  - physical hazards such as:
    - mobile machinery
    - vehicles
  - sharps or other physical contaminants in materials
  - underfoot conditions
- must be addressed by observing enterprise and OHS procedures for:
  - hazard identification
  - risk assessment
  - risk control.

**Physical contaminants**
- observed may include:
  - binding and rubble
  - glass
  - metals
  - plastics
  - sharps
  - stone and soil
  - other non-biodegradable materials.

**Composting technologies** and methods may include:
- aerated static pile
- agitated bay
- in-vessel composting technologies
- rotating drum
- turned pile
- vermiculture beds
- windrow.
Machinery, plant and equipment may include:

- conveyor belts and associated attachments such as magnetic and blower or suction separators
- elevators
- excavators
- first-response firefighting equipment
- front-end loaders
- gantry cranes
- hoppers, bins and other containers for contaminant disposal
- personal protective equipment such as:
  - dust mask
  - earmuffs
  - hard hats
  - protective clothing
  - reflector high visibility vests
  - respirators
  - safety footwear
  - safety glasses and gloves
- power or trommel screen
- safety and road signs
- size reduction machinery for grinding or chipping
- static machinery, such as weighbridges
- windrow turners.

Products may include:

- additives blended with recycled organic products after composting such as:
  - inorganic fertilisers
  - lime and gypsum
  - organic fertilisers
  - sand
  - soil
  - wetting agents
- recycled organic products such as:
  - composts
  - landscaping soils and materials
  - mulches
  - potting mixes
  - soft fall products
  - soil conditioners
  - vermicast.

Site maintenance activities may include:

- implementation of site machinery and traffic access and circulation plans
- location and management of compost piles, and recipe or batch blends
- location of material during curing processes
- placement and management of raw materials, products and other inputs or material for disposal.
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 such as:

- RTC2701A Follow OHS procedures
- RTC2702A Observe environmental work practices
- RTE2608A Set up, operate and maintain a water delivery system.

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:

- identify, confirm, locate, handle and maintain raw materials, products and physical contaminants on site
- maintain site arrangement and segregation of materials and products to avoid contamination
- recognise and locate key process control stages of production cycle and associated machinery on site
- maintain site and machinery security requirements
- read and follow batch numbers and codes, and site operating plan
- implement site machinery and traffic management plans.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and must be assessed in a commercial-scale composting facility or in a situation that reproduces and/or simulates operational conditions.

For valid assessment, one should have opportunities to participate in exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge specified in this unit.

The candidate should also have access to the following resources:

- personal protective equipment
- commercial-scale compost piles
- raw materials and products for recognition and handling
- access to a commercial-scale compost facility with documented management system and batch documentation.
Guidance information for assessment

To ensure consistency in performance, competency should preferably be demonstrated on more than one occasion over a period of time in order to cover a variety of circumstances and operational contexts, and where possible, over a number of assessment activities.

The skills and knowledge required to demonstrate competency must allow for application in a broad industry context, and should be transferable to a range of work environments. For example, this could include work within commercial-scale composting operations of varying size; a range of different raw materials; a range of different composts and value-added products manufactured to meet the demands of different markets; location (i.e. urban or rural context); varying environmental constraints; and using various equipment, practices, technologies and management systems.
RTE2608A Set up, operate and maintain a water delivery system

Unit Descriptor
This unit of competency specifies the outcomes required to establish and maintain sufficient moisture levels in compost windrows and batches on a commercial-scale composting site.

The work requires the application of basic operational knowledge and skills to a limited range of maintenance tasks and roles, most of which are routine and predictable.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to an employee of an enterprise engaged in commercial-scale composting operations. Tasks are likely to be performed by a yard hand or general hand under supervision of an operations team leader or site foreman. Work is likely to be performed as a part of a team.

This unit must be read in conjunction with the National Guidelines for Occupational Health and Safety Competency Standards for Operation of Load-Shifting Equipment and Other Types of Specified Equipment [NOHSC: 7019 (1992)].

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Set up a water delivery system.

1.1 Requirements for set up of water delivery system and application methods to be used are obtained from supervisor and clarified if required.

1.2 Details of location to which water is to be delivered are confirmed with supervisor and any regulations covering use of site are noted and observed.

1.3 Hoses, tools and equipment and components appropriate to particular water delivery system being set up are selected and correctly used.

1.4 Appropriate water sources on site are identified.

1.5 Occupational health and safety (OHS) hazards associated with task are identified and appropriate action is taken to minimise risks to self and others.

1.6 Water delivery lines, where required, are measured and marked out according to instructions.

1.7 Water delivery system is set up according to instructions and enterprise procedures.
2. Operate a water delivery system.
  2.1 Water delivery is commenced as instructed.
  2.2 Water application rate is set according to enterprise procedures.
  2.3 Pipes, hoses and all joints are checked and confirmed to be secure and leak free.
  2.4 Pumps are operated and checked according to manufacturer instructions and enterprise procedures.
  2.5 Remedial action is taken if required and according to enterprise guidelines and supervisor instructions.

3. Check the efficiency of a water delivery system.
  3.1 Water application rate and distribution are checked according to enterprise procedures.
  3.2 Water delivery system is visually inspected for operating faults and dry areas, and observations are recorded in maintenance log.
  3.3 Variations from required rate or settings, or leaks, operating faults and dry areas observed at any stage in process are reported to supervisor.
  3.4 Remedial action is carried out as directed by supervisor and according to enterprise procedures.
  3.5 Amounts of water delivered to location are recorded according to enterprise procedures.
  3.6 Work outcomes are reported to supervisor, feedback on performance is sought and any required improvements are noted for future action.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
- literacy skills to read site water management plan and site operating plan or map
- numeracy skills sufficient to use a tape measure
- observing faults and variations from required settings
- operating pumps
- recording water application data
- setting out and operating watering systems
- using personal protective equipment (PPE) correctly
- using relevant equipment.

Required knowledge:
- characteristics and operation of joints, hoses, valves and sprinkler components
- components of water delivery system
- methods and techniques of water delivery
- procedures for safe use of equipment, such as powered and hand tools, as used in water delivery system maintenance
- standard industry risk-control measures to minimise risk associated with setting up and operating a water delivery system
- reporting and recording requirements.
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.

**Water delivery systems** may include:
- permanent overhead sprinklers
- portable or travelling sprinklers
- soaker hoses
- spray and drippers
- stand pipes
- water tanker.

**Water application methods** may include:
- hand-moving flexible hose
- pump and movable hose
- pump and sprinkler
- tanker.

**Tools and equipment** needed to set up a water delivery system may include:
- hammers
- irrigation punches and tube cutters
- measuring tapes
- polypipes
- shovels
- string lines.

**Delivery components** may include:
- automation and distribution networks
- connectors
- hoses
- meters
- nozzles
- pumps and motors.

**Water sources** may include:
- bores
- dams
- external reticulated water supply
- organic effluents or wastewaters with acceptable characteristics
- site leachate ponds
- site run-off or drainage collection dams.
**OHS hazards** may include:

- biological hazards
- ergonomic hazards associated with manual handling
- physical hazards such as:
  - compressed air and water
  - dust
  - hammer mills and grinders
  - hot or cold weather conditions
  - noise
  - shredders
  - underfoot conditions
  - vehicles and mobile machinery
  - sharps or other physical contaminants in materials.

**Enterprise procedures** for water delivery may include:

- forms
- procedures
- reporting processes for hazards, incidents and non-conformance
- work instructions
- work orders and job sheets
- work practices.

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**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, such as after:

- RTC2701A *Follow OHS procedures*
- RTC2702A *Observe environmental work practices*
- RTE2507A *Recognise raw materials, production processes and products on a composting site.*

**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:
  - set up and operate a water delivery system on a commercial-scale composting site
  - follow work instructions and enterprise procedures
  - observe and report any faults or variations from required settings and take remedial action as directed and within one’s scope of authority.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will be most appropriately assessed in a composting facility or in a situation that reproduces normal composting work conditions.

For valid assessment, one should have opportunities to participate in exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge specified in this unit.

The candidate must also have access to the following resources:

- composting site requiring water delivery
- components of water delivery system to be set up
- tools and equipment appropriate to the type(s) of water delivery systems to be set up
- PPE.

Guidance information for assessment

To ensure consistency in performance, competency should be demonstrated on more than one occasion over a period of time in order to cover a variety of circumstances, and where possible, over a number of assessment activities.

The skills and knowledge required to demonstrate competency must allow for application in a broad industry context, and should be transferable to a range of work environments, including the ability to deal with unplanned events. For example, this could include work within composting operations of varying scale; processing a range of different raw materials; located in an urban or rural context with varying environmental constraints; and using various equipment, practices, technologies and management systems.
RTE2707B Follow site quarantine procedures

Unit Descriptor
This unit of competency specifies the outcomes required to follow enterprise site quarantine procedures that are designed to reduce the likelihood of pathogenic organisms entering the site. Site quarantine procedures are followed as a routine part of one's own work and are applied to visitors to the site. Work is performed under supervision and according to established procedures and policies.

It may apply to work in all rural production and production horticultural enterprises.

Employability Skills
This unit contains employability skills.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare to work in quarantine site.
   1.1 Ensure personal and/or work vehicles are decontaminated before entering the quarantine site.
   1.2 Contact with potential contaminants is reported according to enterprise requirements.
   1.3 Hands are washed before livestock, feed, plant stock or other products are handled.
   1.4 Appropriate clothing and footwear is put on before commencing work and 'street clothing' is securely stored away from livestock, feed or other products.

2. Work in quarantine site.
   2.1 Chemicals and/or medications are handled and stored appropriately.
   2.2 Where relevant to the production activities of the enterprise, different feed mixes, soils and/or growing media and/or other products are kept separate and appropriately marked according to enterprise procedures.
   2.3 Any cases of pest or parasite infestation are identified and reported to supervisor.
   2.4 Any breaches of quarantine procedures are identified and reported to supervisor.
   2.5 Any OHS hazards are identified and appropriate action is taken according to enterprise policy and OHS legislation and codes.
   2.6 All waste product is disposed of according to enterprise procedures.
   2.7 All deceased livestock, unwanted biological material or damaged/infected plant stock and other items are disposed of according to enterprise procedures.
   2.8 Information relating to work in quarantine site is recorded as required by the enterprise procedures.
### 3. Assist in maintaining site quarantine procedures.

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<tr>
<td>3.1</td>
<td>All visitors are informed of the quarantine procedures and are provided with appropriate clothing and footwear, if required by enterprise procedures.</td>
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<td>3.2</td>
<td>Any observed breaches of quarantine procedures by visitors are noted and reported to supervisor.</td>
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<td>3.3</td>
<td>Gates and doors are kept locked where required by enterprise procedures and supervisor instructions.</td>
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<td>3.4</td>
<td>Where installed, security fencing is maintained according to supervisor instructions.</td>
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<td>3.5</td>
<td>Deliveries to site are checked to ensure that established procedures for vehicle decontamination, unloading and receipt and holding or storage of stock and/or supplies are followed.</td>
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### 4. Respond to site quarantine breach or problem.

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<td>4.1</td>
<td>The specific problem and its location is identified and reported to supervisor.</td>
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<td>4.2</td>
<td>Problems are secured according to enterprise procedures.</td>
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<td>4.3</td>
<td>Quarantine site and location of breach is cleaned and disinfected as required according to the specific nature of the problem and enterprise procedures.</td>
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<td>4.4</td>
<td>Livestock, plant stock and other items suspected of being exposed to contaminants are isolated and monitored for evidence of contamination according to enterprise procedures.</td>
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<td>4.5</td>
<td>All contaminated stock/materials and other items are treated and/or disposed of according to enterprise procedures.</td>
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<tr>
<td>4.6</td>
<td>Information about the breach or problem is recorded according to enterprise procedures.</td>
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### REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

**Required skills:**

- Read and/or interpret site quarantine procedures
- Follow procedures
- Communicate with visitors to the enterprise about site quarantine procedures

**Required knowledge:**

- Enterprise site quarantine policy and procedures
- Industry quality assurance requirements (where applicable) and documentation required to be kept
- Reporting procedures for alleged breaches of site quarantine procedures
- Consequences of breaching site quarantine procedures
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.

What might be included in a quarantine site?

The quarantine site may be the whole farm, an apiary, enterprise premises, or part of the premises or enterprise, such as an isolation area or sick bay. In some cases, the quarantine area may extend beyond the enterprise boundaries.

How might vehicle decontamination be carried out?

Vehicle decontamination may require that all vehicles are driven through a dip of treated solution before entering the site.

What may be potential contaminants?

Potential contaminants may include pathogens entering on clothing/footwear, equipment, vehicles or items being delivered to the enterprise. Potential contaminants may also enter in foodstuffs, including food for animal, bee or human consumption, vaccines, water or soil, or be brought on to the site by new livestock, bees or pests.

What may be included in enterprise requirements?

These may include standard operating procedures (SOPs), enterprise quality assurance manual, industry standards and quality assurance programs specific to biosecurity, production schedules, Material Safety Data Sheets, work notes, product labels, manufacturers specifications, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), OHS procedures, supervisors oral or written instructions, work and routine maintenance plans.

What is included in livestock, feed, plant stock or other products?

Livestock, feed, plant stock or other products include any animals, plants, prepared stock feed and stock feed ingredients, fish, all hive products and the beehive itself.

What type of pest infestations might occur?

Pests can include vertebrate and invertebrate pests, wild birds in sheds or housing, dogs, cats, feral animals, wildlife, parasites of honeybees, or feral or managed bees carrying parasites.

What sort of waste products and other items might need to be disposed of?

Waste products might include feed spills, unused/expired vaccine, and biological matter, such as semen, embryos, tissue samples, plant cuttings, dead birds, manures, used beekeeping equipment, dead bees, and used chemicals and pest strips. Other items may include beehives, materials and hive products.
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.

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

Competence in following site quarantine procedures requires evidence that the person is able to understand and apply the specific procedures in place in an enterprise and to report any breaches of quarantine to supervisors.

The skills and knowledge required to follow site quarantine procedures must be transferable to a different work environment. For example, following site quarantine procedures in different types of enterprises or where quarantine is imposed in response to different circumstances on different occasions.
What processes should be applied to this unit of competency?

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 unit of competency. 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.

- How can communication of ideas and information (1) be applied?
  - Discussing problems with maintaining the quarantine procedures.
- How can information be collected, analysed and organised (1)?
  - Keeping records of visitors to the enterprise, and noting the requirements for exclusion periods from the quarantine site.
- How are activities planned and organised (1)?
  - Scheduling locking of sheds, gates and storage areas.
- How can team work be applied?
  - Working as a team member to review and implement the required enterprise procedures and to deal with breaches of site quarantine.
- How can the use of mathematical ideas and techniques (1) be applied?
  - Recording and calculating chemical application rates.
- How can problem-solving skills (1) be applied?
  - Identifying and investigating pest infestation mode of entry.
- How can the use of technology (1) be applied?
  - Using alarms or other warning systems to notify of breaches of quarantine site.

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

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

There is essential information about assessing this unit of competency for consistent performance and where and how it may be assessed, in the Assessment Guidelines for this Training Package. All users of these units of competency must have access to the Assessment Guidelines. Further advice may also be sought from the relevant sector booklet.
**RTE2708A Work effectively in the mushroom industry**

**Unit Descriptor**
This unit of competency specifies the outcomes required to work effectively in the mushroom industry on an individual basis and with others. It requires the ability to satisfy employment requirements, accept responsibility for the quality of own work, maintain the safety of self and others, participate in workplace teams and follow work schedules. Working effectively in the mushroom industry requires industry knowledge and skills, including knowledge of food safety requirements, employer expectations, relevant legislation and codes of practice applying to the mushroom industry, occupational health and safety (OHS) policies and procedures, mushroom farm policies and procedures, emergency procedures, organisational structure and workplace communication channels.

**Employability Skills**
This unit contains employability skills.

**Application of the Unit**
This unit of competency supports the role of a general assistant or farmhand who may perform any of a wide range of tasks in a mushroom farming enterprise.

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

**Unit Sector**
No sector assigned

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>PERFORMANCE CRITERIA</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Own work role in mushroom production cycle and impacts of own actions on other parts of the cycle are identified and taken into consideration in daily work.</td>
</tr>
<tr>
<td>1.2</td>
<td>End use of the range of mushroom products or other materials handled as part of one's job is identified and taken into consideration in daily work.</td>
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</tbody>
</table>
2. Contribute to a productive work environment.
   
   2.1 Employer expectations are met by following specific instructions and workplace routines according to mushroom farm policies and procedures.
   
   2.2 OHS procedures are correctly applied in day-to-day work activities.
   
   2.3 Possible improvements to workplace practices are identified and suggested to supervisor.
   
   2.4 Responsibilities and duties are undertaken in a positive manner to promote cooperation and good relationships.
   
   2.5 Interaction with others is conducted in a courteous and cooperative manner and is appropriate to culture, special needs, linguistic background and position in organisation.
   
   2.6 Principles of equal employment opportunity are observed and implemented.
   
   2.7 Work is consistent with workplace standards relating to anti-discrimination and workplace harassment.
   
   2.8 Problems and conflict are recognised and resolved, where possible, through personal communication and/or are referred to appropriate person for resolution.
   
   2.9 Information relevant to work is shared with colleagues to ensure designated work goals are met.

3. Accept responsibility for quality of own work.
   
   3.1 Personal work space and allocated tools and equipment are kept in a well organised and safe condition, according to relevant policies and procedures.
   
   3.2 Quality of work and/or rate of own output is checked and compared to required standard.
   
   3.3 Work instructions are interpreted correctly and carried out.
   
   3.4 Where quality of own work and/or rate of output do not meet required standards, need for assistance in improving performance is identified and communicated to supervisor and appropriate action is taken.
   
   3.5 Personal work load is assessed and prioritised within allocated timeframes.

4. Follow mushroom farm hygiene and site quarantine requirements.
   
   4.1 Clothing, tools and equipment are maintained to meet work area standards.
   
   4.2 Site quarantine protocols and farm and personal hygiene requirements are applied and followed as required by farm procedures or supervisor instructions.

5. Follow the mushroom farm food safety program.
   
   5.1 OHS procedures are correctly applied in day-to-day work activities.
   
   5.2 Areas of food safety risk in own work area are identified and monitored.
   
   5.3 Corrective actions are taken to minimise risk according to own scope of responsibilities and mushroom farm food safety program.
   
   5.4 Risks beyond own control are promptly reported to appropriate person(s).
   
   5.5 Records are completed according to mushroom farm requirements and work responsibilities.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- contributing to productive work environment
- interpreting work schedules
- interacting with people from a range of cultural and ethnic backgrounds and with a range of physical and mental abilities
- managing own work
- maintaining safety of self and others
- promoting workplace cooperation
- using communication skills to:
  - listen to instructions
  - provide and receive feedback
  - ask questions to clarify and confirm understanding
  - meet differing needs
  - use positive, confident and cooperative language.

Required knowledge:

- emergency procedures
- employer expectations
- industry and workplace awards and conditions
- organisational structure
- overview of mushroom production cycle, with more detailed information about part of cycle in which one is working
- relevant legislation and codes of practice applying to mushroom industry
- types of mushrooms grown on farm and their end use
- workplace communication channels and protocols
- workplace policies and procedures, including those relating to food safety, hazard analysis critical control point (HACCP) and quality systems, OHS, equal employment opportunity, anti-discrimination and workplace harassment.

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.

Information about the farm may include:

- career opportunities within mushroom industry
- different sectors of mushroom industry and products produced in each sector
- industrial relations issues
- industry and farm expectations of staff
- industry working conditions
- legislation that affects industry
- major organisations
- OHS hazards and quality assurance
- relationship between mushroom industry and other industries, including those in supply chain
- work ethic required to work in mushroom industry.
Policies and procedures may include:

- anti-discrimination and workplace harassment
- biosecurity
- environmental policies
- equal employment opportunity
- food safety and HACCP procedures
- OHS policies and procedures such as:
  - accident reports
  - responsibilities and duties
- punctuality
- quality system
- site quarantine.

Work activities may include:

- ad hoc activities
- daily routines
- periodic routines, especially those associated with different phases of production cycle.

People with special needs may include:

- children
- elderly people
- people from non-English speaking backgrounds
- people with a disability.

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.

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:

- follow farm policies and procedures in daily work
- meet performance standards and requirements for own work
- contribute effectively to work outcomes as a team member.
Context and specific resources for assessment

The assessment environment should not disadvantage the candidate.

Assessment practices should take into account any relevant language or cultural issues related to Aboriginality, gender or language backgrounds other than English.

Where the candidate has a disability, reasonable adjustment may be applied during assessment.

Language and literacy demands of the assessment task should not be higher than those of the work role.

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a mushroom industry workplace.

There must be access to the appropriate equipment and/or resources to enable the candidate to demonstrate competency.

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 work effectively in the mushroom industry.

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 work effectively in the mushroom industry must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within different sized mushroom farms or farms using different growing technologies.
RTE2709A Recognise and respond to fire emergencies on a composting site

Unit Descriptor
This unit of competency specifies the outcomes required to prevent, recognise and provide first response to fire in material or compost piles. This includes making the correct response to signs of fire, attacking a fire under supervision of fire brigade personnel and carrying out post-fire clean-up. All procedures are carried out in accordance with occupational health and safety (OHS) requirements. The outcomes do not substitute for the attendance of fire brigade personnel in the event of a fire emergency.

Employability Skills
This unit contains employability skills.

Application of the Unit
Composting is used here as a general expression for the processing of organic materials; with this unit being relevant for both aerobic composting and vermiculture technologies.

The unit involves the application of knowledge and skills to a limited range of defined tasks and responsibility. Tasks are likely to be performed by a yard hand or general hand under supervision of an operations team leader or site foreman and fire brigade personnel.

This unit should be read in conjunction with the National Guidelines for Occupational Health and Safety Competency Standards for Operation of Load-Shifting Equipment and Other Types of Specified Equipment [NOHSC: 7019 (1992)].

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Recognise a fire risk and undertake preventative actions.

   1.1 Procedures for first response to fire are obtained from supervisor and clarified if required.

   1.2 Location of basic firefighting equipment on site is identified and checks made to ensure all equipment is available and ready for use.

   1.3 Conditions that can lead to fire and signs of fire are recognised and reported to supervisor.

   1.4 Enterprise procedures for emergencies are observed.

   1.5 Temperature and moisture management procedures are implemented according to enterprise requirements.
2. Recognise and initiate response to fire.

   2.1 Nature and extent of fire are identified.

   2.2 Fire details are reported and alarm is raised according to enterprise procedures.

   2.3 Preparations for water availability for fire brigade attendance are implemented as directed by supervisor and according to enterprise procedures.

   2.4 OHS hazards associated with fire emergency are identified and appropriate action is taken to minimise risks to self, others and property.

   2.5 Immediate area of the emergency is secured as directed by supervisor and in line with enterprise procedures to ensure no further loss occurs.

   2.6 Where safe to do so, machinery and equipment are removed from area.

   2.7 Firefighting equipment is selected and set up in line with enterprise procedures, as directed by fire brigade personnel and supervisor.

3. Attack fire under direction of fire brigade.

   3.1 Appropriate firefighting and containment media are applied to attack and control fire, as directed and in a safe and coordinated manner.

   3.2 Firefighting methods and tactics are employed as directed.

   3.3 Potential for change in fire behaviour is reported to fire brigade and supervisor and acted upon under supervision to ensure safety of personnel and protection of property.

   3.4 Clear line of retreat is identified and maintained at all times.

   3.5 Conditions at fire are observed and their effects on fire development are reported according to company guidelines.

   3.6 Significant changes to status of fire are immediately reported to supervisor and fire brigade.

4. Carry out post-fire activities.

   4.1 Smouldering fire residuals are identified and controlled as required according to enterprise procedures and fire brigade directions.

   4.2 Break-up of windrows, buildings or structures is carried out as directed by supervisor and enterprise procedures.

   4.3 Enterprise procedures for removal of spent fuel or burnt compost and debris are followed.

   4.4 Activities to complement post-fire operations and prevent further damage are carried out as directed and according to enterprise procedures.

   4.5 Site and equipment are cleared and cleaned to enterprise and manufacturer guidelines.

   4.6 Assistance is given to fire brigade to complete and record appropriate incident information.

   4.7 Effectiveness of tactics employed is reported to supervisor.

   4.8 As part of one's participation in an incident debrief, feedback on performance is sought and any required improvements are noted for future action.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- following emergency procedures, including procedure for contacting fire brigade
- following verbal instructions from fire brigade and supervisor
- observing signs of fire
- operating pumps
- reading and interpreting site operations plan or map
- reading written instructions sufficient to select and use correct firefighting media such as fire extinguishers
- recognising and reporting fire risks and incidents
- setting up water delivery system
- understanding and following safety and fire signs
- using communications equipment
- using personal protective equipment (PPE) correctly.

Required knowledge:

- characteristics and operation of joints, hoses, valves and sprinkler components
- enterprise operating procedures, including OHS and emergency management plan
- fire behaviour, extinguishing media and operating firefighting equipment
- fire control tactics and techniques, fire hazards and safety techniques
- operation of pumps
- pile size, moisture and porosity as causes of combustion
- procedures for safe use of equipment, such as power and hand tools
- standard risk control measures used in the industry to minimise risk associated with fire response.

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.

Firefighting equipment includes:

- fire hoses and standpipes
- hand tools
- hand-held extinguishers
- hose connectors and valves
- infra-red detection meters
- portable motorised pumps.

Conditions that can lead to fire may include:

- humidity
- size, moisture content and porosity of compost and material piles
- types of raw materials
- weather conditions
- wind speed and length of time of storage.
Signs of fire will include:

- fire odours
- increased temperature pockets in compost and material piles
- smoke
- smoke streams
- smouldering
- sparking and flames.

Enterprise procedures relevant to fire include:

- essential procedures that must include:
  - fire drills
  - identification of hazards
  - reporting of fires
  - risk assessment and control
  - strategies and evacuation procedures
  - use of first response firefighting equipment
- additional procedures such as:
  - clearing composting areas of loose material
  - housekeeping practices to control risk of fire
  - knowledge of enterprise emergency management plan and one's role in it
  - maintaining distances between compost and material piles
  - monitoring temperatures
  - planned maintenance and cleaning of machinery and vehicles.

Fire emergencies may include fire in:

- compost windrows or piles
- stockpiles of raw materials or products
- structures, vehicles, equipment and machinery.

Temperature and moisture management procedures may include:

- application of water
- controlled mechanical aeration
- noting storage times of stockpiles, windrows and in-vessel systems
- turning of windrows.
OHS:

- procedures and responses should include:
  - reporting incidents to supervisor immediately in cases of:
    - burns
    - fatigue
    - injuries
    - smoke inhalation
  - selection, use, maintenance and storage of PPE and clothing such as:
    - fluoro safety vests
    - gloves
    - goggles
    - hard hats
  - relevant OHS hazard identification, risk assessment and risk control measures, including:
    - location, siting and separation distances of combustible products
    - plant and vehicle preventative maintenance
    - procedures to protect against electrical hazards
    - protection from aerosol particulates, and organic or other dusts
    - rights and responsibilities of employers and employees under relevant state or territory and workplace OHS legislation
    - safe manual handling systems and procedures
    - safe operation of vehicles
    - safe systems and procedures for fighting fires
    - safe systems and procedures for use of hand tools
    - selection, use and maintenance of PPE and clothing.

Firefighting and containment media include:

- carbon dioxide
- foam and dry chemical from portable equipment or standpipe and hose combinations
- sand
- soda/water combinations
- water.

Changes in fire behaviour may include:

- flame height and intensity
- fuel arrangement
- rate of spread
- spotting.

Conditions relevant to fire emergencies may include:

- availability of containment media
- availability of fuel
- heat
- personnel to assist
- weather
- wind direction and strength.
Controls applied to smouldering fires may include:

- break up and screening of stockpiles and windrows while adding water
- break up and spreading of material
- offensive, defensive and containment strategies.

Activities to complement firefighting operations may include:

- mopping up, cleaning up and removing burnt material
- operating water tanker
- preparing ditches and drains for water run-off
- using vehicles and equipment such as:
  - operating loaders
  - screens for material dispersal.

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 such as:

- RTE2507A Recognise raw materials, production processes and products on a composting site
- RTE2608A Set up, operate and maintain a water delivery system.

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:

- follow work instructions and enterprise procedures
- initiate correct response to fire
- use correct PPE
- safely attack a fire under supervision of fire brigade
- maintain health and safety of self and others in immediate area
- operate relevant equipment in a safe and efficient manner
- participate in mop up, clean up and reporting.
Assessment for this unit of competency is to be largely practical in nature and must be assessed in a commercial-scale composting facility or in a situation that reproduces and/or simulates operational conditions.

For valid assessment, one should have opportunities to participate in exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge specified in this unit.

The candidate should also have access to the following resources:

- water and a water delivery system
- commercial-scale composting site
- fire incident simulation
- fire incident procedures
- relevant tools and equipment
- PPE
- sample incident reports.

To ensure consistency in 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 demonstrate competency must allow for application in a broad industry context, and should be transferable to a range of work environments, including the ability to deal with unplanned events. For example, this could include work within composting operations of varying scale.
RTE2902B Collect and record production data

Unit Descriptor

This unit of competency specifies the outcomes required to collect and record agricultural or horticultural production data obtained from a variety of sources, such as stock counts, vaccination or medication records, germination rates, quantities harvested.

Collecting and recording production data is likely to be carried out under routine supervision with intermittent checking. Responsibility for some roles and coordination within a team may be required. Data collection and recording activities are usually carried out within established routines, methods and procedures. Competency at this level requires the application of knowledge and skills to a range of data collection and recording tasks and roles.

Employability Skills

This unit contains employability skills.

Unit Sector

No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Identify data to be collected.

1.1 Specific requirements of the data to be collected are determined by discussion with the supervisor or by reading work instructions.

1.2 Materials or tools required for data collected are obtained, and where necessary, calibrated.

1.3 Difficulties that may be encountered in collecting the data are identified and advice sought from the supervisor if needed.

1.4 Advice about proposed data collection is communicated to others as required.

1.5 Suitable personal protective equipment (PPE) is selected, used and maintained where required.

1.6 Checks are made to determine whether notices relating to site quarantine are in effect and, where required, site quarantine procedures are followed.

2. Record production data.

2.1 Production data is recorded in the correct format and to meet specific requirements.

2.2 Records are legible, accurate and complete.

3. Present and store production data.

3.1 Production data is presented in the correct format and to meet specific requirements.

3.2 Production data sheets are stored according to enterprise procedures.

3.3 Production data is downloaded or entered into a computer where required, using specified formats and applications.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• enterprise recording methods
• purposes for which the recorded data might be used
• software programs used for recording or storing data.

Required knowledge:

• counting moving animals in paddocks, pens or in races
• operating data loggers
• entering data accurately into specified written or electronic/computerised formats
• calibrating tools and equipment.

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.

What types of data might need to be collected and what are some typical sources of production data?

Data may be obtained from a variety of sources, such as counting stocks of animals or plants/crops at particular stages of growth, those with particular characteristics or at specified locations, feeding rates and mixes, weights of livestock, fleece weights and statistics, show results, livestock marking systems, reproductive data (mating, birthing, defects, individual traits and sales), supplementary feeding, special care, weaning data, application of fertiliser, chemicals or medications, inventories of stock feed ingredient and mixes, and medications administered, temperature, water used, carbon dioxide, relative humidity, picker identification number, quantities and grade harvested, weight, grades, and the numbers of boxes packed and despatched.

What materials and tools could be needed to collect data?

Materials and tools may include paper, pens, tally forms, data loggers, and bar code scanners.

Who else might need to be advised about the production data collection activity?

Other employees working with the stock or materials may need to be advised so that the activity can proceed smoothly and stock is not moved or regrouped before data collection is complete.
What personal protective equipment may be required when carrying out production data collection activities?

PPE may include hat, boots, overalls, gloves, apron, waterproof clothing, spray clothing, goggles, respirator or face mask, face guard, hearing protection, sunscreen lotion and hard hat.

What might be the formats for recording and presenting data?

Data may be recorded and presented in specified written or electronic/computerised formats. Results may be presented orally to supervisors and/or work groups.

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.

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

Competence in collecting and recording production data requires evidence that accurate and timely counts of livestock, plant or other items or materials, can be made consistently to meet enterprise requirements.

The skills and knowledge required to collect and record production data must be transferable to a different work environment. For example, counting different species of livestock in paddocks or in pens, counting seedlings or saplings at different stages of growth.
What processes should be applied to this unit of competency?

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 unit of competency. 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.

• How can communication of ideas and information (1) be applied?
  • Presenting data in the required format.
• How can information be collected, analysed and organised (1)?
  • Collecting production data from required sources.
• How are activities planned and organised (1)?
  • Sequencing activity to meet required timeframe.
• How can team work (1) be applied?
  • Working with others to minimise disruption to routine production activities and to the data collection.
• How can the use of mathematical ideas and techniques (1) be applied?
  • Counting individual items/animals and groups of items according to requirements.
• How can problem-solving skills (1) be applied?
  • Rearranging data collection activities to fit in with other planned or unplanned production activities.
• How can the use of technology (1) be applied?
  • Using data loggers and personal computers to record and store data.

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

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

There is essential information about assessing this unit of competency for consistent performance and where and how it may be assessed, in the Assessment Guidelines for this Training Package. All users of these units of competency must have access to the Assessment Guidelines. Further advice may also be sought from the relevant sector booklet.
RTE3115B Implement livestock husbandry practices

Unit Descriptor
This unit of competency specifies the outcomes required to perform livestock husbandry in an agricultural environment. It requires the application of skills and knowledge to administer preventative health treatments appropriate to assessed livestock needs, monitor and evaluate livestock post-treatment, and maintain records accordingly. The unit requires an awareness of enterprise and legislative requirements with regard to animal welfare, workplace safety and positive environmental practices. The work requires some judgement and discretion, and would be carried out under minimal supervision within enterprise guidelines.

Employability Skills
This unit contains employability skills.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare for treatment of livestock.
   1.1 Equipment and materials for treating livestock are checked for safe and sound operation and confirmed against work plan.
   1.2 Livestock treatment site and facilities are prepared to industry standards in line with enterprise requirements.
   1.3 Livestock treatments are prepared and confirmed against work plan in line with manufacturer specifications and work plan.
   1.4 Potential and existing OHS hazards in the workplace are recognised, risk assessed and controlled in line with enterprise requirements.

2. Treat livestock.
   2.1 Livestock are mustered safely, yarded, controlled, inspected and identified for treatment in line with enterprise requirements.
   2.2 Safe workplace practices with regard to livestock handling are observed and implemented in line with OHS and enterprise requirements.
   2.3 Treatment is administered in accordance with manufacturers specifications, enterprise and animal welfare legislative requirements.
   2.4 Environmental implications associated with livestock husbandry practices are identified, assessed and relevant measures implemented.

3. Complete treatment process.
   3.1 Livestock are prepared and moved along planned route without damage to person, property or environment.
   3.2 Equipment, materials and facilities used for treatments are cleaned, maintained and stored in line with manufacturer specifications, OHS and enterprise requirements.
   3.3 Livestock residues and waste are disposed of in an environmentally responsible manner in line with OHS and enterprise requirements.

4.1 Livestock are monitored post-treatment for signs of treatment effectiveness.

4.2 Livestock health and condition abnormalities are recognised and treated appropriately in accordance with enterprise requirements.

4.3 Livestock treatment process and outcomes are detailed and recorded in line with enterprise requirements.

REQUIRED SKILLS AND KNOWLEDGE
This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- administer preventative health treatments in accordance with work plan
- apply contingency measures for administering treatments in the event of adverse weather conditions
- assess and calculate herd/flock numbers, measure dosage and quantities
- carry out animal husbandry procedures
- clean and maintain treatment equipment, site and facilities to industry standards
- communicate abnormalities, equipment faults and workplace hazards, report and maintain treatment records
- demonstrate safe and environmentally responsible workplace practices
- monitor and minimise impacts to the environment associated with livestock production, and the use and disposal of hazardous substances
- monitor livestock behaviour and recognise abnormalities
- muster, move and control livestock
- prepare treatment site, facilities and equipment to industry standards
- provide due care and handle livestock humanely
- read and interpret manufacturers specifications, work and maintenance plans, and Material Safety Data Sheets
- select and utilise equipment and materials appropriate for treating requirements and match to work tasks.

Required knowledge:

- enterprise policies with regard to treating livestock, recording and reporting routines
- environmental impacts and minimisation measures associated with livestock production, and the use and disposal of hazardous substances
- equipment and materials for treating livestock, their components and functions
- hazards associated with handling livestock and veterinarian medicines and chemicals
- livestock behaviour and basic health and nutritional requirements
- livestock health treatments, procedures and methods
- livestock husbandry practices
- livestock identification methods
- mustering and moving techniques
- personal protective clothing and equipment and when and how it should be used
- procedures for cleaning and maintaining treatment equipment and materials
- relevant State/Territory legislation, regulations and codes of practice with regard to workplace OHS, animal welfare, and the use and control of hazardous substances.
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.

What **equipment and materials** may be used for treating livestock?

These may include crushes, mulesing shears, foot clipping secateurs, hand shears, machine shearing handpieces, livestock cradles, foot baths, dehorning equipment, livestock handling equipment, drench guns, vaccinating guns, dips, jetting plant, jetting guns, syringe and scales.

What **livestock** are covered?

Livestock covered by this unit of competency include beef cattle, alpaca, sheep and goats.

What may be included in a **work plan**?

A work plan may include tasks (including type and application of treatments), equipment, resources and materials for use, equipment checks and maintenance procedures, supervisor instructions, timeframes for work completion, and reporting requirements.

Which **enterprise requirements** may apply?

Standard operating procedures, industry standards, production schedules, Material Safety Data Sheets, work notes, product labels, manufacturers specifications, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), OHS procedures, supervisors oral or written instructions, work and routine maintenance plans, may be included in enterprise requirements.

What **preventative health treatments** may apply?

Preventative health treatments may include, pizzle dropping, foot paring, clipping/grinding teeth, trimming horns, administering trace elements, giving injections, applying disinfectants, checking eyes and removing grass seeds, shearing dead livestock, collecting faecal samples, dipping, jetting, treating fly strike, caustic treatment of horn buds, mulesing/marketing, administering hormonal treatments/agents, inspecting testicles, checking vulvas, checking ears, checking teeth, checking udders, drenching, weaning young, removing horns, and castration.
<table>
<thead>
<tr>
<th><strong>Which OHS requirements may be applicable?</strong></th>
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</thead>
<tbody>
<tr>
<td>These may include identifying hazards and assessing and reporting risks, and implementing safe systems and procedures for:</td>
</tr>
<tr>
<td>• handling of livestock aimed to prevent injury and illness including zoonoses control (Q Fever)</td>
</tr>
<tr>
<td>• manual handling, application and storage of hazardous substances (drenches, vaccines)</td>
</tr>
<tr>
<td>• outdoor work including protection from solar radiation, and dust</td>
</tr>
<tr>
<td>• appropriate use of personal protective clothing and equipment.</td>
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<table>
<thead>
<tr>
<th><strong>Which potential and existing OHS hazards may be encountered in the workplace?</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Workplace hazards may include moving and handling livestock and machinery, solar radiation, dust, and other hazardous substances (i.e. veterinary chemicals).</td>
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<table>
<thead>
<tr>
<th><strong>How might the safe mustering of livestock be achieved?</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>This may include the application of controlled and calming techniques (including the restraint of working dogs) to minimise stress to livestock and prevent risks to young livestock of smothering.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>How might livestock be controlled?</strong></th>
</tr>
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<tbody>
<tr>
<td>For example, safely caught and restrained (with or without use of animal handling equipment).</td>
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</table>

<table>
<thead>
<tr>
<th><strong>What health conditions may livestock be inspected for?</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesions, abscesses, parasites, cancers, abnormal growths, lice/ticks, and footrot.</td>
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<tr>
<th><strong>How might livestock be identified for treatment?</strong></th>
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</thead>
<tbody>
<tr>
<td>Eartags, earmarks, raddle, sprays, silicon chips, tattoos, collar tags, and leg bands.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>What environmental implications may be associated with livestock husbandry practices?</strong></th>
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</thead>
<tbody>
<tr>
<td>Negative environmental impacts may result from the unsafe use and disposal of veterinarian chemicals (dipping, jetting, internal and external parasite control), and any consequent residual chemicals. Impacts may also result from high concentrations of livestock on ground cover causing run-off flows, loss of ground cover, soil disturbance, pugging, dust problems, weed seeds in animal manure, contamination of ground and surface water supplies, and odours.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th><strong>What considerations may be involved in preparing and moving livestock?</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>This may include giving livestock time to settle post-treatment, conducting the move in a controlled and quiet manner to correct paddock, and ensure the closure of gates.</td>
</tr>
</tbody>
</table>
What livestock residues may be disposed of? Residues may include skin, testes, teeth and horn clippings, and carcasses, and may be disposed of by burning, burying, or removal to safe site.

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.

What evidence is required to demonstrate competence for this unit as a whole? Competence in implementing livestock husbandry practices requires evidence of the ability to assess livestock health status, and prepare and administer appropriate preventative health treatments according to work plan. It involves selecting, using and maintaining specialised equipment, the ability to muster, move and handle livestock, prepare treatment site, facilities and equipment to industry standards, determine treatment methods, monitor treatment effectiveness, report and treat abnormalities, and maintain records. Evidence must also be demonstrated in the employment of safe workplace and environmentally responsible practices associated with livestock husbandry. The skills and knowledge required must be transferable to a different work environment. For example, if competence is evident in the practise of livestock husbandry in the goat production industry, it must also be evident in performing livestock husbandry practices in other sectors of the rural industry.
What processes should be applied to this unit of competency?

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 unit of competency. 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.

- How can communication of ideas and information (1) be applied?
  - Information and ideas with regard to treatment and equipment application methods, and identification of any complications or abnormalities in livestock may be discussed with the supervisor and work team.

- How can information be collected, analysed and organised (1)?
  - Information with regard to applied treatments and effectiveness may be observed and monitored for analysis, and organised by records and reports.

- How are activities planned and organised (2)?
  - Activities involving mustering and moving livestock may be planned and coordinated around treatment schedules, or sequenced as required.

- How can team work (1) be applied?
  - Team work may be applied in mustering, moving and yarding livestock to treatment site, and during the treatment process.

- How can the use of mathematical ideas and techniques (2) be applied?
  - Mathematics may be applied in the calculation and measurement of treatment dosage and dosage/treatment frequency.

- How can problem-solving skills (2) be applied?
  - Contingencies for adverse weather conditions may be planned and prepared to minimise disruption to treatment schedules, and alternative plans may be needed if complications occur when moving, yarding or treating livestock.

- How can the use of technology (1) be applied?
  - To communicate, record and calculate information with regard to the administering of preventative health treatments.
Are there other units of competency that could be assessed with this one?

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

There is essential information about assessing this unit of competency for consistent performance and where and how it may be assessed, in the Assessment Guidelines for this Training Package. All users of these units of competency must have access to the Assessment Guidelines. Further advice may also be sought from the relevant sector booklet.
RTE3121B Prepare animals for parturition

Unit Descriptor

This unit of competency specifies the outcomes required to feed and care for animals through the latter stages of pregnancy to birthing. It requires the application of knowledge and skills to assess and provide appropriate nutritional and environmental requirements for pregnant animals, perform husbandry procedures and implement measures for the safeguard of newborn animals. In addition, the unit requires an awareness of workplace safety and positive environmental practices associated with animal production. The work functions in this unit involve the application of some judgement and discretion and are likely to be carried out under minimal supervision within enterprise guidelines.

Employability Skills

This unit contains employability skills.

Unit Sector

No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Identify and provide animal nutritional needs.
   1.1 Nutritional needs of pregnant animals are identified and confirmed against the enterprise feeding plan.
   1.2 Feed and feed supplements are determined and provided in accordance with the feeding plan and local conditions.
   1.3 Procedures to minimise feed wastage and spillage, and dispose and recycle feed waste are implemented in line with enterprise requirements.
   1.4 Existing and potential OHS hazards in the workplace are identified, risk assessed and controlled in line with enterprise requirements.

2. Monitor feeding process.
   2.1 Feeding process is monitored to ensure animals are feeding effectively in accordance with the feeding plan.
   2.2 Feeding abnormalities are recorded and reported in line with enterprise requirements.
   2.3 Environmental implications associated with animal production are identified, assessed and relevant measures implemented.

3. Maintain a secure environment for animals.
   3.1 Condition and security of paddocks, shelter and/or housing is monitored and maintained in line with enterprise requirements.
   3.2 Basic repair work is carried out and reported as required in line with OHS and enterprise requirements.
   3.3 Predators to newborn animals are monitored, risk assessed and reported in line with workplace procedures.
   3.4 Environmentally responsible measures to eradicate or control identified predators are implemented safely in accordance with relevant legislative requirements.
4. Carry out animal husbandry procedures.

4.1 Animals are **prepared** for birthing in accordance with enterprise requirements.

4.2 **Preventative health treatments** are determined and administered to animals to manufacturer specifications and recorded in line with enterprise requirements.

4.3 **Contingency measures** are prepared and implemented as required.

**REQUIRED SKILLS AND KNOWLEDGE**

This describes the essential skills and knowledge and their level, required for this unit.

**Required skills:**

- administer preventative health treatments
- assess and calculate herd/flock numbers, measure feed, assess rate and frequency of feeding, and calculate animal gestation
- carry out animal husbandry procedures, and provide due care and handle animals humanely
- collect, store and administer colostrum
- communicate abnormalities, workplace hazards and report and maintain animal records
- employ safe and environmentally responsible systems and procedures with regard to the handling of animals, feed, hazardous substances and firearms
- implement contingency measures in the event of adverse weather or birthing difficulties
- maintain animal shelter and farrowing housing including basic repairs
- match supply of grazing or predetermined rations, feed and feed supplements to meet feeding plan and nutritional requirements for pregnant animals
- monitor animal health and condition and recognise abnormalities
- monitor and minimise impacts to the environment associated with animal production and the use and disposal of hazardous substances
- read and interpret manufacturers specifications, work and feeding plans, and material safety data sheets
- safely implement predator control strategies.

**Required knowledge:**

- animal behaviour and nutritional requirements of pregnant animals
- animal husbandry procedures
- effects of weather conditions, and inadequate nutrition on pregnant animals and their newborn
- enterprise policies with regard to birthing animals, recording and reporting routines
- environmental impact of animals on ground cover and minimisation measures
- environmental impact of the use and disposal of hazardous substances and minimisation measures
- feed and feed supplements for pregnant animals and when to provide them
- hazards associated with handling animals and veterinarian medicines and chemicals
- pasture and animal grazing management
- personal protective clothing and equipment and when and how it should be used
- physiological and behavioural signs of impending birth
- predators and behaviour patterns, and control and eradication measures
- preventative health treatments, procedures and methods
- relevant licensing and permit requirements (firearms)
- State/Territory legislation, regulations and codes of practice with regard to OHS, animal welfare, poisons and firearm safety
- sustainable land management practices.
**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.

<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
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<tbody>
<tr>
<td>How might the nutritional needs of pregnant animals vary?</td>
<td>This may depend on the breed, weight and condition of the animals, stage of pregnancy, lactation requirements, and season/climactic conditions.</td>
</tr>
<tr>
<td>What animals are covered?</td>
<td>Animals covered by this unit of competency include cows and heifers (beef and dairy cattle), ewes (sheep), does (goats), hembras (alpaca), sows (pigs) and mares (horses).</td>
</tr>
<tr>
<td>What might be included in a feeding plan?</td>
<td>Target weights, amount and type of feed and feed supplements, feeding frequency and rates, feeding methods and procedures, weed control strategy, supervisors instructions, reporting and recording requirements.</td>
</tr>
<tr>
<td>What range of feed and feed supplements might be provided to animals?</td>
<td>Hay, grain, predetermined rations, trace elements, vitamins and sources of nutrients including silage, paddock feed, grain legumes, mineral blocks, protein meals, calcium and other nutrient supplements, and specific purpose feeds.</td>
</tr>
<tr>
<td>What local conditions might be considered when determining nutritional needs for animals?</td>
<td>Paddock conditions including availability, quality and quantity of water and feed supplies, and weather conditions.</td>
</tr>
<tr>
<td>What procedures might be implemented to minimise feed wastage and spillage?</td>
<td>The accurate measurement of feed quantities, the use of precise measurement devices and apparatus, and the accurate determination of animal feed requirements.</td>
</tr>
<tr>
<td>What enterprise requirements may apply?</td>
<td>Standard operating procedures (SOPs), industry standards, production schedules, work notes, product labels, manufacturers specifications, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), OHS procedures, supervisors oral or written instructions, and work and feeding plans.</td>
</tr>
</tbody>
</table>
What **OHS requirements** may be applicable?

Identify hazards, assess and report risks. Safe systems and procedures for animal handling including zoonoses control (Q Fever, leptospirosis), handling and storage of grain and feed to reduce risk associated with organic and other dusts, application and storage of hazardous substances (drenches, vaccines, baits), outdoor work including protection from solar radiation, protection from dust, and the appropriate use of personal protective clothing and equipment, firearms handling and storage, and manual handling.

What existing and potential **hazards** may be encountered in the workplace?

Animal movement and handling, solar radiation, organic and other dusts, excessive noise, hazardous substances (veterinary chemicals, poisons), moving machinery and unsafe firearms handling and storage.

What feeding abnormalities may be observed?

This may include the general observation of sick animals, shy feeders, weight loss, scouring, greedy (bossy) feeders and ill thrift.

**What environmental implications** may be associated with animal production?

Negative environmental impacts may result from the unsafe use and disposal of poisons and veterinarian chemicals (vaccinations, drenching, blowfly control), and any consequent residual chemicals. Impacts may also result from high concentrations of animals, particularly in holding or confined areas, causing increased run-off flows and/or wind erosion, loss of ground cover, soil disturbance, pugging, dust problems, weed seeds in animal manure, contamination of ground and surface water supplies, and odours.

What factors may be considered when assessing the condition and security of animals’ environment?

Weather protection (wind, rain, snow, heat) and the availability of feed and water supplies. Other factors may include the provision of "lamb/kid proof" water troughs, paddocks that are suitable to the size of herd/flock, adequate shelter and housing, and safe fencing and yards.

What **basic repair** work might be carried out?

Maintenance repairs to fencing, yards, shelter and housing.

What **predators** may be identified as a risk to newborn animals?

Dogs (domestic and wild), dingoes, feral cats and wild pigs.
**What safe measures might be implemented to eradicate or control predators to newborn animals?**

Shooting, trapping, poisoning, fencing, spot or neon lighting, and guard dogs. Safety considerations may include the minimisation of risk and danger to non-predatory animals, livestock, humans and the environment including the safe laying of traps, secure fencing, and the safe use of firearms and poisons.

**What legislation may be relevant?**


**What may be involved in preparing animals for birthing?**

Does and ewes are crutched or shorn prior to birthing.

**What preventative health treatments might be administered?**

Vaccinations, drenching, and for sheep blowfly control, adjust diet to prevent constipation in sows.

**What type of contingency measures may be planned?**

Emergency procedures in the event of adverse weather conditions, birthing difficulties requiring veterinarian assistance, and staffing and resource deficiencies, moving into farrowing or birthing facilities several days prior to due date.

**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.

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

Competence in preparing animals for parturition requires evidence of the ability to provide nutritional and environmental requirements adequate to maintain the health and welfare of pregnant animals through to birthing. It involves the ability to assess animals’ health status and provide feed and feed supplements accordingly, handle animals, maintain a secure and safe environment, carry out animal husbandry procedures including preventative health treatments, recognise and report abnormalities and maintain records. Evidence must also be demonstrated in the safe use of firearms, and the employment of positive environmental and safe workplace practices associated with animal production. The skills and knowledge required must be transferable to another rural workplace. For example, this may include different breeds, animals, enterprises and environmental conditions.
What processes should be applied to this unit of competency?

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 unit of competency. 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.

- How can communication of ideas and information (1) be applied?
  - Information and ideas with regard to animal gestation, nutrition and preventative health treatments may be discussed with feed suppliers, veterinarians and the supervisor.

- How can information be collected, analysed and organised (2)?
  - Information with regard to the implementation of the feeding plan may be observed and monitored for analysis and organised by records and reports.

- How are activities planned and organised (2)?
  - Activities involving repairs and maintenance to the animal's environment may be planned and coordinated around animal feeding schedules or sequenced as required.

- How can team work (2) be applied?
  - Team work may be applied in methods and procedures to handle animals to administer preventative health treatments.

- How can the use of mathematical ideas and techniques (1) be applied?
  - Mathematics may be applied in the calculation and measurement of feed and feed supplements, and the measurement of preventative health treatments. Estimating due date of birth from the date of joining.

- How can problem-solving skills (1) be applied?
  - Contingencies for adverse weather conditions may be planned and prepared to minimise disruption to feeding schedules.

- How can the use of technology (1) be applied?
  - To access information, assist in the development of a feeding plan, record information, communicate and inform on the feeding process, and monitor substantial weather changes.
Are there other units of competency that could be assessed with this one?

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

There is essential information about assessing this unit of competency for consistent performance and where and how it may be assessed, in the Assessment Guidelines for this Training Package. All users of these units of competency must have access to the Assessment Guidelines. Further advice may also be sought from the relevant sector booklet.
RTE3124B Rear newborn and young livestock

**Unit Descriptor**

This unit of competency specifies the outcomes required to rear newborn and young animals. It involves the application of knowledge and skills to prepare facilities, feed newborn and young animals, observe behaviour and health, and identify the needs of newborn and young animals. Competency also requires the ability to check on progress, to provide treatment as required and to wean and handle newborn and young animals, and record relevant data. This work is likely to be carried out with minimal supervision within enterprise guidelines.

**Employability Skills**

This unit contains employability skills.

**Unit Sector**

No sector assigned

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>PERFORMANCE CRITERIA</th>
</tr>
</thead>
</table>
| 1. Prepare for care of newborn and young. | 1.1 *Facilities, equipment and supplies* needed to provide care are identified selected and prepared.  
1.2 *Needs of newborn and young animals* are assessed and prepared.  
1.3 *Feeding routines* are implemented and observed.  
1.4 *Hygiene, health and environmental requirements* are identified and maintained according to enterprise and legislative requirements.  
1.5 Newborn and young are *appropriately identified* and humanely *handled* as required according to enterprise requirements and industry standards. |
| 2. Provide care for newborn and young. | 2.1 Feed and feed supplements are provided as required and according to enterprise and *nutritional requirements*.  
2.2 Relationship between mother and young is monitored where *appropriate* and *strategies* are implemented to address any problems.  
2.3 Feeding, water and shelter areas are *maintained* and *monitored* for correct operation, cleanliness and hygiene.  
2.4 Colostrum is collected, stored and administered as required.  
2.5 *Routine health* and *feeding problems* are treated promptly. |
| 3. Monitor health of newborn and young. | 3.1 Newborn and young are monitored against *benchmarks* for growth, health and development.  
3.2 *Appropriate action* is taken for sick, weak, orphaned and injured, newborn and young.  
3.3 *Assistance* is sought for more complex health and feeding problems.  
3.4 Newborn and young requiring *routine husbandry and health* procedures are separated, treated and returned.  
3.5 *Treatments and checks* are carried out according to hygiene, enterprise, industry and legislative requirements. |
4. Meet ongoing requirements.

4.1 Young animals ready for weaning are identified and weaned according to enterprise procedures and weaning programs.

4.2 Feeding requirements are identified and met.

4.3 Animals are handled regularly as required.

4.4 Records are kept and updated to meet enterprise and legislative requirements.

4.5 All work is conducted safely and according to enterprise requirements, OHS, industry and animal welfare regulations.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- common deformities
- enterprise and industry policies and codes of practice with regard to rearing of newborn and young animals and recording and reporting requirements
- feeding systems
- husbandry procedures
- hygiene and cleanliness requirements
- infection controls and treatment programs (working knowledge)
- newborn and young development and growth
- newborn and young animals feed, shelter and environmental requirements
- relevant legislative health and OHS requirements especially as they relate to safe animal handling techniques, feeding, animal treatments, and rearing and caring for newborn and young animals
- significance of colostrum to livestock
- shelter requirements
- weaning strategies.

Required knowledge:

- calculate feed and dose rates
- collect samples
- communicate with other personnel
- identify abnormal conditions and report or react promptly
- identify the young and their parent
- provide support as needed to veterinarians attending to sick newborn and young animals
- recognise signs of stress or ill health in newborn and young animals
- safely and humanely handle and care for newborn and young animals
- weigh and assess condition of newborn and young animals
- work within animal welfare legislative requirements and enterprise and industry guidelines
- use feed, shelter and ventilation equipment.
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.

What **facilities, equipment and supplies** might be needed?

Facilities: shelter of correct size and requirements to suit type of animals, appropriate ventilation and temperature controls (blinds, shutters, registers, poly socks), provision of a clean, dry, warm and draught free environment, suitable shedding, pens, slatted wire/flooring, deep litter, washable troughs, teat feeding equipment, water supply for washing up and drinking, hoppers or troughs for pellets and grain, hay feeders, vermin and damp proof feed storage facilities, air quality, sick bay, adequate exposure to sunshine for calf pens, and drainage systems.

Equipment: feed and water buckets, bails, teats, troughs, drums, racks or rings for roughage, troughs or bins for concentrates, milk transporting systems, water troughs or drinkers. Natural or additional shelters in paddock. Hygiene and cleaning materials, house rearing facilities, paddock rearing facilities, weaning equipment and facilities, weighing equipment/scales and facilities, adequate effluent treatment and disposal facilities, cleaning equipment. Halters, leads, bridles, bits and horse rugs.

Veterinary and related supplies: such as electrolyte solutions, anti-bloat, anti-scour, vaccine, vitamins/ minerals, prescribed medications, antibiotics (for use with veterinary supervision), laxatives, nutrient drenches, tube feeding equipment, syringes, needles and spirit, drenching equipment, tattoo equipment, ear tags, temporary or permanent collars, stored/ artificial colostrum.

Feed supplies: milk replacer, calf pellets, feed concentrates and additives, and feed roughage.

What **needs** might newborn and young animals have?

Fresh, clean and palatable feed and water. Suitable shelter, warmth, cleanliness, adequate ventilation, adequate nutrition, freedom from stress, disease prevention management, protection from hazards and predators.

**For pigs and poultry**: temperature control and air quality.

What **newborn and young animals** are covered?

Newborn and young animals covered by this unit of competency include lambs, calves, kids, pigs (suckers, weaners) poultry (birds), foals and weanlings and crias.
What might need to be considered when implementing and observing feeding routines?

- monitoring feeding times and feed rates when restricted feeding in place
- identifying and reporting malfunctions
- observation of suckling and feeding, ensuring that calves, foals, piglets, lambs and crias get an early drink of colostrum, assisting with suckling/feeding as necessary
- provision of milk, introduction and maintenance of solid feed (grain, pellets, roughage), feed supplements, checking for abnormalities in feeding and identifying poor or slow feeders
- bottle feeding, foster feeding or donor dams
- supplementary feeding.

What hygiene, health and environmental requirements might exist?

- disinfecting shelters
- ensuring adequate ventilation and warmth
- adequate effluent treatment and disposal facilities
- clean water
- clean feed troughs and areas
- clean and hygienic facilities and equipment are maintained
- disposal of carcasses.
- Additional for poultry: lighting programs and cleaning of light globes and identifying malfunctions.

How might newborn and young animals be appropriately identified?

Use of eartags, notching, markings, sire and dam identification.

Why might newborn and young animals be handled?

Young animals may need to be caught and restrained for routine health and husbandry procedures, such as tail docking, teeth clipping, iron injection, vaccination, hoof trimming, worming, weighing, etc. Young horses may also need to be accustomed to accepting leads, halters and other restraints.

Which enterprise requirements might be relevant?

Standard operating procedures (SOPs), industry standards, production schedules, Material Safety Data Sheets, work notes, product labels, manufacturers specifications, operators manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), OHS procedures, supervisors oral or written instructions, work and routine maintenance plans.

What nutritional requirements might be relevant?

Those that relate to the needs of new born and young animals and may be identified from authoritative and reliable sources such as veterinarians, books, supervisors, other farmers, government departments, feed suppliers and breed societies.
What appropriate strategies might need to be implemented?
Teaching newborn and young to drink/feed, ensuring access to colostrum where necessary, provision of alternative feed/milk source, identifying orphans and organising bottle-feeding and/or a foster mother.

For what reasons might feed watering and shelter need to be maintained and monitored?
Machinery or equipment breakdown or malfunction and repairs to shelter/housing/pens/yards.

What routine health and feeding problems might occur?
Scours (of differing varieties), pneumonia and other respiratory diseases, milk or concentrates bloat, acidosis, navel-ill, joint-ill, noticing changes in behaviour and visual changes indicating stress, wounds and injuries, abnormalities and deformities, neonatal maladjustment syndrome. Checking for soundness in limbs, teeth and hooves, identifying small and less vigorous young for separation and specialist feeding routines or re-assignment, isolation of sick, injured or unhealthy young in sick bay.

What benchmarks might newborn and young animals be monitored against?
- observing and assessing performance of newborn and young animals
- development of reflexes and sensory awareness
- where appropriate ensuring colostrum intake
- passing of meconium and urination
- ensuring adequate supply of milk from mother
- determining growth rates and condition scoring to check whether expected height and weight benchmarks for age are being met.

For poultry: checking for injured, malformed or non-productive birds.

What type of appropriate action might need to be taken?
Separating out poor feeders and sick or injured stock for special treatment, humanely culling by selecting stock that are injured, malformed or not responding to treatment.

What type of appropriate assistance might need to be taken?
More experienced staff, supervisors, veterinarians.

What routine husbandry and health procedures might be needed?
Disbudding, tattooing, infection and parasite control, vaccination, hoof care, freeze/hot branding, conducting foal or cria imprinting and fitting of headstalls.
What *treatments and checks* might need to be carried out?

**Checks:** soundness checks - injury abnormalities and deformities, neonatal maladjustment syndrome. Observing and assessing performance and feeding patterns, observing changes in behaviour and visual changes indicating stress.

**Treatments:** vaccination by a variety of methods. Administration of antibiotic injections under veterinary supervision, other prescribed medication nutrient drenches, prescribed medication in water and feed, and monitoring compliance with established withholding periods.

**Additional checks for foals:** the checking of foals is paramount for their health and wellbeing particularly the first 48 hours. Checking at birth for obvious deformities and abnormalities, sex, colour, dam and sire, umbilical chord stump, respiration, and clearance of afterbirth, temperature capillary refill, and pulse. Checking limbs, dentition and hooves (trimmed every 4-5 weeks) condition. Checking for straining or scouring, limb problems/deformities, lethargy, exercise frequency, umbilical hernia, nasal discharge, mismothering, restlessness, body exudates, development of reflexes and sensory awareness, and abnormal respiration. Checks for unusual behaviour such as: weaving, wind-sucking, abnormal aggression, and changes to respiration rate. Identification of mare/foal by brands, tagging, marked halters, microchipping, colour, and markings. Checking of vital signs.

**Additional treatments for foals:** post birth antibiotics, anti-tetanus injections, and laxatives. Providing assistance with intensive care, maintenance of fluid therapy, exercise and regular movement, maintaining body heat, and dressing wounds and injuries.

**Additional checks for poultry:** floor walks are critical in detecting equipment, environmental and health changes as they happen and are a crucial preventative measure. Checks may include assessing effects of vaccination, collecting blood samples, faecal samples and tissue samples, floor litter and inspecting nest litter to check on disease status and eggs.

**Treatments for piglets:** teeth clipping, tail docking, castration and iron injections for piglets.

What are some of the key considerations in a *weaning program*?

- humane handling
- grouping of young animals based on body weight and sex
- weaning off milk according to any rearing programs
- introduction of young to pasture and supplementary feed
- where needed young are gradually weaned (e.g. horse) and allowed limited or reduced suckling opportunities using industry recognised and approved methods.
- **For pigs:** provision of a clean, warm and draught free environment.
What **feeding requirements** might there be?

High quality pasture, roughage and/or concentrate and supplementary feeding are maintained as necessary.

Why might **handling** occur?

To get animals used to human contact to facilitate future treatment and care.

For poultry: to sex and count the number of birds.

For horses: handling may include identification and mustering of mares and foals and separation, frequent catching and restraining, teaching to tie up and lead, teaching to load, teaching to pick up feet, exercise (behind treadmill/joggers, lunging, regular grooming and being prepared for future sales weanling and yearling sales.

What **records** might need to be kept?

Weaning date, weights, feed quantities, treatments and vaccinations, abnormalities and injuries.

What **enterprise and industry standards** might need to be considered?

Quality assurance and industry standards and Codes of Best Practice for rearing newborn and young animals.

What **OHS requirements** may be applicable?

Safe animal 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 **regulatory requirements** might need to be considered?

Animal welfare legislation, withholding period and quarantine requirements, the welfare and husbandry of sheep or goats, and codes of practice for welfare of animals and specifications concerning animal health tests.
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.

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

Competence in rearing newborn and young animals requires evidence of the ability to prepare and maintain facilities, equipment and supplies, feed and monitor health and condition of newborn and young animals according to enterprise, animal nutrition and animal welfare requirements. In addition it requires an ability to check and treat newborn and young animals as required and to wean and handle newborn and young animals.

The skills and knowledge required to rear newborn and young animals must be transferable to another rural workplace. For example, if competence is evident in rearing newborn and young sheep it should also be evident for either cattle, horses, pigs or poultry in both large and small enterprise operations.
What processes should be applied to this unit of competency?

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 unit of competency. 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.

• How can communication of ideas and information (1) be applied?
  • To discuss concerns requirements and progress with property owner/supervisor and staff.
• How can information be collected, analysed and organised (2)?
  • Information on feed regimes, nutrition requirements, health concerns may be collected and organised for analysis and organised by records and reports.
• How are activities planned and organised (2)?
  • The coordination of regular feeding routines and hygiene, and cleaning routines and animal monitoring.
• How can team work (2) be applied?
  • Team-work may be applied to ensure optimum nutritional requirements and growth/health.
• How can the use of mathematical ideas and techniques (1) be applied?
  • Mathematics may be applied to calculate volumes and schedules.
• How can problem-solving skills (1) be applied?
  • In the identification of infection, health and feeding and handling difficulties.
• How can the use of technology (1) be applied?
  • To monitor health, growth and feeding patterns and to record data.

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

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

There is essential information about assessing this unit of competency for consistent performance and where and how it may be assessed, in the Assessment Guidelines for this Training Package. All users of these units of competency must have access to the Assessment Guidelines. Further advice may also be sought from the relevant sector booklet.
RTE3133B Prepare livestock for competition

Unit Descriptor
This unit of competency specifies the outcomes required to prepare and train livestock for competitive showing. It requires the application of knowledge and skills to groom and present livestock to competition standards, and maintain livestock health, welfare and nutritional requirements. Competency requires an awareness of legislative requirements with regard to animal welfare. The work in this unit is likely to be carried out under routine supervision within enterprise guidelines.

Employability Skills
This unit contains employability skills.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Follow instructions to prepare livestock for showing.
   1.1 Livestock are identified and prepared for showing according to enterprise instructions.
   1.2 Feed and water supplies are monitored and replenished, as required, and feed records are maintained to enterprise requirements.
   1.3 Health and welfare status of livestock is monitored and abnormalities are promptly reported according to enterprise requirements.
   1.4 Facilities are monitored and maintained, and existing and potential OHS hazards are recognised, risk assessed and reported to the supervisor.

2. Handle and groom livestock prior to competition.
   2.1 Appropriate handling and grooming equipment is selected, checked and used according to instructions and manufacturers specifications.
   2.2 Livestock are groomed for showing to competition standard according to instructions and enterprise requirements.
   2.3 Livestock are conditioned to human handling and trained to the standard required for show handling and performance.
   2.4 Handling procedures are conducted with minimum stress and discomfort to livestock, and maximum safety for livestock, handlers and other parties according to OHS and animal welfare requirements.

3. Present livestock.
   3.1 Equipment to be used in showing is checked for correct operation and prepared for presentation requirements.
   3.2 Livestock are presented using handling techniques to exhibit livestock to best advantage according to competition and enterprise requirements.
   3.3 Instructions and requests from competition officials are complied with.
   3.4 Relevant information is reported and recorded according to enterprise requirements.
REQUIRED SKILLS AND KNOWLEDGE
This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
• calculate livestock numbers and measure feed and water quantities
• demonstrate safe workplace practices
• groom livestock to competition standards
• maintain livestock facilities and handling equipment
• observe and describe the behaviour of livestock
• read and interpret written information, receive and comprehend oral information, write
  basic statements and maintain livestock records
• restrain, handle and groom livestock using safe and humane methods and procedures.

Required knowledge:
• competition requirements for grooming, handling and presentation
• components and functions of handling equipment
• handling techniques, restraint methods and when to use them
• livestock grooming and training techniques (to lead and stand correctly)
• livestock health and nutritional requirements
• preparation and maintenance requirements for livestock facilities and equipment
• livestock movement and behavioural characteristics in handling and confined areas
• OHS and animal welfare legislative requirements.

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.

What livestock may be relevant?
Sheep, goats, pigs, alpacas, horses, beef and dairy cattle.

What procedures might be involved in the preparation of livestock?
Procedures may include halter training, leading, grooming, clipping, care of hooves and horns, special feed
supplementation, presentation techniques, use of show equipment, special transport requirements, avoidance of
stress, and show protocols.

What enterprise instructions may be provided?
Instructions may include the identity of livestock and location, feed and water requirements, handling requirements, health
and welfare considerations, procedures for use of facilities, handling and grooming equipment, and procedures and
requirements for competition standard grooming and breed standards.
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What information might be included in livestock feed records?</strong></td>
<td>Records may detail feed requirements, type, feed supplements, rate and frequency of feeding, quality and quantity of water supplies, and details of replenished supplies.</td>
</tr>
<tr>
<td><strong>What enterprise requirements may be applicable?</strong></td>
<td>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 supervisors oral or written instructions.</td>
</tr>
<tr>
<td><strong>How might the health and welfare status of livestock be determined?</strong></td>
<td>Health and welfare may be determined by the general observance of livestock behaviour, condition and wellbeing.</td>
</tr>
<tr>
<td><strong>What type of facilities may be provided for livestock?</strong></td>
<td>Facilities may include pens, sheds, paddocks and troughs.</td>
</tr>
<tr>
<td><strong>What OHS requirements may be relevant?</strong></td>
<td>Safe systems and procedures for:</td>
</tr>
<tr>
<td></td>
<td>• livestock handling including zoonoses control (Q Fever)</td>
</tr>
<tr>
<td></td>
<td>• the operation of handling equipment</td>
</tr>
<tr>
<td></td>
<td>• hazard and risk control</td>
</tr>
<tr>
<td></td>
<td>• manual handling including lifting</td>
</tr>
<tr>
<td></td>
<td>• outdoor work including protection from solar radiation, dust and noise</td>
</tr>
<tr>
<td></td>
<td>• the appropriate use and maintenance of personal protective equipment.</td>
</tr>
<tr>
<td><strong>What existing and potential OHS hazards may be encountered in the workplace?</strong></td>
<td>Livestock movement and handling, solar radiation, organic and other dusts, hazardous noise, moving machinery and vehicles.</td>
</tr>
<tr>
<td><strong>What equipment might be used to handle and groom livestock?</strong></td>
<td>Equipment may include rings, halters, combs, vacuums, brushes, driers, clippers, preparations applied externally or supplements taken orally, and restraining devices of a non-fibrillating nature.</td>
</tr>
<tr>
<td><strong>What type of competitions may require the presentation of livestock?</strong></td>
<td>Production evaluation trials, agricultural shows, livestock production trials, fleece competitions, sire reference schemes, carcass competitions, and livestock sales.</td>
</tr>
<tr>
<td><strong>What relevant information might be recorded and reported?</strong></td>
<td>Livestock behaviour and abnormalities, equipment faults and malfunctions, and showing details and outcomes.</td>
</tr>
</tbody>
</table>
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.

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

Competence in this unit requires evidence of the ability to provide livestock feed and water requirements, demonstrate safe and humane handling and grooming techniques, and present livestock to competition standards. It involves the ability to interpret and apply task instructions, prepare livestock facilities, use and maintain handling and grooming equipment, train livestock for showing, monitor health and wellbeing status, and anticipate livestock behaviour.

The skills and knowledge required to prepare livestock for competition must be transferable to another environment. For example, if competence is evident in preparing beef cattle for showing at production evaluation trials, it must also be evident for showing sheep in an agricultural show context.
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 unit of competency. 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.

- How can communication of ideas and information (1) be applied?
  - Information with regard to livestock preparation and grooming requirements may be discussed with competition organisers and the supervisor.

- How can information be collected, analysed and organised (2)?
  - Information with regard to breeding and production measurement may be detailed and organised by livestock records.

- How are activities planned and organised (2)?
  - Livestock grooming preparation may be planned and conducted around feeding routines and showing schedules.

- How can team work (2) be applied?
  - Team work may be applied in methods and procedures to handle and prepare livestock for presentation.

- How can the use of mathematical ideas and techniques (1) be applied?
  - Mathematics may be applied in the measurement and calculation of feed requirements and herd/flock numbers.

- How can problem-solving skills (1) be applied?
  - Positive and calming handling techniques to settle distressed livestock during preparation may be required to minimise disruption to competition schedules.

- How can the use of technology (1) be applied?
  - To communicate and record livestock data.

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

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

This unit of competency specifies the outcomes required to determine wool characteristics as part of clip preparation work. It requires the ability to assess key wool characteristics, identify wool faults and recognise impurities. Determining wool characteristics requires knowledge of different breeds of sheep or alpaca, Australian wool characteristics, fleece measurement criteria, processing methods, wool growth, skin and fibre biology, documentation of wool clips, the code of practice for the Preparation of Australian Wool Clips or the Alpaca Industry Best Practice Standards for Harvesting of Alpaca Fibre, and relevant Quality Standards.

Employability Skills
This unit contains employability skills.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Assess key wool characteristics.
   1.1 Wool is examined for fibre diameter.
   1.2 Length and strength of wool are checked.
   1.3 Assessment of colour and character is made.
   1.4 Wool is examined for handle and style.
   1.5 Staple formation and tip is checked.
   1.6 Wool is examined for medullation and/or pigmentation.
   1.7 Assessment of breed type is made.

2. Identify wool faults.
   2.1 Wool is examined for dogginess.
   2.2 Wool is checked to identify cotts.
   2.3 Skin pieces are identified.
   2.4 Wool is checked for presence of dermatitis.

3. Recognise impurities.
   3.1 Wool is examined for natural impurities.
   3.2 Applied impurities are identified and categorised.
   3.3 Acquired impurities are identified and categorised.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• assess key wool characteristics
• identify wool faults
• recognise impurities.

Required knowledge:

• breeds of sheep or alpaca
• documentation of wool clips
• Fleece Measurement Criteria - techniques used to measure wool characteristics
• for alpaca fleece, Alpaca Industry Best Practice Standards for Harvesting of Alpaca Fibre and relevant Quality Standards
• for sheep wool, the code of practice for the Preparation of Australian Wool Clips and relevant Quality Standards
• processing methods - woollen and worsted, and stages of processing
• raw wool characteristics and their effect on processing and final product
• wool characteristics - diameter, length and strength, colour, yield, VM type, curvature and comfort factor
• wool growth, skin and fibre biology, and effect of genetics and environment on fibre characteristics.

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.

What wool may be relevant?

Wool may include that from different breeds, different age groups, different geographical regions, and various parts of the fleece. It may also be new and/or old wool and may display seasonal variations.

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.

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

Competence in determining wool characteristics requires evidence that assessment of wool has been accurately carried out according to enterprise and industry guidelines and standards. The skills and knowledge required to determine wool characteristics must be transferable to a range of work environments and contexts. For example, this could include different breeds, wool types, seasonal, conditions and enterprises.
What processes should be applied to this unit of competency?

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 unit of competency. 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.

- How can communication of ideas and information (2) be applied?
  - With owner/manager and shearing team.
- How can information be collected, analysed and organised (2)?
  - By receiving, interpreting, and following instructions.
- How are activities planned and organised (2)?
  - To ensure an efficient flow of work.
- How can team work (2) be applied?
  - In working with others to ensure an efficient flow of work.
- How can the use of mathematical ideas and techniques (2) be applied?
  - In determining wool characteristics.
- How can problem-solving skills (2) be applied?
  - In identifying impurities.
- How can the use of technology (1) be applied?
  - By using and calibrating measuring devices.

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

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

There is essential information about assessing this unit of competency for consistent performance and where and how it may be assessed, in the Assessment Guidelines for this Training Package. All users of these units of competency must have access to the Assessment Guidelines. Further advice may also be sought from the relevant sector booklet.
RTE3150A
Unit Descriptor

Class alpaca fleece

This unit of competency specifies the outcomes required to class alpaca fleece, using a predetermined classing strategy and industry descriptions to meet the requirements of processors. The unit requires the ability to arrange the layout of bins and the fleece table, label bins and containers to ensure optimum operational efficiency, check and prepare fleece to ensure freedom from contamination and stain and optimum skirting ratios, assess pigmented fleece risk, appraise fleece characteristics, class fleece to required standards, identify fleece of higher and lower market value, and set and maintain lines.

Classing fleece requires knowledge of the principles of classing, different types of alpaca fleece and their inherent characteristics, fleece measurement criteria, shed layouts with respect to fleece flow efficiency, and processing methods.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit applies to a classing specialist or an alpaca stud farm owner or employee who will be classing the stud’s animal fleece. Work will be carried out under minimal or no supervision according to a predetermined classing strategy.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

1. Prepare for classing of alpaca fleece.

1.1 **Equipment**, facilities and layout of shed are arranged according to predetermined classing strategy for efficient fleece flow, quality management and pressing.

1.2 Personal protective equipment (PPE) and clothing are selected and used.

1.3 Occupational health and safety (OHS) requirements and hazards associated with task are identified and appropriate action is taken to minimise risks to self and others.

1.4 Site quarantine protocols and enterprise and personal hygiene requirements are applied, followed and monitored as required by enterprise procedures or owner/manager instructions.

1.5 Bins and containers are placed correctly and are clearly labelled according to classing strategy, quality management system and enterprise requirements.
2. Carry out classing of alpaca fleece.

   2.1 Unavoidable required bending and lifting are done using available safety equipment and according to safe work practices.

   2.2 **Fleece** is handled and skirted to standards outlined in classing strategy.

   2.3 Fleece is checked to ensure freedom from **contamination** and stain.

   2.4 Fleece is checked to ensure adequate and optimum skirting.

   2.5 Different classes of fleece are kept separate as required.

   2.6 Fleece is appraised for its characteristics.

   2.7 Fleece is classed to standards of the enterprise classing strategy suggested by **appropriate authority**.

   2.8 Fleece of higher and lower market value is identified and lines are made that maximise return to fleece owner.

   2.9 Data about fleece is recorded according to enterprise requirements.

3. Dispose of fleece and report on wet fleece.

   3.1 Fleece is consistently placed in correct bins ready for pressing, ensuring that cross-contamination does not occur.

   3.2 Wet fleece is identified according to requirements of classing strategy.

   3.3 Existence of wet fleece is brought to the attention of appropriate authority.

   3.4 Unavoidable required bending and lifting are done using available safety equipment and according to safe work practices.

4. Follow up classing outcomes.

   4.1 Feedback on classing outcomes and compliance with industry standards is sought from owner or processor and any required improvements are noted for future action.

   4.2 Action is taken to ensure awareness of changes in classing techniques, standards, and processor and market requirements.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- arranging layout of bins and fleece table in a variety of sheds for optimum efficiency of fleece flow and pressing
- assessing pigmented fibre risk and separating fleece as required
- checking fleece to ensure freedom from contamination and stain
- checking fleece to ensure optimum and adequate skirting
- classing fleece to standards according to codes of practice or as required by alternative selling methods
- identifying and appraising fleece characteristics
- identifying fleece of higher and lower market value and ensuring lines are made that maximise return to grower
- labelling bins and containers correctly.

Required knowledge:

- classing scenarios requiring detail of clip break ups
- clip analysis reports and comparisons
- effect of genetics and environment on fibre characteristics
- fleece growth, skin and fibre biology
- fleece measurement criteria and techniques used to measure fleece characteristics
- inherent fleece characteristics such as:
  - diameter
  - length and strength
  - colour
  - yield
  - vegetable matter type
  - curvature and comfort factor
- interpretation of test results
- preparation of documentation of fleece clips
- principles of classing such as:
  - mob, flock and herd concept
  - variability for fibre diameter and staple length
  - soundness
  - defects
- processing methods, including:
  - woollen and worsted methods
  - stages of processing
- raw fleece characteristics and their effect on processing and final product
- shed layouts that promote efficient fleece flow and handling
- types of alpaca fleece and their characteristics.
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.

**Equipment** required for the fleece classing process may include:

- bale clips
- brooms and/or fleece paddles
- calibrated devices
- classing tables
- fleece bins
- fleece hooks
- fleece packs or bags
- fleece press
- lights.

Criteria that apply to *classing strategy* may include:

- character or style
- colour
- contamination
- eventual use of fleece such as:
  - processing
  - hand spinning
  - fibre diameter
  - length of staple
  - tensile strength
  - type of alpaca fleece
  - yield.

**PPE** and clothing required may include:

- boots
- gloves
- hearing protection
- overalls or protective aprons
- protective eyewear.

Safe **OHS systems** and procedures may include:

- appropriate use of PPE and clothing
- consideration of any applicable industry national codes of practice
- operation and maintenance of hazard-free facilities and equipment, including consideration of ergonomics
- protection from electrical hazards, hazardous noise and organic and other dusts, including spray drift and internal combustion engine fumes
- provision of staff and product flow pathways to avoid injury, slips and trips
- safe manual handling, including lifting and carrying.
**Fleece:**

- types of fleece may include:
  - crossbred fleeces
  - huacaya
  - suri
- fleece included in the clip may consist of:
  - bellies
  - legs
  - necks
  - pieces
  - saddles
- particular fleece must be of one colour only - any spots or patches of any other colour must be physically removed
- grey fleeces may include small spots of mixed colour.

**Contamination** of fleece may include:

- baling twines
- banded water stain
- chemical residue
- dags and grease locks
- dermatitis
- dog or animal hair
- heavily medullated fleece
- inherent impurities such as burrs
- loose fleece pack fleeces
- maggot affected wool
- man-made fibres and clothing
- shed debris
- skin pieces
- urine and dung stains
- vegetable matter.

**Appropriate authorities** responsible for standards of the enterprise classing strategy may include:

- another classer or a broker
- flock owner managing the operation
- manager.

**Fleece data** to be recorded may include:

- animal identification number and details
- colour
- length of neck staple
- length of saddle staple
- lustre
- medullation
- total skirted fleece weight
- weight of neck
- weight of saddle
- wool break.
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.

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 a predetermined classing strategy
• arrange layout of bins and fleece table
• label bins and containers to ensure optimum operational efficiency
• check and prepare fleece to ensure freedom from contamination and stain, and optimum skirting ratios
• assess pigmented fleece risk
• appraise fleece characteristics
• class fleece to required standards
• identify fleece of higher and lower market value
• set and maintain lines.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed on an alpaca farm in a shearing shed or classing facility.

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 participate in classing alpaca fleece.

The candidate must also have access to the following resources:

• Australian Alpaca Association (AAA) Breed Standards
• AAA industry code of practice
• OHS standards
• alpaca fleeces
• shearing shed and/or classing facility
• fleece measurement equipment.
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 class alpaca fleece must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events.
RTE3151A Mate and monitor reproduction of alpacas

Unit Descriptor

This unit of competency specifies the outcomes required to mate and monitor the reproduction of alpacas. The unit requires the application of skills and knowledge to carry out mating plans, use selected sires and dams, and monitor animal condition and weight. It also requires the ability to monitor mating and take remedial action where needed, record data, and monitor and report on the effectiveness of the mating program.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency applies to alpaca farm or stud workers who have responsibility for the mating of alpacas and follow up monitoring. The work is likely to be carried out with limited supervision within enterprise guidelines and may require working with or under the direction of more experienced personnel, including veterinarians.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

1. Prepare animals for mating.

1.1 Male and female animals to be mated are selected according to stud's mating plan.

1.2 Condition of animals selected for mating is accurately determined and body scores are recorded according to recognised industry practices.

1.3 Nutritional program is adjusted where required and monitored to produce optimum condition for mating.

1.4 Where females are overfleeced, preparations are made to ensure that tail and vulva area are clean and free of fleece.

1.5 Animals are checked for any signs of infection or other reason not to proceed with the planned mating and remedial action is taken as appropriate.

2. Facilitate mating.

2.1 Receptive females are identified according to industry practice.

2.2 Paddock or pen mating areas are secure and provide access for handlers during joining.

2.3 Mating procedures and handling techniques are used that minimise stress and discomfort to animals and meet occupational health and safety (OHS) and animal welfare requirements.

2.4 Pen mating is supervised and, when required, intervention is undertaken or obtained to maximise conception rates.

3. Complete mating procedures.

3.1 Pregnancy testing is undertaken or commissioned at earliest opportunity to identify pregnancy status of animals and suitable action is taken as required.

3.2 Records of mating are recorded accurately, legibly and according to enterprise and industry requirements.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- accurately scoring alpaca condition
- assisting with ultrasonography and/or blood collection if requested by professional service providers
- cleaning up work site and safely disposing of waste
- communicating effectively with other team members and veterinarians
- conducting a spit off
- employing safe work practices
- supervising alpaca mating and assisting as appropriate.

Required knowledge:

- alpaca handling and assisted joining techniques
- alpaca health and abnormalities
- alpaca movement and behavioural characteristics
- anatomy and physiology of male and female alpaca reproductive systems
- enterprise and industry identification system for alpaca
- enterprise and industry policies regarding recording and reporting routines for matings
- female and male body conditioning through nutrition programs
- Johne's disease status mating procedures
- mobile mating procedures
- personal protective equipment (PPE) and when and how it should be used
- pregnancy testing techniques, including detection of ovulation
- relevant state and territory animal welfare legislation and regulations
- relevant state and territory legislation, regulations and codes of practice with regard to workplace OHS.

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.

Criteria used to assess the condition of animals may include:

- age
- condition scoring
- condition of fleece
- physical observation
- pregnancy status or lactation
- weighing.

Nutritional program adjustments to produce optimum condition for mating may apply for:

- lactating females that are to be mated (when above average nutrition is required)
- males that are obese or emaciated.
Females may be prepared for mating by:

- cleaning genital area
- trimming fleece
- wrapping tail.

Criteria for recognising receptive females may include:

- receptive females will sit in the cush position
- non-receptive females may spit and run away or refuse to sit in the cush position, becoming agitated.

OHS requirements may include:

- appropriate use of PPE
- identifying hazards, and assessing and reporting risks
- safe livestock handling systems and procedures, including controlling zoonoses such as Q fever
- safe manual handling systems and procedures
- safe systems and procedures for applying and storing hazardous substances such as:
  - drenches
  - vaccines
- safe systems and procedures for handling veterinary equipment such as:
  - syringes
  - needles.

Intervention to maximise conception rates may involve:

- assisting alpacas in the joining process using methods such as:
  - checking for an intact hymen
  - guiding and/or helping to position male correctly
  - expert veterinary advice.

Techniques available to identify pregnancy status may include:

- palpation
- spit offs
- ultrasound.

Suitable action to take in response to pregnancy test results may include:

- checking health status of both male and female by a veterinarian in the case of failure to conceive
- providing extra nutrition where appropriate if pregnant
- re-joining where female is not pregnant.

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.
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:
- monitor the condition of female and male alpacas
- revise nutritional and feeding program
- recognise ovulation
- supervise mating
- conduct and commission pregnancy tests
- identify and implement action required as a result of pregnancy tests
- record data.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in an alpaca stud or workplace.

For valid assessment, one must have opportunities to participate in a range of exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge required to participate in mating and monitoring alpacas.

The candidate must also have access to the following resources:
- female and male alpacas selected for mating
- suitable pens or paddocks for mating.

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 mate and monitor alpacas must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events.
RTE3152A Plan and prepare for alpaca shearing

**Unit Descriptor**
This unit of competency specifies the outcomes required to undertake the preparation involved prior to alpaca shearing. The unit involves the application of skills and knowledge required to negotiate work contracts with shearers and rouseabouts, communicate with the shearing team, prepare sheds and yards for shearing, move alpacas to the shearing area and check equipment prior to shearing. It also includes an awareness of and ability to follow the Alpaca Industry Best Practice Standards for Harvesting of Alpaca Fibre.

**Employability Skills**
This unit contains employability skills.

**Application of the Unit**
This unit applies to an alpaca stud farm owner or employee who will either be shearing the stud's animal fleece or working with a specialist shearer. Work will be carried out under minimal or no supervision according to a work plan.

**Unit Sector**
No sector assigned

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<tr>
<th>ELEMENT</th>
<th>PERFORMANCE CRITERIA</th>
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| 1. Complete work contracts for shearers and rouseabouts. | 1.1 Arrangements are made in advance to obtain shearing services.  
1.2 Terms and conditions of employment or engagement are agreed and checked against the award or other accepted arrangements.  
1.3 Where employment is arranged, employment terms and conditions are written into an employment contract and are signed by employer and employees. |
| 2. Develop work plan for shearing day. | 2.1 Shearing work plan is discussed, developed, agreed and documented with shearing team.  
2.2 Occupational health and safety (OHS) hazards relevant to the preparation and conduct of shearing are identified and documented in work plan and appropriate action is taken to minimise risks.  
2.3 Work is carried out according to work plan.  
2.4 Work plan is reviewed with shearing team and any required improvements are noted for future action. |
| 3. Check shearing equipment. | 3.1 Work plan is used to identify and obtain all equipment and supplies necessary for shearing.  
3.2 Equipment required for shearing is checked and prepared according to enterprise procedures to ensure it is clean, set up and functioning correctly. |
4. Ensure shed and yards are prepared for shearing.
   4.1 Shearing shed is checked and cleaned prior to commencement of shearing, ensuring enterprise quality standards.
   4.2 Yards are checked and cleaned prior to commencement of shearing, ensuring enterprise quality standards.
   4.3 Sources of alpaca fibre contamination are removed according to enterprise and industry quality standards.
   4.4 Safety hazards are reported to fibre grower or shed manager.

5. Pen up alpacas.
   5.1 Alpacas are moved according to shearing sequence, and OHS, animal welfare and enterprise requirements.
   5.2 Alpacas are penned by mobs, according to work plan.
   5.3 Pen density is determined to avoid crushing, trampling or soiling of alpaca fibre.
   5.4 Gates are secured to prevent mixing of mobs or escape of alpacas.
   5.5 Alpaca numbers are monitored in holding pens to ensure continuous supply to shearer.
   5.6 Pens are monitored to maintain alpaca in standing position to avoid soiling of alpaca fibre.

REQUIRED SKILLS AND KNOWLEDGE
This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
   • carrying out cleaning and decontamination of pens and shearing shed to industry standards
   • communicating equipment faults and malfunctions, and workplace hazards
   • moving alpacas according to OHS, animal welfare and enterprise requirements
   • mustering and drafting alpacas into pens according to enterprise and industry standards
   • operating any necessary equipment to industry standards
   • reporting and maintaining operational records
   • using industry-accepted alpaca handling techniques
   • using safe and environmentally responsible workplace practices.

Required knowledge:
   • Alpaca Industry Best Practice Standards for Harvesting of Alpaca Fibre
   • animal welfare legislative requirements
   • elements of effective and appropriate alpaca shearing work plans
   • equipment requirements for alpaca shearing
   • how to clean and decontaminate sheds and pens
   • industry-accepted alpaca handling and moving techniques
   • personal protective equipment and when and how it should be used
   • relevant industry awards and conditions
   • relevant state and territory legislation, regulations and codes of practice with regard to workplace OHS.
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.

**Employment contracts**
drawn up by the manager, owner or overseer may include:

- hours of work
- rates of pay
- statement of duties
- terms and conditions of employment.

**Work plan for shearing**
may include:

- designated tasks
- equipment lists
- penning requirements
- reporting requirements
- resources and materials for use
- shearing sequence
- supervisor instructions
- timeframe for work completion
- work breaks.

**Shearing team**
may include:

- farm manager
- farmhands
- owner/operator
- rouseabouts
- shearers.
Shearing equipment and supplies may include:

- antiseptic spray for cuts
- classing table or old, clean flyscreen door
- clear, strong plastic bags - separate bags for each colour fleece, the necks and for different coloured skirtings
- clip lock sample bags
- current histograms
- first aid kit
- grower fibre consignment notes
- large garbage bags
- large rubbish bins
- lights
- new or second-hand wool packs
- newspaper
- old towels and cloths
- postcard-size cards, marker pens and pens
- ropes
- rubber bands for holding samples
- ruler pre-marked: A, B, C and D according to current guidelines
- scales
- shearing tables
- used clean supermarket bags
- vacuum cleaner and brooms
- wool bale fasteners.

Safety hazards found in the shed or yards may include:

- farm chemicals
- faulty equipment
- fuel
- heat stress
- inadequate lighting
- loose floorboards
- sharp objects
- spiders
- steps and handrails
- unguarded equipment
- unsecured electrical leads.

Order in which alpacas should be penned is based on order in which they will be shorn. Namely:

- white
- fawn
- darker colours
- clean before dirty
- show before non-show animals.

Holding pens will include:

- back fill pens
- front fill pens
- side fill pens.
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.

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:

• develop a shearing work plan
• ensure that all required planning and preparation for shearing are completed
• work safely with and around alpacas and according to established work plan.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in an alpaca 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 plan and prepare for alpaca shearing.

The candidate must also have access to the following resources:

• alpaca shearing equipment, supplies and facilities
• alpacas to be penned and shorn.

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 plan and prepare for alpaca shearing must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within one's own alpaca stud or on someone else's stud, or with alpaca of different fleece types and different classes of animals.
RTE3153A

Manage honey bee swarms

Unit Descriptor
This unit of competency specifies the outcomes required to collect bee swarms and manage the swarming behaviour of bees. Work is likely to be undertaken with limited supervision. The unit requires a broad range of knowledge about honey bee behaviour and skills in working safely with and around bees.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to beekeepers who may be working by themselves or in a small team.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Collect a swarm of honey bees.
   1.1 All equipment required to collect a swarm of honey bees is obtained and confirmed as being in good repair and serviceable for use.
   1.2 Personal protective equipment (PPE) is checked for serviceability and worn and used correctly.
   1.3 OHS hazards associated with collecting bee swarms are identified and action is taken to deal with them effectively.
   1.4 Any site quarantine in effect or other biosecurity protocols are observed.
   1.5 Risks associated with collecting a swarm of honey bees are identified and actions are taken to minimise likelihood and consequences of risks.
   1.6 Dry drawn frames are placed in hive box to be used for collected swarm to ensure collected bees remain in new hive box.
   1.7 Swarm is caught by shaking it into an empty box.
   1.8 Boxed swarm is moved to new location after confirming that whole swarm has been collected.
   1.9 Swarm is requeened.

2. Manage swarming behaviour in a honey bee colony.
   2.1 Honey bee colony is monitored for signs that swarming may occur.
   2.2 Risks associated with handling bees that are likely to swarm are identified and actions are taken to minimise likelihood and consequences of risks.
   2.3 Where swarming appears likely to occur, range of control options is considered and best option is selected and implemented.
   2.4 Colony is monitored to ensure that swarming behaviour has been controlled and if necessary further control options are implemented.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- communication skills for dealing with members of the public and owners/managers of the property from which a swarm is being collected
- handling bees
- identifying disease
- understanding bee behaviour.

Required knowledge:

- signs of brood disease and wax moth infestation in swarm once it has been placed in a hive
- signs that indicate that a colony is about to swarm
- range of methods that can be used to manage a colony that is showing signs that it is about to swarm
- when to requeen a swarm that has been collected
- why and when honey bees swarm
- why swarms are collected.

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.

**Equipment** required when collecting a swarm of honey bees may include:

- brood box
- frames or ventilated bee-proof box
- ladder
- lid and bottom
- saw.

Reasons a swarm may be **collected** include:

- beekeepers can increase numbers of hives in their apiary
- obtain worker bees to repair damaged combs and draw foundation
- remove swarms in urban areas that represent a public nuisance.

**PPE** used when collecting a swarm should include:

- bee smoker
- bee suit
- bee veil.

**OHS hazards** when collecting swarms may include:

- bee stings
- exposure to solar radiation
- falls from ladders when collecting swarms.
**Biosecurity protocols** to be observed in relation to collecting swarms should include:

- placing collected swarms in quarantine for one month following collection and observing them for signs of disease
- reporting any signs of disease observed to appropriate authority
- other appropriate action for disease observation.

**Risks** associated with collecting a swarm may include:

- bee stings
- disease and pest contamination
- diseased bees
- litigation
- property damage.

**Signs** that swarming is about to occur may include:

- overcrowded hive
- presence of swarm cells.

**Control options** that may be used to control swarming behaviour include:

- artificially swarming colony by removing part of colony to make a new nucleus colony and returning it once swarming period is over
- manipulating brood box to allow more room for egg laying and so reduce congestion
- moving colony to a honey flow
- providing beeswax foundation for bees to build worker comb
- removing capped brood and bees and introducing them into weaker hives
- requeening colony with a young queen from a strain of bees known to be less likely to swarm.

**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.

**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:

- catch a swarm of honey bees and relocate it safely
- successfully and safely implement a range of control options to manage swarming behaviour in honey bees.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a beekeeping 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 manage honey bee swarms.

The candidate must also have access to the following resources:

- hives likely to swarm
- beehives on which to take corrective action
- artificial swarm to catch
- PPE
- brood box, lid, bottom, frames or ventilated bee-proof box
- ladder and saw.

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 manage honey bee swarms must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include collecting swarms from urban or rural areas.
RTE3154A Requeen a honey bee colony

Unit Descriptor
This unit of competency specifies the outcomes required to requeen a honey bee colony with a replacement queen. Well-reared and mated, young healthy queen bees of good genetic stock are a major factor in improving honey yields. Requeening is typically practised annually to obtain benefits from the increased egg-laying ability and high pheromone production associated with young queen bees. Requeening by commercial honey producers is normally carried out in spring/summer through to autumn to fit in with seasonal conditions and management practices.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to beekeepers who are likely to be working with limited or no supervision.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Identify requirement to requeen a colony.
   1.1 Vigour of the current queen is assessed.
   1.2 Colony is monitored for signs that indicate queen replacement is necessary.

2. Prepare to requeen a colony.
   2.1 Replacement queens that meet enterprise criteria are obtained from a commercial supplier or from own breeding stock.
   2.2 Replacement queens and any escort worker bees are stored in appropriate conditions and monitored until requeening is undertaken.
   2.3 Hive is monitored to ensure requeening occurs under optimum conditions.
   2.4 Replacement queen is confirmed as being healthy and free from parasites.

3. Introduce replacement queen bee.
   3.1 Old queen bee is located in the hive and removed.
   3.2 Where queen bee has been raised in a nucleus colony, either nucleus colony is placed on top of colony to be requeened, and the two colonies separated by a single layer of paper, or queen bee is caught and introduced into another colony.
   3.3 Hive is left undisturbed for a period of ten days.

   4.1 After ten days, the hive is monitored for acceptance of replacement queen bee by colony.
   4.2 Replacement queen bee is monitored for evidence of egg laying and adequate levels of hatching.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
- assessing suitability of conditions for requeening
- breeding and selecting replacement queen bees
- identifying disease status of parent colonies
- installing replacement queen bee
- monitoring queen bee activity.

Required knowledge:
- conditions for requeening
- factors other than queen vigour that may affect brood production
- factors to consider when identifying and removing old queen and introducing new queen
- queen bee behaviour and brood pattern
- selection criteria for new queen bee
- storage requirements of queen bees before being introduced into hive.

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.

Criteria for assessing vigour of current queen may include:
- colony strong
- queen undamaged
- uniform brood pattern.

Signs of lack of vigour in a queen bee may include:
- aggressive bees
- drone laying queens
- poor disease resistance
- poor performance by workers
- queens older than 12-18 months
- swarming.

Enterprise criteria that may be applied when obtaining replacement queen bees include:
- availability of health certificate from interstate supplier
- disease status of source apiary
- evidence that queen has been mated
- price
- race or strain of bee required
- requirement or preference for breeder queen bees or artificially inseminated queen bees
- requirements to order in advance/availability at short notice
- whether supplier is a member of the Australian Queen Bee Breeders Association and adheres to its code of practice.
**Appropriate conditions** for storing replacement queen bees prior to requeening may include:

- absence of adverse environmental factors such as:
  - ants
  - cold draughts
  - direct sunlight
  - fly sprays
  - mothballs
  - pest strips
- storing queen bee in a cage in a cool area of the premises.

Criteria to be *monitored* before replacement queen is introduced to hive may include:

- availability of queen candy
- micro-climate around cage
- status of hive being requeened should be checked to make sure it is queenless.

**Optimum conditions** for introducing a replacement queen bee into a hive will include:

- active colony that is disease free
- adequate number of nurse bees
- availability of light to medium nectar flows
- expanding brood nest.

Hive may be *monitored for acceptance* of replacement queen after ten days by:

- opening and checking hive for evidence of fresh larvae and eggs
- opening and checking hive for queen's presence.

**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.

**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:

- identify need to requeen
- prepare for requeening
- introduce replacement queen bee
- monitor new queen bee.
Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a commercial apiary 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 requeen a honey bee colony.

The candidate must also have access to the following resources:

- hives and equipment
- replacement queen bee(s)
- if purchased interstate, a health certificate for the queen bee(s).

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 requeen a honey bee colony must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within an apiary to successfully requeen a number of hives or to successfully requeen hives in a number of different geographic or climatic regions.
RTE3155A Manipulate honey bee brood

Unit Descriptor
This unit of competency specifies the outcomes required to manipulate a honey bee brood and prepare materials, tools and equipment for work. It requires knowledge of safe work practices relating to working with bees and bee husbandry tasks, including the use of related tools and equipment.

Work is likely to be performed under limited supervision and according to established routines.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to beekeepers who may be working by themselves or in a small team.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare to manipulate brood combs.
   1.1 Suitable personal protective equipment (PPE) is selected and checked prior to use.
   1.2 Tools and equipment required to manipulate brood are selected and checked prior to use.
   1.3 Occupational health and safety (OHS) hazards associated with manipulating brood are identified and actions are taken to minimise risk to self and others.
   1.4 Any site quarantine or other biosecurity protocols in force are observed.
   1.5 Reason for manipulating brood is clarified and appropriate sequence of actions is planned.
   1.6 Risks to colony, including to brood and queen bee, are identified and actions are taken to minimise likelihood and consequences of risks.

2. Manipulate brood.
   2.1 Hive is opened according to enterprise procedures and safe work practices.
   2.2 Combs are removed in planned sequence and placed in suitable position.
   2.3 Frames are replaced in same or new sequence and/or position, or removed to another hive according to purposes for which brood is being manipulated.
   2.4 Work is undertaken in a safe and environmentally appropriate manner according to enterprise guidelines.
   2.5 Enterprise policies and procedures in relation to workplace practices, handling and disposal of waste materials, and site quarantine are observed.
   2.6 Hive and colony are monitored after manipulation process and appropriate action is taken if needed.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• cleaning up on completion of work
• handling bees
• handling materials and equipment
• using a bee smoker.

Required knowledge:

• bee behaviour
• bee-handling techniques
• different types of manipulation that may be used to achieve desired result
• fire risk level
• purposes for which brood may be manipulated
• safe work practices.

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.

PPE requirements may include:

• bee veil
• bee-proof overalls and gloves
• steel capped boots/shoes
• sunhats
• sunscreen lotion.

Tools and equipment required may include:

• bee smoker and adequate fire suppression equipment
• hive tool
• spare boxes.

OHS hazards may include:

• bee stings
• chemicals and hazardous substances
• dust, airborne and soil-borne micro-organisms
• fire
• holes and slippery and uneven surfaces
• incorrect manual handling
• noise
• sharp hand tools and equipment
• snakes
• solar radiation.
Reasons for manipulating brood may include:

- control or minimise the likelihood of swarming
- increase colony population through providing more room for egg laying by removing full frames (of either brood or honey) and providing empty combs
- remove frames of brood and bees to produce a nucleus colony.

**Risks** to colony and/or queen from brood manipulation may include:

- aggravation of Nosema disease in adult bees by manipulation of combs early in the season (i.e. winter or early spring)
- chilling of adult bees and brood as a result of:
  - forcing expansion of brood to beyond where nurse bees can keep it warm
  - manipulating combs during extreme cold weather
  - replacing combs in incorrect sequence
- introduction of disease when frames are swapped from one hive to another
- killing of queen bee by crushing when frames are being removed.

**Enterprise policies and procedures** may include:

- honey bee industry quality assurance program (BQUAL) work instructions and standards
- manufacturer instructions
- material safety data sheets (MSDS)
- OHS standards and procedures
- site quarantine and biosecurity standards and requirements
- standard operating procedures
- verbal directions from manager or owner
- work notes.

**Waste materials**: may include

- dead bees
- broken hive components
- must be recycled, re-used or disposed of according to enterprise policies and procedures.
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 such as:

• RTE3407A Identify and report unusual disease or plant pest signs
• RTE3415A Manage pests and disease within a honey bee colony.

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:

• determine when and how honey bee brood should be manipulated to achieve desired result
• open hives and remove and reposition frames safely and with minimal damage or unintended disturbance to brood
• apply knowledge of food safety regulations when handling frames, honey or other hive products for human consumption.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a beekeeping 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 manipulate honey bee brood.

The candidate must also have access to the following resources:

• beehives and frames with brood
• equipment and tools used in beekeeping operations
• PPE.
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 manipulate honey bee broods must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include manipulating broods in a variety of ways and for different reasons.
RTE3156A Rear queen bees

Unit Descriptor

This unit of competency specifies the outcomes required to rear queen bees to produce high quality queen bees and queen cells through the application of good management practices. Well-reared and mated young queen bees of good genetic stock are a major factor in improving honey yields.

Employability Skills

This unit contains employability skills.

Application of the Unit

Queen bees may be bred by the beekeeper for own use or by specialist queen bee breeders for sale. Work is likely to be performed under minimal supervision and according to established enterprise and industry procedures. Work may be performed as part of a team.

Unit Sector

No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Establish conditions and obtain requirements for queen bee rearing.
   1.1 Breeding stock is selected from productive healthy stock according to established breeding program criteria.
   1.2 All tools, equipment and other requirements needed to rear queen bees are obtained and confirmed as being in good repair and serviceable for use.
   1.3 Personal protective equipment (PPE) is checked for serviceability and worn and used correctly.
   1.4 OHS hazards associated with rearing queen bees are identified and action is taken to minimise them.
   1.5 Any site quarantine or other biosecurity protocols in force are observed.
   1.6 All hives and colonies used for queen bee and drone production are confirmed as being in clean and healthy condition.
   1.7 Day-old larvae from the breeder queen bee are selected for grafting and transferred from worker cells into queen cell cups.
   1.8 Adequate numbers of nurse bees are confirmed as being present in cell raising colonies.
   1.9 Grafted cells are placed into cell starting colonies and then into cell finishing colonies.

2. Establish and monitor the queen mating process.
   2.1 Ripe queen cells are transferred into the nucleus 10-11 days after grafting.
   2.2 Adequate numbers of mature, well nourished and genetically suitable drones are provided during mating period.
   2.3 Details of grafting and subsequent placement of cells into nucleus colonies are recorded according to enterprise standards.
   2.4 Age of the queen removed from mating colony is recorded.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

**Required skills:**
- grafting
- handling the hive
- recognising diseases, pests and disorders and taking appropriate action
- record keeping.

**Required knowledge:**
- basic knowledge of the principles of inheritance of bee characteristics
- signs of brood and adult bee ill health sufficient to recognise diseases, pests and disorders and take appropriate action
- techniques and timing for queen cell production.

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.

**Sources of breeding stock** should be restricted to:
- instrumentally inseminated stock
- stock mated in an isolated area or select tested
- stock selected according to established breeding program criteria.

**Tools, equipment and other requirements** for rearing queen bees may include:
- appropriate lighting
- bee smoker and fire extinguisher
- cell starting and cell finishing colonies
- first aid kits
- grafting material such as:
  - cell bar holders
  - cell bars
  - plastic cells
- grafting tools
- hive tools
- hives
- nucleus boxes
- outdoor cooker, pots and wax
- record keeping equipment
- sugar feeders.

For the purpose of this unit to *rear* a queen bee applies to:
- producing numbers of daughter queens from a breeder queen (multiplying) by grafting.
PPE may include:  
- bee veil  
- gloves  
- protective suit.

OHS hazards may include:  
- bee stings  
- fire  
- use of incorrect techniques when manually lifting.

Qualities of suitable larvae for grafting include:  
- not more than 36 hours old when grafted  
- well fed.

Conditions recommended for grafting include:  
- 12-24 hours after hatching  
- less than 36 hours old  
- adequate lighting.

Conditions required in cell raising colonies include:  
- abundant natural pollen or supplementary protein  
- adequate numbers of nurse bees  
- grafted cells remaining in cell raising colonies for 10-11 days from date of graft  
- nectar or sugar syrup being available throughout complete production period.

Qualities of suitable drones include:  
- drones being between 16 and 20 days old when queen bees are ready to be mated.

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.

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:

- select breeding stock according to established breeding program criteria  
- graft larvae of suitable age  
- assess and maintain nutrition and health of larvae and drones  
- keep records.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in an apiary 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 rear queen bees.

The candidate must also have access to the following resources:

- beehives (i.e. cell starters and cell finishers)
- grafting tools
- queen cells
- nucleus colonies.

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 rear queen bees must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include raising queen bees for own use or for sale.
RTE3319A Ground spread fertiliser and soil ameliorant

Unit Descriptor
This unit of competency specifies the outcomes required to spread fertiliser and soil ameliorants according to environmentally sound practices to meet customer requirements and industry standards. Work is likely to be performed under limited or no supervision and following established enterprise procedures.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to people who are spreading fertiliser and soil ameliorants according to customer requirements. Work may be performed as part of a team.

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Confirm customer requirements.
   1.1 Confirmation is sought from customer that fertiliser or soil ameliorant products to be spread are those that were ordered.
   1.2 Verification is obtained from customer that technical specification of product is acceptable for job.
   1.3 Customer's written fertiliser order is confirmed with customer and documented to enable trace back to depot or factory if required.
   1.4 Agreement for spreading services is documented according to enterprise or industry codes of practice.

2. Identify features of the target area.
   2.1 Location and boundaries of area to be treated are identified, agreed with customer and recorded according to relevant industry codes of practice.
   2.2 Soil type and condition are assessed visually or advice is sought from customer.
   2.3 Environmentally sensitive areas are identified and operations are planned to ensure minimum adverse impact and to comply with any required buffer zones.
   2.4 Features that may present a hazard to the operation are identified by inspection and by discussion with customer and appropriate action is taken.
   2.5 Location of services and utilities are identified from customer advice or local maps, and proposed spreading operation is adjusted if required.
   2.6 Local weather and climate conditions are identified and taken into account when preparing to begin operations.
3. Perform pre-spreading checks.

3.1 Rate of spreading is determined and buffer allowance is calculated.

3.2 Before being moved onto site, machinery and equipment are confirmed to be clean of soil and/or plant material.

3.3 Machinery and equipment are prepared according to enterprise procedures and manufacturer instructions to ensure they are serviceable and are set up and calibrated.

4. Spread fertiliser.

4.1 Personal protective equipment (PPE) and clothing are selected and used by self and all personnel involved in spreading tasks.

4.2 Fertiliser or soil ameliorant is applied in a manner that complies with guidelines on buffer zones, to minimise run-off into waterways and drains.

4.3 Weather and other conditions are monitored to ensure that variations that may alter limits to operation are taken into account, and that operations are adjusted accordingly.

4.4 Any existing site quarantine or biosecurity protocols are followed as required.

4.5 All work is monitored to ensure that it is performed in an environmentally aware and safe manner and according to industry codes of practice.

5. Perform follow up and clean-up activities on completion of spreading operations.

5.1 Machinery, equipment and hand tools are returned to depot or storage area after cleaning, checking for future serviceability, and carrying out basic preventative maintenance according to enterprise procedures.

5.2 Faults are noted for remedial action.

5.3 Records are completed legibly and accurately, according to enterprise procedures and industry codes of practice.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- communicating with clients to ensure a common understanding of task to be performed
- monitoring and recording activities performed
- operating equipment according to manufacturer recommendations and in line with equipment calibration
- using maps and interpreting written instructions regarding areas to be spread, and products and rates to be applied.

Required knowledge:

- equipment being used and understanding of appropriate service and safety checks
- environmental risks and how to identify and manage them
- operational limits of equipment being used with regard to uniformity of application and health and safety risks
- spreading characteristics of different fertiliser and soil ameliorant products.
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.

Information to be documented should include:

• confirmation that customer has seen a copy of entire label and, if relevant, the material safety data sheet (MSDS)
• customer’s order
• customer’s verification that technical specification of product is acceptable for job
• details and signature if possible of agronomist or adviser who has recommended product.

Criteria addressed by industry code of practice or Australian Fertiliser Services Association (AFSA) include:

• key requirements relating to fertilisers and soil ameliorants, including:
  • product knowledge
  • spreading
  • storage
  • transport.

Procedures for identifying location of target area may include:

• inspecting site with customer
• obtaining at least three independent descriptors of site from customer
• supplying AFSA area markers, which customer can locate at approach to spreading area
• using maps of a scale appropriate to target area.

Environmentally sensitive areas may include:

• dryland pasture in relation to ground cover and slope to minimise run-off
• watercourses (including wetlands) that are permanently or intermittently connected to public waters such as:
  • areas of free water
  • dry watercourses
  • irrigation channels.

Action to be taken where hazards have been identified may include:

• advising customer if job would result in exceeding operational safety limits
• ceasing operations where hazards can not be effectively managed.

Weather and climate conditions that may be monitored include:

• cross winds that might result in drift of product onto adjacent land, water or property
• rain that may result in rutting, compaction and soil tracking off the area.
Machinery and equipment required for spreading operations may include:

- customer orders and instructions
- inspection checklists
- maps
- truck-mounted or trailed product bin and spreading mechanism.

Machinery and equipment may be prepared by:

- calibrating fertiliser spreaders to achieve industry standard coefficients of variation for proposed product and bout width
- carrying out other checks recommended by manufacturer
- carrying out routine checks included in relevant industry codes of practice
- checking load to ensure that correct product is supplied in correct quantity
- checking spreader bin to ensure serviceability, cleanliness, safety and correct operation
- checking vehicle to ensure serviceability and safety
- confirming that all electrical, structural, safety and mechanical contents are correctly serviced, in good working order and set up for correct operation.

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 such as:

- RTC3310A Operate specialised machinery and equipment
- RTC3311A Perform specialised machinery maintenance
- RTD2313A Clean machinery of plant, animal and soil material
- RTE3506A Monitor weather conditions
- RTE3818A Develop and apply fertiliser and soil ameliorant product knowledge.
The critical requirements for this unit of competency as a whole are listed below.

Assessment must confirm one's ability to:

- assess environmental and physical hazards that may be encountered when ground spreading and take appropriate action to minimise these risks
- maintain and operate spreading equipment to meet industry standards for uniformity of application
- maintain and operate spreading equipment to meet health and safety requirements
- apply fertiliser or soil ameliorants at rate agreed by customer to specified land area.

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a ground-spreading operation or in a situation that reproduces normal work conditions.

For valid assessment, one must have opportunities to participate in a range of exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge required to ground spread fertiliser and soil ameliorants.

The candidate must also have access to the following resources:

- typical ground-spreading equipment
- a range of products that would normally be applied
- examples of maps and instructions regarding location and area to be treated, products and rate of application, hazards and environmentally sensitive features
- examples of checklists for inspection and maintenance of equipment
- typical PPE.

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 ground spread fertiliser and soil ameliorants must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within various farming industries, ranging from extensive pasture to permanent tree crops, and with a range of spreading machinery.
RTE3320A Remove a honey crop from a hive

Unit Descriptor
This unit of competency specifies the outcomes required to remove a honey crop from a hive by removing bees from the hive and combs, and by removing filled combs from the hive into other boxes for transport to the extracting facility.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to beekeepers and others working under minimal supervision as part of a team and according to established enterprise procedures.

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare to remove honey.
   
   1.1 All tools and equipment required to remove a honey crop from a hive are obtained and confirmed as being in good repair and serviceable for use.
   1.2 Personal protective equipment (PPE) is checked for serviceability and worn and used correctly.
   1.3 Occupational health and safety (OHS) hazards associated with removing a honey crop from a hive are identified and action is taken to deal with them.
   1.4 All food safety requirements are identified and met.
   1.5 Any site quarantine or other biosecurity protocols in force are observed.
   1.6 Risks associated with removing a honey crop from a hive are identified and actions are taken to minimise likelihood and consequences of risks.
   1.7 Ripeness of nectar honey is determined to ensure that the honey is mature enough to be harvested.
   1.8 Any withholding periods for honey bee medications and treatments are observed.
   1.9 Time and location of planned honey removal takes into account potential contaminants, impact on the colony and quality and type of honey to be obtained.
   1.10 Factors affecting quantity of honey to be removed from hive are identified and taken into consideration.
2. Remove honey from the hive.

2.1 Range of suitable methods for removing bees from honey-filled combs is considered and best option (or combination) is selected and implemented.

2.2 Range of suitable methods for removing honey crop in the frames from the hive or honey-filled combs is considered and best option (or combination) is selected and implemented.

2.3 Quality of honey is monitored during removal process and, if required, removal methods are modified to ensure that desired quality standards are achieved and maintained.

2.4 Honey-filled frames are transported to extracting facility.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
- judging ripeness of honey nectar
- manual handling
- using PPE
- working with and around bees.

Required knowledge:
- food safety requirements
- indicators of ripe honey nectar and adequately filled cells
- methods to remove bees from hives.

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.

Tools and equipment required to remove a honey crop from a hive may include:
- bee blower
- bee brush
- butterfly entrances fitted to escape boards
- escape boards
- fresh water
- loading equipment
- means of transport for honey-filled frames to extracting facility
- queen excluders
- spare boxes
- tarpaulins or other waterproof coverings.
PPE may include:  
- bee-proof overalls and gloves  
- ear protection  
- face masks  
- safety goggles  
- steel capped boots/shoes  
- sunhats  
- bee veils  
- sunscreen lotion.

OHS hazards may include:  
- airborne and soil-borne micro-organisms  
- bee stings  
- chemicals and hazardous substances  
- dust  
- holes and slippery and uneven surfaces  
- incorrect manual handling  
- noise  
- sharp hand tools and equipment  
- snakes  
- solar radiation.

Risks may include:  
- contamination of honey with dust  
- lower quality product through discolouration and contamination with dislodged brood and larvae when removing honey from a brood nest.

Criteria for assessing ripeness of nectar honey may include:  
- loose nectar in a comb indicates that nectar honey is not yet ripe  
- two-thirds of the comb cells must be capped.

Factors to be considered when determining how much honey to remove from hive include:  
- alternative sources of honey available to colony once crop is removed  
- likelihood of swarming:  
  - honey may be removed from a hive in mid-spring to deter swarming behaviour  
  - strength of colony:  
    - a stronger colony needs more honey than a weaker one  
- time of year:  
  - stored honey is needed to enable a colony to survive through winter.

Methods for removing bees from the hive may include:  
- bee blowers  
- escape boards  
- removing the super and letting bees walk or fly out  
- shaking and brushing.
Factors to be considered when transporting honey-filled frames may include:

- keeping load impervious to dust, bees and water
- placing removed supers of honey on drip trays to catch any honey drips during transport.

**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.

**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:

- determine ripeness of nectar honey and filling of comb cells
- select and use the most suitable method(s) for removing bees and frames/combs from hive
- handle frames/combs filled with honey so that they are not contaminated with dust, dirt or water.

**Context and specific resources for assessment**

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a beekeeping 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 remove a honey crop from a hive.

The candidate must also have access to the following resources:

- hive with a working colony of bees
- PPE.
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 remove a honey crop from a hive must be transferable to a range of work environments and contexts including the ability to deal with unplanned events.
RTE3321A Extract honey

Unit Descriptor
This unit of competency specifies the outcomes required to extract honey. The work may be performed by a beekeeper or by staff under supervision, and may be carried out in a mobile processing facility or a purpose-built fixed facility.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to beekeepers and others working under minimal supervision, including those who work within a processing facility. Work is likely to be performed as part of a team, and according to established quality assurance and food safety requirements, and enterprise procedures.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare to extract honey.
   1.1 All equipment is cleaned, dried, sanitised and checked for serviceability and use.
   1.2 Ripe honey combs are selected for extraction of honey.
   1.3 Suitable personal protective equipment (PPE) is selected and checked prior to use.
   1.4 Occupational health and safety (OHS) hazards are identified and action is taken to minimise risks to self and others.

2. Extract honey.
   2.1 Quality assurance and food safety requirements are complied with throughout process of extracting honey.
   2.2 Frames are visually inspected for areas of brood and, if found, frames are uncapped by hand to avoid brood.
   2.3 Where required, combs are warmed to assist extraction process.
   2.4 Cells are uncapped using a hand knife or machine, avoiding damage to cells and frames.
   2.5 Frames are placed in extraction unit and unit is operated according to manufacturer instructions.

3. Purify honey.
   3.1 Extracted honey is heated to 30°C and strained or settled to remove wax, air bubbles, pollen and bees.
   3.2 Moisture content of honey is checked and appropriate action is taken as required.
   3.3 Action is taken to reduce risk of fermentation of honey by storing in an airtight container or tank.

4. Store honey.
   4.1 Cleaned honey is stored in suitable containers to meet customer requirements.
   4.2 Reference sample of honey is taken, correctly labelled and stored according to enterprise, food safety and quality assurance requirements.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- distinguishing between honey cells and brood cells
- judging when combs are ripe
- safely using equipment required for honey extraction.

Required knowledge:

- effect of heat and extraction process on honey
- equipment and its maintenance requirements
- food safety systems and requirements
- requirements of honey bee industry quality assurance program (BQUAL).

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.

**Equipment** used to extract and process honey may include:

- large container
- long, thin and sharp hand, electric or steam knife
- means to perform centrifugal extraction
- metallic screens and nylon mesh
- PPE
- suitable containers for storage
- uncapping machine.

Factors to consider in determining if honey combs are **ripe** may include:

- ripe honey combs may be identified by observing the following criteria:
  - greater than 75% of honey cells sealed
  - lesser levels of capping as a result of dry conditions
  - unripe honey combs should be left in hive until satisfactorily ripened or if removed should be kept warm and dehumidified.

**PPE** may include:

- bee veils
- bee-proof overalls and gloves
- ear protection
- steel capped boots/shoes.

**OHS hazards** may include:

- bee stings
- incorrect manual handling
- sharp hand tools and equipment
- slippery and uneven surfaces.
Combs may be warmed using procedures such as:

- placing them in a room heated to between 30°C and 40°C.

**Straining** may be defined in terms of:

- alternative to settling
- honey passes through mesh and impurities are left behind
- must be done at a temperature near 30°C
- straining honey through simple metallic screens covered in fine nylon mesh or a nylon sack submerged in a tall narrow tank.

**Settling** may be defined in terms of:

- drawing honey off near the bottom without disturbing top or bottom
- leaving honey in a large container so that air bubbles and impurities such as wax and insect pieces float to top or drop to bottom in the case of minerals and metallic particles
- best temperature is 25-30°C.

Procedures that apply to monitoring the moisture content of honey include:

- hydrometry
- refractometry
- non-conforming or unacceptable honey dehumidified or put into appropriately marked containers.

Procedures to minimise risk of fermentation may include:

- pasteurising honey
- storing honey in airtight containers.

Appropriate storage of honey may include:

- airtight containers made of stainless steel, glass or food grade plastic that is free of odours
- avoidance of containers made from copper, iron, steel and zinc that dissolve into honey, affecting flavour and colour (possibly reaching toxic levels)
- correctly labelled containers with legally required information.

**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.
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:

• operate honey extraction equipment safely to extract honey fit for human consumption
• take a reference sample of honey to meet quality assurance and food safety requirements.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a beekeeping 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 extract honey.

The candidate must also have access to the following resources:

• all equipment needed to extract and filter honey
• PPE
• combs of ripe honey.

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 extract honey must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include extracting honey, using different types of extraction equipment and/or methods, or honey from different floral sources that may have different characteristics.
RTE3322A Operate compost processing plant, machinery and equipment

Unit Descriptor

This unit of competency specifies the outcomes required to operate compost processing plant, machinery and equipment to prepare raw materials in order to produce compost products. Practical application of skills and knowledge is required to carry out pre-operational checks, calibrate equipment, report faults and operate plant, machinery and equipment. In addition, an awareness of workplace safety and positive environmental practices associated with plant, machinery and equipment operation is essential.

The unit involves the application of well-developed skills with some discretion and judgement and limited supervision. It requires taking responsibility for work output with checking related to overall progress, and taking limited responsibility for the work output of others for example as a team leader.

Employability Skills

This unit contains employability skills.

Application of the Unit

Composting is used here as a general expression for the processing of organic materials; with this unit being relevant for aerobic and anaerobic composting and vermiculture technologies.

This unit of competency applies to an employee of an enterprise engaged in commercial-scale composting operations. Work is likely to be performed as a part of a team and may include team leader responsibilities.

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

This unit must be read in conjunction with the National Guidelines for Occupational Health and Safety Competency Standards for Operation of Load-Shifting Equipment and Other Types of Specified Equipment [NOHSC: 7019 (1992)].

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

1. Organise for plant, machinery and equipment operations.

1.1 Job sheet or work order is reviewed to clearly identify operating requirements.

1.2 Equipment, materials and personnel requirements for safe, effective and efficient operation are identified and organised.

1.3 Suitable personal protective equipment (PPE) and clothing are selected, used, maintained and stored according to occupational health and safety (OHS) requirements.
2. Prepare plant, machinery and equipment for use.

2.1 Service log is checked to ensure service requirements have been met.

2.2 Communication equipment, safety devices, lighting and alarm systems are checked for correct operation according to manufacturer specifications and enterprise and statutory requirements.

2.3 Routine **pre-operational checks** are carried out to enterprise requirements and manufacturer specifications.

2.4 Operational systems are checked and calibrated for correct operation according to enterprise requirements and manufacturer specifications.

2.5 Faulty plant, machinery or equipment is identified, safety tagged and reported promptly according to enterprise requirements.

2.6 **OHS hazards** associated with plant, machinery and equipment operation are identified, and risk is assessed and handled according to enterprise requirements.

2.7 **Environmental implications** associated with operations are identified, assessed and reported according to enterprise requirements.

3. Start and operate plant, machinery and equipment.

3.1 Operational area is checked and personnel in that area are informed of initiation of operation.

3.2 Plant, machinery and equipment are started up using correct sequence and according to manufacturer specifications and enterprise requirements.

3.3 Plant, machinery and equipment are operated in a **safe and controlled** manner according to manufacturer specifications and monitored for performance and efficiency.

3.4 Input materials are monitored and non-conformances clearly identified and handled according to enterprise requirements.

3.5 Processing outputs are monitored and adjustments to plant operation are made to meet job specifications.

3.6 Out-of-specification product or process outcomes are identified, rectified and reported to maintain the process within specification.

4. Shut down plant, machinery and equipment.

4.1 Plant, machinery and equipment shut-down procedures are carried out to manufacturer specifications and enterprise requirements.

4.2 Routine maintenance of plant, machinery and equipment is carried out to remove debris and contaminants and to ensure safe and efficient operation.

4.3 Plant, machinery and equipment are cleaned, secured and stored according to manufacturer specifications and enterprise requirements.

4.4 Unsafe plant, machinery or equipment is tagged or locked out.
5. Maintain records.

5.1 Plant, machinery and equipment operational records are maintained accurately and promptly according to enterprise requirements.

5.2 Required maintenance, damage, malfunctions or irregular performance, and unsafe plant, machinery or equipment are recorded and/or reported according to enterprise requirements.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- basic computer and software skills
- communicating with work team and supervisor or team leader
- demonstrating safe and environmentally responsible workplace practices
- following material safety data sheets (MSDS)
- identifying and handling raw materials and contaminants
- interpreting and applying instructions
- measuring and calculating volumes, consumption and servicing requirements
- operating plant, machinery and equipment according to manufacturer specifications and OHS standards
- reading and interpreting gauges and indicators
- reading and interpreting manufacturer specifications, work and maintenance records
- recording and reporting equipment faults, and workplace hazards and accidents
- using emergency and personal protective equipment.

Required knowledge:

- enterprise guidelines associated with operation of plant, machinery and equipment
- environmental licence, works approval or similar if applicable
- identification of contaminants
- lock-out and tag-out procedures for plant, machinery and equipment
- manufacturer specifications for servicing of plant, machinery and equipment
- operating principles and operating methods for plant, machinery and equipment
- potential risks and hazards associated with operation of plant, machinery and equipment
- principles of weight distribution with regard to load-shifting and machinery movement
- procedures for cleaning, securing and storing machinery, equipment and materials
- product types and characteristics
- raw material types and characteristics
- relevant legislation, regulations and codes of practice with regard to operator licensing, roads and traffic requirements
- relevant legislation, regulations and codes of practice with regard to workplace OHS and the use and control of hazardous substances, such as fuel and recipe inputs.
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.

Compost processing plant, machinery and equipment may include:
- augers
- conveyors
- enclosed vessels computer hardware
- gantry cranes and other load-shifting equipment
- measurement and sampling instruments
- screens
- shaker trays
- shredders or other size-reduction plant
- trammels
- tub grinders
- vacuum separators.

Load-shifting machinery or equipment may include:
- backhoes
- conveyor belts
- excavators or dozers
- front-end loaders
- other specialised load-shifting machinery
- skid steer vehicles
- windrow turners.

Information included on the job sheet or work order may include:
- authorisation
- batch number
- packaging instructions
- product or material types and availability
- quantity required
- specification for product or bag
- work schedule
- additional instructions as required.
**PPE and clothing** may include:

- apparel such as:
  - appropriate footwear
  - gloves
  - hard hats
  - high visibility clothing
  - overalls
- emergency requirements such as:
  - emergency procedure guides
  - eye wash kit
  - fire extinguisher
  - first aid kit
  - MSDS
- eye and hearing protection
  - face shields or masks
  - respirators.

**Safety devices** and controls may include:

- alarms and reverse alarms
- barriers and guards
- earth leakage devices
- emergency stop devices and cords or lanyards
- lock-out or tag-out procedures
- warning lights.
**Routine pre-operational checks** of plant, machinery and equipment may include:

- basic equipment maintenance tasks such as checking:
  - fuel
  - oils and lubricants
  - electrolyte levels
  - wheels
  - tyre pressure
  - fanbelts
  - leads
  - lines
  - connections
  - air filters
  - brakes
  - clutch
  - gearbox
  - steering
  - lighting
  - transmission
  - checking and confirming equipment calibration settings and operating methods for turbo-charged engines
  - identifying and segregating unsafe or faulty equipment for repair or replacement
  - inspecting safety guards
  - observing and monitoring noise levels for correct operation
  - preparing independently powered tools which may include:
    - cleaning
    - priming
    - tightening
    - basic repairs and adjustments
  - pre-start and safety checks, including service and maintenance of cooling system.

**OHS hazards** may include:

- dust
- ergonomic hazards associated with posture and vibration
- exposure to loud noise and fumes
- extreme weather conditions
- hazardous substances such as:
  - fertiliser
  - fuel
  - oils
- machinery, including hydraulics
- mechanical malfunctions and exposed moving parts
- obstacles
- oil and grease spills
- pests
- potholes, ditches and embankments
- presence of bystanders
- solar radiation
- varying gradients.
**OHS systems and procedures** may include:

- appropriate carrying of passengers
- appropriate use, maintenance and storage of PPE
- emergency operation and defensive driving procedures
- ensuring working loads are secure and within working specifications
- hazard identification, assessment and reporting
- outdoor work, including protection from solar radiation
- protection from hazardous noise, mechanical vibration, and organic and other dusts
- protection of people in workplace
- safe lifting, carrying and handling
- safe operation and maintenance of plant, machinery and equipment, including hydraulics and guarding of exposed moving parts.

**Environmental implications** may include:

- negative environmental impacts resulting from:
  - excessive noise and exhaust emissions
  - hazardous substances such as:
    - fertiliser
    - fuel
  - incorrect use and disposal of maintenance debris such as:
    - oil containers
    - chemical residues
  - organic dusts
  - impacts such as:
    - maintenance and cleaning activities
    - run-off flows of water and cleaning agents from servicing
    - soil disturbance and dust problems from high speed and frequent traffic, including irrigation equipment.

Procedures for **safe and controlled** operation of plant, machinery and equipment may include:

- appropriate selection and use of plant, machinery and equipment
- maintaining working loads within specifications, including ensuring hitch-points are operated at correct height
- using appropriate operational techniques for the specific terrain (on and off-road environments) and weather conditions.

**Plant operational records** may include:

- down time
- equipment non-conformances
- faults and breakdowns
- incidents
- odometer readings
- operator identification
- start and finish times
- stoppages
- type and volume or amount of material processed.
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 such as after:

- RTC2210A Maintain properties and structures
- RTC2701A Follow OHS procedures
- RTC2702A Observe environmental work practices
- 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.

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:

- select and use various features and controls of a range of plant, machinery and equipment to carry out tasks
- carry out work and maintenance plans
- determine appropriate operating methods
- carry out pre-operational checks
- report faults and workplace hazards
- monitor operations
- maintain records
- apply safe and environmentally responsible workplace practices.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and must be assessed in a commercial-scale composting facility or in a situation that reproduces and/or simulates operational conditions.

For valid assessment, one should have opportunities to participate in exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge specified in this unit.

The candidate should also have access to the following resources:

- front-end loaders
- loaders with bucket scales
- range of load-shifting and processing equipment
- PPE
- commercial-scale compost material
- raw materials for handling and preparation
- job sheets.
- Candidates may be required to meet age and licence requirements to operate load-shifting machinery and equipment.

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 demonstrate competency must allow for application in a broad industry context, and should be transferable to a range of work environments, including the ability to deal with unplanned events. For example, this could include work within composting operations of varying scale; processing a range of different raw materials; producing a range of different composts and value-added products to meet the demands of different markets; located in an urban or rural context with varying environmental constraints; and using various equipment, practices, technologies and management systems.
RTE3323A Dispatch materials and composted product

Unit Descriptor

This unit of competency specifies the outcomes required to organise and dispatch bagged and bulk compost products from the site. It involves receiving orders, recognising products and measuring quantities; driving and loading skills; recording information; and supervising site drivers and loader operators.

The unit involves the application of well-developed skills with some discretion and judgement and limited supervision. It requires taking responsibility for work output with checking related to overall progress, and taking some responsibility for the work output of others, for example in the role of supervisor or team leader.

Employability Skills

This unit contains employability skills.

Application of the Unit

Composting is used here as a general expression for the processing of organic materials; with this unit being relevant for aerobic and anaerobic composting and vermiculture technologies.

This unit of competency applies to an employee of an enterprise engaged in commercial-scale composting operations. Work is likely to be performed as a part of a team, and may include team leader responsibilities. In smaller enterprises, the majority of tasks associated with dispatch and loading may be undertaken by the one person rather than by contract drivers.

Where work requires the use of load-shifting equipment, the appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector

No sector assigned
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<tr>
<th>ELEMENT</th>
<th>PERFORMANCE CRITERIA</th>
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| 1. Organise for loading and dispatch of product. | 1.1 Dispatch order is obtained and reviewed for completeness.  
1.2 Product dispatch requirements are checked with product and transport availability.  
1.3 Request is made to designated personnel for specified quantity of specified product to be prepared and/or delivered to dispatch area.  
1.4 Product dispatch is scheduled and confirmed with contractor or driver to ensure maximisation of load.  
1.5 Contract or external drivers are advised of enterprise occupational health and safety (OHS) and site policies and procedures.  
1.6 Appropriate machinery, equipment and labour required for dispatch activity are identified and organised according to enterprise procedures.  
1.7 Hazards are identified and controlled according to job requirements and enterprise procedures.  
1.8 Emergency and personal protective equipment (PPE) is selected and fitted according to job requirements, manufacturer specifications, OHS procedures and enterprise requirements. |
| 2. Coordinate loading of product. | 2.1 Loading site is organised to ensure safe and efficient loading of product.  
2.2 Product to be loaded and specific loading requirements are clearly communicated to drivers.  
2.3 Signalling and instructions are provided to drivers to ensure safe and efficient loading.  
2.4 Loading site is monitored to ensure compliance with loading instructions, containment of product within designated loading area, and availability of space for loading.  
2.5 Product is accurately measured and loaded into dispatch vehicle according to enterprise procedures.  
2.6 Product is recorded as loaded for dispatch according to enterprise requirements.  
2.7 Load is checked to ensure that it is adequately covered, contained and/or secured according to enterprise and regulatory requirements.  
2.8 Load is weighed to ensure dispatch order is met.  
2.9 Driver is provided with load documentation and delivery note according to enterprise requirements. |
| 3. Clean up loading area. | 3.1 Loader and vehicle hygiene are maintained between loads.  
3.2 Area and equipment are monitored for cleaning and clearing to ensure safe and effective operation according to enterprise requirements. |
| 4. Document product dispatch. | 4.1 Dispatch information is recorded accurately and promptly, and provided to sales office according to enterprise requirements. |
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- demonstrating safe and efficient work practices
- measuring, including weights, volumes and bucket volumes
- operating load-shifting equipment
- organising a site
- using a computer to obtain and record dispatch information
- using PPE
- using signalling and communication techniques and equipment.

Required knowledge:

- bulk density and moisture effects on weight and volume
- communication techniques and equipment
- customer service
- measurements, including weights, volumes and bucket volumes
- OHS requirements
- provisions of the Trade Practices Act in regard to weights and measurements of bulk product
- relevant regulations governing site operation
- types and performance characteristics of vehicles and loading equipment used in a composting enterprise.

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.

Product types may include:

- composts
- mulches
- natural and blended soils for landscaping
- potting mixes
- soft fall or loose fill playground surfacing
- soil conditioners
- special purpose soils
- various recycled organic products for a range of specialised applications.

Information on product dispatch order may include:

- customer invoice
- customer name and site contact details
- delivery details
- job number
- product type and specification
- quantity of product to be dispatched
- transport method
- transportation requirements.
Machinery and equipment used in product dispatch may include:

- calculator
- communications equipment
- hoppers and conveyors
- load-shifting machinery
- recording equipment
- storage containers such as bins and skips
- weighbridge.

Potential hazards may include:

- biological hazards
- dust
- electricity and overhead powerlines
- ergonomic hazards associated with posture and vibration
- exposure to loud noise and fumes
- extreme weather conditions
- hazardous substances such as:
  - fertiliser
  - fuel
  - oil
  - machinery, including hydraulics
  - mechanical malfunctions and exposed moving parts
  - oil and grease spills
  - presence of bystanders
  - solar radiation.

PPE must include:

- apparel such as:
  - appropriate footwear
  - gloves
  - hard hats
  - high visibility clothing
  - overalls
- emergency equipment and procedures:
  - emergency procedure guides
  - eye wash kit
  - fire extinguisher
  - first aid kit
  - material safety data sheets (MSDS)
  - eye and hearing protection
  - respirators or face masks.

Procedures for organising loading site may include:

- arranging containment of products
- designating access routes for trucks and load-shifting machinery
- identifying and signposting parking and loading areas
- pedestrian lock out
- traffic flow and management.
Dispatch information may include:
- amount or volume of product
- client name
- date dispatched
- details of transport
- job number
- product type.

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 such as after:
- RTC2210A Maintain properties and structures
- RTC2701A Follow OHS procedures
- RTC2702A Observe environmental work practices
- RTE2507A Recognise raw materials, production processes and products on a composting site
- RTE2709A Recognise and respond to fire emergencies on a composting site.

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:
- organise a loading site
- correctly interpret dispatch orders
- organise and coordinate loading
- measure product quantity for dispatch
- load correct product for dispatch
- communicate instructions verbally and non-verbally (via signals)
- select and use emergency and PPE equipment
- identify hazards associated with loading
- implement risk minimisation actions.
Assessment for this unit of competency is to be largely practical in nature and must be assessed in a commercial-scale composting facility or in a situation that reproduces and/or simulates operational conditions.

For valid assessment, one should have opportunities to participate in exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge specified in this unit.

The candidate should also have access to the following resources:

- products for loading
- vehicles to be loaded
- quantity measurement machinery or equipment such as weighbridge, front-end loader or loader with bucket scales
- PPE
- computer and merchandising software
- forms used for product dispatch.

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 demonstrate competency must allow for application in a broad industry context, and should be transferable to a range of work environments, including the ability to deal with unplanned events. For example, this could include work within composting operations of varying scale; processing a range of different raw materials; producing a range of different composts and value-added products to meet the demands of different markets; located in an urban or rural context with varying environmental constraints; and using various equipment, practices, technologies and management systems.
RTE3407A Identify and report unusual disease or plant pest signs

Unit Descriptor
This unit of competency specifies the outcomes required to recognise unusual disease or plant pest signs during day-to-day work and take appropriate reporting action.

Employability Skills
This unit contains employability skills.

Application of the Unit
The work in this unit is typically performed by those who have daily contact with plants, birds, animals or fish. It would usually be carried out in conjunction with routine animal or plant husbandry tasks.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Identify signs of unusual disease or a plant pest.
   1.1 Signs of disease or a plant pest are identified.
   1.2 Signs of disease or a plant pest are compared with own experience of common endemic disease or a plant pest in the species.
   1.3 Where signs indicate an unusual disease or a plant pest, severity and extent of problem in the species are assessed.
   1.4 Where signs indicate an unusual disease or a plant pest, immediate advice is sought from supervisors, professionals or appropriate authorities.

2. Report signs of unusual disease or a plant pest.
   2.1 Signs of unusual disease or a plant pest are reported immediately to appropriate authorities.
   2.2 Biosecurity measures are implemented according to enterprise biosecurity plans and instructions from appropriate authority.

REQUIRED SKILLS AND KNOWLEDGE
This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
- observing
- recognising unusual disease or plant pest signs.

Required knowledge:
- required procedures to follow in notifying appropriate authorities
- where to access additional reliable information or personnel.
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.

**Signs of disease or a plant pest** may include:
- abnormality
- clinical signs
- decline and dieback
- insect damage or presence of insects
- mortalities and mode of death
- presence of highly specific vectors
- results of post-mortem examinations
- unexplained levels of morbidity or mortality in populations.

**Unusual diseases or plant pests** may include:
- disease that is classified as an emergency disease
- disease that presents in an unusual, uncommon or atypical form
- plant pest species, biotype or strain of invertebrate pest or pathogen injurious to plants or plant health.

**Appropriate authorities** may include:
- national disease watch hotlines
- property owner or manager
- regulatory officers from state and territory departments of Primary Industries, Agriculture, Fisheries and Forestry.

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**

Assessment for this unit of competency may be undertaken on or off the job. The unit could be assessed on its own or in combination with other units of competency relevant to the job function, such as RTE4409A *Carry out field surveillance for a specific emergency disease or plant pest.*

**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:
- identify unusual disease or pest signs within one's own experience
- notify appropriate authorities where appropriate
- implement appropriate biosecurity measures.
Context and specific resources for assessment

For valid assessment, one must have opportunities to participate in a range of exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge required to identify and report unusual disease or plant pest signs.

The candidate must also have access to resources such as photographs of signs of emergency and endemic diseases and of plant pests.

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 identify and report unusual disease or plant pest signs must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include a range of diseases for a particular species or a variety of pests.
### RTE3408A Carry out emergency disease or plant pest control procedures at an infected premises

**Unit Descriptor**
This unit of competency specifies the outcomes required to carry out emergency disease or plant pest control activities at a site affected by an emergency disease outbreak or plant pest incursion. This may require some supervision and coordination of a team, under the direction and supervision of the infected premises (IP) site supervisor.

**Employability Skills**
This unit contains employability skills.

**Application of the Unit**
This unit of competency applies to personnel who have been appointed or engaged to undertake a role within an emergency disease or plant pest incursion response.

**Unit Sector**
No sector assigned

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<th>PERFORMANCE CRITERIA</th>
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| 1. Prepare for emergency disease or plant pest control activities. | 1.1 *Work instructions* received from IP site supervisor are clarified in preparation for carrying out *control procedures*.  
1.2 Appropriate equipment and materials are selected and prepared to undertake control activities in line with IP site supervisor work instructions and associated safety requirements.  
1.3 Personal protective equipment (PPE) is selected and prepared according to occupational health and safety (*OHS*) requirements. |
| 2. Implement emergency disease or plant pest control activities. | 2.1 Control activities are implemented in line with work instructions, OHS requirements and *standards and protocols*.  
2.2 Log of activities carried out on the IP is maintained according to instructions from IP site supervisor.  
2.3 PPE is used as instructed by IP site supervisor and according to OHS requirements and manufacturer instructions.  
2.4 Within own area of responsibility, work instructions are given and received. |
| 3. Check and adjust emergency disease or plant pest control activities. | 3.1 Control activities within own area of responsibility are regularly checked to ensure compliance with work instructions, OHS requirements, and standards and protocols.  
3.2 Reports are provided to IP site supervisor as required.  
3.3 Any variations from work instructions, and standards and protocols, or failure to achieve objectives are reported to IP site supervisor and remedial action is undertaken within one's scope of authority.  
3.4 Any recommendations for adjusting work instructions are communicated to IP site supervisor. |
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- adhering to security procedures in line with specific emergency disease or plant pest control strategies
- communicating with team members and other teams, property owner and manager, and IP site supervisor
- coordinating a team, if team leader
- correctly preparing and using equipment and materials for control procedures
- correctly preparing and using PPE
- ensuring animal welfare when working with animals
- following guidelines and protocols for control procedures in an emergency disease or plant pest response
- keeping records
- making written and oral reports.

Required knowledge:

- OHS requirements for working in an emergency disease or plant pest control situation, including safe use of equipment and material
- PPE requirements
- record-keeping requirements
- relevant provisions of the control strategy for particular emergency disease or plant pest being controlled
- reporting requirements.

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.

Emergency diseases or plant pests may include:

- diseases that may affect animals, fish and other marine animals including:
  - disease that is exotic to Australia
  - serious infectious disease of unknown or uncertain cause
  - severe outbreak of a known endemic disease that is considered to be of national significance with serious social or trade implications
  - variant of an endemic disease
  - species, biotype or strain of invertebrate pest or pathogen injurious to plants or plant health.
Information covered in work instructions may involve:

- stipulations relating to standards, protocols and specific IP site requirements, and may cover:
  - administration
  - collection of biological samples
  - decontamination
  - destruction of livestock or crop
  - disposal of carcasses and infectious material
  - gate control
  - inventory and valuation
  - mapping of location of affected plants or crops
  - pest control
  - team leader duties
  - wild animal control.

Control procedures may include:

- containment of livestock or crop and other materials
- decontamination and disinfection of premises, equipment and staff leaving premises
- destruction and slaughter
- disposal of livestock or crop and other materials
- gate control
- pest control
- sample collection
- use of chemicals
- vaccination and treatment
- wild animal control.

OHS requirements may include:

- administration of treatments and vaccinations
- animal handling and use of approved restraints where required
- correct techniques for manual handling
- policies relating to livestock or crop destruction and disposal
- procedures for dealing with risks associated with working in areas where there may be an accumulation of airborne dusts or gases, such as ammonia, methane and carbon dioxide
- procedures for dealing with risks that may arise when working in buildings or yards that have been damaged in the course of implementation of control procedures
- processes for avoiding needle stick injuries and safe use of biohazard containers for disposal of sharps
- safe operation of machinery and equipment, including consideration of layout, buildings, terrain, location and prevailing weather conditions
- safe use and handling of chemicals
- use of firearms for livestock destruction
- use of PPE and clothing.
Relevant **standards and protocols** may include:

- approved standard operating procedures
- Australian Veterinary Emergency Plan (AUSVETPLAN) or Australian Emergency Plant Pest Response Plan (PLANTPLAN) or similar protocols
- damage minimisation policies
- environmental policies
- OHS legislation
- relevant commonwealth, state and territory legislation.

**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.

**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:

- follow instructions
- comply with OHS requirements
- monitor own performance
- observe and report variations from work instructions or standards and protocols.

**Context and specific resources for assessment**

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in an emergency disease or plant pest response simulation or in responses to emergency disease outbreak or plant pest incursion.

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 carry out emergency disease or plant pest control procedures at an IP.

The candidate must also have access to the following resources:

- actual or simulated IP
- PPE.
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 carry out emergency disease or plant pest control procedures at an IP must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events.
RTE3409A Carry out movement and security procedures

Unit Descriptor

This unit of competency specifies the outcomes required to implement appropriate procedures to restrict the movement of vehicles, personnel, products, livestock and/or plant material in relation to managing an emergency disease or a plant pest incursion. The work in this unit is undertaken in the field and as part of a team.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency applies to personnel who have been appointed or engaged to undertake a role within an emergency disease or plant pest incursion response.

Unit Sector

No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare to carry out movement and security procedures.

1.1 Specific movement and security procedures to be carried out, and times and locations of operations are identified from work instructions.

1.2 Where required for the particular procedures to be carried out, personal protective equipment (PPE) is obtained and checked for serviceability and use.

1.3 Documentation required to carry out specific procedures is obtained.

1.4 Resources required to carry out specific procedures are obtained and checked for serviceability and use.

2. Apply movement and security procedures.

2.1 Traffic check point is established according to work instructions.

2.2 Movement of vehicles, personnel, products, livestock and/or plant material through declared areas is monitored in line with requirements.

2.3 Permits are issued and/or checked appropriately according to standards and protocols.

2.4 Where vehicles are determined to be carrying personnel, products, livestock and/or plant material without a valid permit, action is taken according to standards and protocols.

2.5 Close liaison with external security providers is maintained as required.

2.6 PPE is used where required, according to occupational health and safety requirements and manufacturer instructions.

2.7 Resources are appropriately decontaminated where required, according to standards, protocols and policies.
3. Check and adjust movement and security procedures.

3.1 Application of movement and security procedures within own area of responsibility is regularly checked to ensure consistency, currency and ongoing effectiveness.

3.2 Reports are provided to appropriate authorities as required.

3.3 Any variations in consistency, currency and ongoing effectiveness or failure to achieve objectives are reported to appropriate authorities and remedial action is undertaken within one's scope of authority.

3.4 Any recommendations for adjusting movement and security procedures are communicated to supervisor and appropriate authorities.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• applying movement and security controls under emergency conditions
• carrying out instructions
• identifying the checks and permits required to maintain effective security
• taking appropriate measures to enforce movement and security procedures.

Required knowledge:

• application of the law in relation to movement and security controls during an emergency disease or plant pest incursion response program
• decontamination procedures where required
• movement permit system
• safety issues
• understanding the role of movement and security controls in controlling the spread of an emergency disease or a plant pest incursion.

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.

Movement and security procedures may include:

• implementing interstate and international movement requirements
• issuing permits for product, livestock, crop and people movement
• locating boundaries of declared areas to be secured
• maintaining a register of vehicles and equipment entering and exiting infected premises
• maintaining communication links
• maintaining security patrols
• monitoring movements into and out of declared areas.
**Documentation** may include:
- lists of people who have been issued with permits
- logbook
- permits
- public relations materials
- quarantine forms
- rosters
- schedules.

**Resources** may include:
- equipment
- personnel
- stores.

Relevant **standards and protocols** may include:
- approved standard operating procedures
- commonwealth, state and territory legislation
- emergency disease response agreements
- emergency disease-specific guidelines and manuals included in the relevant national response plan, such as Australian Veterinary Emergency Plan (AUSVETPLAN) or Australian Emergency Plant Pest Response Plan (PLANTPLAN)
- other relevant guidelines or regulations.

**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.

**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:
- establish appropriate movement and security controls
- check movement permits for validity
- check for unauthorised movement of personnel, livestock, plant materials and/or products that have been in contact with infectious or infested material
- deal with unauthorised movements in line with required standards and protocols.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a practical training activity or emergency disease outbreak or a plant pest incursion.

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 carry out movement and security procedures.

The candidate must also have access to resources that establish movement and security controls.

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 carry out movement and security procedures must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events.
RTE3410A Work effectively in an emergency disease or plant pest response

Unit Descriptor
This unit of competency specifies the outcomes required to work effectively within own area of responsibility in a response to an emergency disease or plant pest incursion.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to personnel who have been appointed or engaged to undertake a role within an emergency disease or plant pest incursion response.

Unit Sector
No sector assigned

ELEMENT

PERFORMANCE CRITERIA

1. Obtain and use information about the emergency disease or plant pest and an appropriate response.
   1.1 Information about emergency disease or plant pest and appropriate response is accessed and applied during an emergency disease or plant pest response.
   1.2 Information is used to address specific work needs and further information requirements are identified.
   1.3 Information and/or resources required from stakeholders are identified and accessed.

2. Work according to organisational requirements.
   2.1 All communication with stakeholders is carried out according to organisational policies and procedures.
   2.2 All work undertaken reflects a current working knowledge and understanding of organisational requirements.
   2.3 All work undertaken reflects understanding and compliance with relevant duty of care and legal responsibilities.
   2.4 Work activities conform to relevant legislation, regulations, procedures and codes of practice appropriate to work area and level of responsibility.
   2.5 Hazards and risks relevant to specific work being undertaken are identified and responded to as required.
   2.6 Work is carried out according to organisational policies and procedures.
3. Manage own work.

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>3.1</td>
<td>Work instructions are interpreted correctly and clarification is sought if inconsistencies are noted.</td>
</tr>
<tr>
<td>3.2</td>
<td>Workload is assessed and competing demands are prioritised to achieve personal, team and organisational goals and objectives.</td>
</tr>
<tr>
<td>3.3</td>
<td>Need for physical and human resources is communicated clearly to <strong>appropriate person(s).</strong></td>
</tr>
<tr>
<td>3.4</td>
<td>Own role, responsibilities and duties are performed in a positive manner that promotes cooperation within the workplace.</td>
</tr>
<tr>
<td>3.5</td>
<td>Importance of own and others' roles in achieving organisational goals is respected.</td>
</tr>
<tr>
<td>3.6</td>
<td>Personal symptoms of stress and their potential to impact on performance are recognised, action is taken to minimise their negative effects and undue personal stress is reported to appropriate persons.</td>
</tr>
</tbody>
</table>

4. Comply with biosecurity requirements.

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>4.1</td>
<td>Biosecurity procedures relevant to own work area are identified.</td>
</tr>
<tr>
<td>4.2</td>
<td>Work activities are carried out according to established biosecurity procedures.</td>
</tr>
<tr>
<td>4.3</td>
<td>Personal protective equipment and fomites are maintained according to biosecurity procedures.</td>
</tr>
<tr>
<td>4.4</td>
<td>Biosecurity breaches are reported immediately to appropriate person.</td>
</tr>
<tr>
<td>4.5</td>
<td>Biosecurity records are completed according to work area requirements.</td>
</tr>
</tbody>
</table>

5. Adapt to change as required.

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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Need for change in own work practices to reflect critical emergency issues or emerging trends is identified and assessed.</td>
</tr>
<tr>
<td>5.2</td>
<td>Changes required are discussed and agreed with senior staff.</td>
</tr>
<tr>
<td>5.3</td>
<td>Own work practices are changed where required and according to agreed arrangements.</td>
</tr>
<tr>
<td>5.4</td>
<td>Flexible approach that takes account of changing priorities and circumstances is applied when implementing instructions for changes to work practices.</td>
</tr>
<tr>
<td>5.5</td>
<td>Change is monitored to determine the effectiveness of revised work practices and senior staff members are advised of findings.</td>
</tr>
</tbody>
</table>
REQUIRED SKILLS AND KNOWLEDGE
This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
- operating in stressful situations
- prioritising conflicting demands
- working in a strict line management environment.

Required knowledge:
- district, regional and local plans
- functional plans of other government agencies
- legal and regulatory framework under which responses are taken
- national plans such as Australian Veterinary Emergency Plan (AUSVETPLAN) or Australian Emergency Plant Pest Response Plan (PLANTPLAN)
- occupational health and safety (OHS) and biosecurity procedures
- national, state and territory plans.

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.

Information:
- about emergency diseases or plant pests may be found in:
  - AUSVETPLAN or PLANTPLAN strategies
  - published texts
  - scientific literature
- about an emergency response may be found in:
  - district, regional or local plans
  - functional plans of other government agencies
  - industry biosecurity plans
  - national, state or territory plans.

Emergency diseases or plant pests include:
- diseases that may affect animals, fish and other marine animals including:
  - disease that is exotic to Australia
  - serious infectious disease of unknown or uncertain cause
  - severe outbreak of a known endemic disease that is considered to be of national significance with serious social or trade implications
  - variant of an endemic disease
  - biotype or strain of invertebrate pest or pathogen injurious to plants or plant health.
Stakeholders may include:

- agronomists and consultants
- chemical resellers
- consumers
- crop monitors or scouts
- general community
- government departments
- industry
- producers and other local enterprise owners
- other personnel involved in an emergency response
- plant pathologists
- property owners, managers and staff
- stock agents and transport personnel
- veterinarians.

Organisational requirements may include:

- biosecurity and OHS policies and procedures
- district or regional plans
- functional plans of other government agencies
- goals, objectives, policies and standard operating procedures of response lead agency
- national plans such as AUSVETPLAN or PLANTPLAN
- local, state and territory plans.

Duty of care and legal responsibilities may include:

- duties and responsibilities for self and others
- responsibilities defined through legislation
- responsibility of an employer to provide a safe workplace.

Procedures may include:

- AUSVETPLAN or PLANTPLAN
- biosecurity procedures of industry and response lead agency
- handling and storage of hazardous materials
- industry codes of practice
- legal or regulatory requirements
- personal hygiene
- standard operating procedures of response lead agency.

Hazards and risks may include:

- allergic reaction
- chemical exposure
- occupational trauma
- physical injury
- spreading disease or plant pests
- zoonotic infection.

Ways in which work may be carried out include:

- individually
- in cooperation with other sections in response team, using their skills and knowledge as appropriate.

Appropriate person may include:

- controller
- section manager
- team leader.
Fomites may be defined in terms of:

- inanimate objects capable of transmitting an infectious agent such as:
  - boots
  - clothing
  - vehicles.

**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.

**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:

- access and use national plans such as AUSVETPLAN or PLANTPLAN
- operate within a response team
- operate effectively under stress in tasks involving problem solving in relation to own role
- make effective judgements
- follow instructions
- provide advice in area of expertise and authority
- understand legal and regulatory implications of one's own role in an emergency disease or plant pest response.

**Context and specific resources for assessment**

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a simulated 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 work effectively in an emergency disease or plant pest response.

The candidate must also have access to the following resources:

- simulated workplace for an emergency disease or plant pest response for assessment using scenarios, case studies, role plays and group work
- access to local, regional, district, state and territory, and national plans relating to an emergency disease or plant pest response.
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 work effectively in an emergency disease or plant pest response must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. This could include:

• working in the field or in a local, state or national control centre
• participating in a response to a plant pest or to an emergency disease of animals, fish or other marine animals
• participating in a response to a natural disaster.
RTE3415A Manage pests and disease within a honey bee colony

Unit Descriptor
This unit of competency specifies the outcomes required to inspect a honey bee colony for indicators of disease or evidence of pests, and take appropriate follow-up action.

Work is likely to be undertaken with limited supervision. The unit requires a broad range of knowledge about honey bee health and nutrition, as well as skills in handling and working with bees.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to beekeepers who may be working by themselves or as part of a small team. Work may be performed in a workshop or similar facility or in the field.

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare to check brood.

1.1 Suitable personal protective equipment (PPE) is selected and checked prior to use.

1.2 Tools and equipment required to open a hive are selected and checked prior to use.

1.3 Occupational health and safety (OHS) hazards associated with opening a hive are identified and actions are taken to minimise risk to self and others.

2. Assess health and condition of brood.

2.1 Brood is inspected for signs of disease and, where notifiable disease is observed, appropriate authorities are notified as required by legislation and appropriate action is taken.

2.2 Brood is inspected for evidence of pests and parasites and, where found, appropriate action is taken and appropriate authorities are notified as required by legislation.

2.3 Signs of disease or pest are identified, appropriate samples for testing are collected, and evidence is gathered to support a diagnosis according to relevant standards and protocols.

2.4 Hive is inspected for signs of diseased brood being ejected from hive at entrance or bottom board.
3. Assess health and condition of adult bees.

3.1 Flight paths around hive entrance are observed for signs of poor or irregular flight patterns, and for dead or dying bees at hive entrance.

3.2 Adult bees and brood combs are observed for signs of disease and, where notifiable disease is present, appropriate authorities are informed as required by legislation and appropriate action is taken.

3.3 Signs of disease or pest are identified, appropriate samples for testing are collected and evidence is gathered to support a diagnosis according to relevant standards and protocols.

3.4 Biosecurity measures are implemented according to enterprise biosecurity plans and instructions from appropriate authority.

3.5 Results of inspections and any remedial action taken are recorded and used as the basis for future beekeeping operations.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- identifying pests and diseases
- inspecting broods
- preparing supplementary feeds
- recording observations
- reporting signs of notifiable diseases
- requeening a colony
- taking samples
- transporting colonies
- using PPE
- working safely around bees.

Required knowledge:

- mode of spread of pests/diseases and level of risk to beekeeping
- signs of endemic and exotic disease and pests of honey bees and treatments
- where relevant, non-allowable inputs for organic honey production.

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.

**PPE** may include:

- bee-proof overalls and gloves
- steel capped boots/shoes
- sunhats
- bee veils
- sunscreen lotion.
Tools and equipment required may include:

- bee blower
- bee smoker
- brush
- buckets and wheelbarrow
- detergent
- glass slides, jars or cages for adult bee samples
- geographic positioning system (GPS) equipment
- compass and detailed locality maps
- hive tool
- hives
- loading and unloading equipment
- queen excluder
- vehicle.

OHS hazards may include:

- bee stings
- manual handling and lifting of heavy hives.

Diseases may include:

- diseases affecting brood and adult bees:
  - American foulbrood
  - European foulbrood
  - Sac brood
  - other viral diseases like Nosema and Chalk brood
- action taken must include complying with state or territory legislation regarding notification.

Pests and parasites may include:

- pests and parasites affecting brood and adult bees:
  - Acarine
  - Braula coeca
  - Tropilaelaps
  - Varroa
- action taken must include complying with state or territory legislation regarding notification.

Pests may include:

- common pests in or around hives, including:
  - ants and spiders
  - bee-eating birds
  - cane toads
  - European wasps
  - mice
  - small hive beetles
  - wax moths
- if pests are discovered, action should be taken to control problem or move colony to another location.
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, such as:

- with:
  - RTE3154A Requeen a honey bee colony
  - RTE3155A Manipulate honey bee brood
- after:
  - RTE2157A Open and reassemble a beehive
  - RTE2305A Use a bee smoker.

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:

- inspect hive and colony for signs of disease and ill thrift
- identify key signs and symptoms of disease and pests that may affect brood or adult honey bees
- undertake remedial action to ensure colony is maintained in healthy and productive condition for intended use.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a beekeeping 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 manage pests and disease within a honey bee colony.

The candidate must also have access to the following resources:

- honey bee colony
- equipment and tools for opening and reassembling hives
- PPE.
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 manage pests and disease within a honey bee colony must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within small and large-scale apiaries or apiaries producing honey or other hive products or services.
RTE3504B Collect samples for rural production or horticulture monitoring program

Unit Descriptor
This unit of competency specifies the outcomes required to collect samples as part of a rural production or horticulture monitoring program or while conducting post-mortem examination of livestock or other animals. It requires the ability to plan for collecting, prepare equipment and resources, carry out collecting, and complete collecting activities. Collecting samples requires knowledge of standard operating procedures (SOPs); industry sampling and preserving methods, guidelines and protocols; types of material that might be collected; and environmental legislation.

Samples collected will usually be analysed by laboratory staff, although collection staff may undertake some tests.

Employability Skills
This unit contains employability skills.

Unit Sector
No sector assigned

ELEMENT

PERFORMANCE CRITERIA

1. Plan for collection of samples.

1.1 Purpose and scope of sample collection activity is confirmed from discussion with supervisor or work instructions.

1.2 Sample collection schedule is read/heard and confirmed.

1.3 Sampling site location is confirmed and, where required, approval obtained for site access following enterprise guidelines.

1.4 Samples to be collected and preserved are identified in conjunction with supervisor or by reference to enterprise guidelines or SOPs.

1.5 Range of likely operating conditions, hazards and difficult/sensitive environments are assessed for impact on sampling and testing.

2. Prepare equipment and resources.

2.1 Equipment required for sampling and preserving is sourced according to sampling procedures.

2.2 Equipment is checked for availability and serviceability in accordance with enterprise procedures.

2.3 Data or record sheets/books are collected for use.

2.4 Equipment, data sheets and personnel are moved to sampling sites without injury or damage and readied for use.
3. Carry out sampling and preserving procedures.

3.1 Samples are collected in accordance with sampling plan and enterprise procedures and industry protocols/guidelines.

3.2 Samples are preserved and recorded in accordance with sampling standards and guidelines.

3.3 Samples for external analysis are prepared, packaged and sent to laboratory in accordance with sampling schedule and laboratory standards.

3.4 Hazardous materials are packaged and transported in accordance with legislative requirements.

3.5 Observations including information on the surrounding area and environmental conditions are made in accordance with monitoring schedule.

3.6 Equipment operation and work practices conform to OHS requirements.

3.7 Collection outcomes including presentation of samples are reported and delivered in accordance to enterprise guidelines.


4.1 Equipment and clothing is cleaned, sanitised, repaired and stored in accordance with enterprise procedures.

4.2 Damaged or malfunctioning equipment is repaired on site or sent to manufacturer or specialist.

4.3 Sampling results and observations are accurately recorded on data sheets and forwarded in accordance with enterprise procedures.

4.4 Changes in field conditions and sampling protocols are reported according to enterprise procedures.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- distinguish atypical circumstances
- package samples for transport to laboratory
- prepare samples
- understand and carry out instructions
- use and operate relevant tools and equipment.

Required knowledge:

- basic habitat assessment
- collecting equipment and methods
- fauna and flora recognition relevant to sampling activities
- field procedures for sampling and preservation
- hydrological cycle
- preservation equipment and processes
- relevant legislation
- topographical, climatic and/or environmental influence on material or sampling procedure
- water quality issues.
**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.

<table>
<thead>
<tr>
<th>What sampling site locations may be relevant?</th>
<th>Rural production or horticultural sites, such as paddocks, farm buildings, worksites, nurseries, playing fields, dams, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>What types of samples may be included?</td>
<td>A very wide variety of items may be sampled for testing, including animal tissue or fluids, plants, moulds, pests, water, soil, manures, artificial growth media, fertilisers, hydroponic solutions, effluent, and emissions. Samples will generally be taken as part of an on-going monitoring program, such as an animal health program or as part of a post-mortem examination of livestock, or soil monitoring for crop and pasture production.</td>
</tr>
<tr>
<td>What environmental legislation may be included?</td>
<td>Environmental legislation may include Fisheries Management Acts, Environmental Protection Acts, and threatened species conservation Acts.</td>
</tr>
<tr>
<td>What equipment may be included?</td>
<td>Electronic machines, probes, grabs, nets, dredges, plankton nets, water sample bottles, bailer, still and video cameras, specialised machinery, identification keys and preserving equipment, kick seines, containers for holding and sorting samples, plastic buckets, blood/saliva sampling equipment, hand-held magnifying glasses, tweezers or forceps, small vegetable brushes, wading boots, rubber gloves, thermometer, yardstick, sample record and assessment form, pencils, and clipboard, and relevant field guides.</td>
</tr>
<tr>
<td>Which OHS requirements may be included?</td>
<td>Codes of practice, regulations and/or guidance notes, which may apply in a jurisdiction, and enterprise-specific OHS procedures, policies or standards.</td>
</tr>
</tbody>
</table>
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.

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

Competence in collecting and preserving biological samples requires evidence that samples have been appropriately collected and preserved for a given site according to prescribed enterprise procedures, standards and principles, collecting schedules and industry best practice. The skills and knowledge required to collect and preserve samples must be transferable to a range of work environments and contexts. For example, this could include different locations, environments, samples and collecting techniques or sample collection for different purposes.
What processes should be applied to this unit of competency?

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 unit of competency. 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.

• How can communication of ideas and information (3) be applied?
  • Recording information regarding collection and preservation activities.

• How can information be collected, analysed and organised (3)?
  • Through completion of record sheets, taking of samples for external analysis and recording of observations.

• How are activities planned and organised (3)?
  • Using appropriate equipment and in accordance with enterprise guidelines.

• How can team work (3) be applied?
  • Cooperation with others in collecting and preserving activities.

• How can the use of mathematical ideas and techniques (2) be applied?
  • Through recording scope and extent of activities and samples collected, using results, and reporting according to enterprise guidelines or SOPs.

• How can problem-solving skills (3) be applied?
  • Dealing with unforeseen situations when carrying out collecting and/or preserving.

• How can the use of technology (2) be applied?
  • Use of field equipment and machinery.

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

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

There is essential information about assessing this unit of competency for consistent performance and where and how it may be assessed, in the Assessment Guidelines for this Training Package. All users of these units of competency must have access to the Assessment Guidelines. Further advice may also be sought from the relevant sector booklet.
RTE3511A Supervise mushroom substrate preparation

Unit Descriptor
This unit of competency applies to work in the mushroom industry and specifies the outcomes required to apply, monitor and supervise the achievement of farm quality standards and processes associated with mushroom substrate preparation (Phase II).

It requires responsibility for own work and coordination and supervision of a work team.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency supports the role of a mushroom farm supervisor who is involved in supervising the preparation of mushroom substrate either in a general mushroom farming enterprise or in a specialist substrate preparation enterprise.

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Confirm that all requirements to commence mushroom substrate preparation are met.

1.1 Details of required quantities of substrate and dates/times to be achieved for each stage of the process are obtained and communicated to personnel involved in substrate preparation.

1.2 Availability, quality, serviceability and cleanliness of all rooms, work areas, machinery, equipment and materials required for mushroom substrate preparation are ascertained and remedial action is taken if required according to farm procedures.

1.3 Personnel are given instructions about mushroom substrate processing tasks to be performed.

1.4 Personal protective equipment (PPE) and clothing are selected and used by all those involved in mushroom substrate processing tasks.

1.5 Occupational health and safety (OHS) requirements and hazards associated with each task are identified and appropriate action is taken to minimise risks to self and others.

1.6 Site quarantine protocols and farm and personal hygiene requirements are applied, followed and monitored as required by farm procedures or manager instructions.

1.7 All work of the team is monitored to ensure that it is performed in an environmentally aware and safe manner while satisfying farm procedures and productivity and workflow requirements.

2.1 Mushroom substrate preparation processes are monitored to ensure that work is performed according to farm procedures and that all equipment is operated according to manufacturer instructions, and at a speed that maintains safe and continuous operation.

2.2 Random samples of materials and/or outputs are taken according to farm procedures.

2.3 Probes are monitored to ensure that they are functioning and correctly positioned to provide representative readings.

2.4 Production information required for farm hazard analysis critical control point (HACCP) system is recorded according to farm procedures.

2.5 Faults or variations from required settings or farm quality standards observed at any stage in the process are reported to manager and remedial action is taken as directed.

2.6 Compost, rooms and work areas are monitored for presence of pests and remedial action is taken as required and according to farm procedures.

3. Finalise mushroom substrate preparation process.

3.1 Clean-up activities at end of each process stage are monitored to ensure they comply with farm procedures.

3.2 Equipment and hand tools are returned to storage area after cleaning and checked for future serviceability.

3.3 Basic preventative maintenance is carried out according to farm procedures and any faults are reported to maintenance personnel for remedial action.

3.4 Records are completed legibly and accurately according to farm procedures.

3.5 Feedback on performance is provided to personnel under supervision.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- accepting responsibility for quality of own work
- contributing to productive work environment
- explaining quality standards and task requirements to personnel
- interpreting work schedules
- maintaining safety of self and others
- managing own work and supervising that of others
- observing employment requirements
- promoting workplace cooperation
- recording and reporting farm and HACCP information.

Required knowledge:

- casing function, application, required depth and required surface structure
- farm standards and procedures, including those relating to OHS, food safety, HACCP, quality systems, emergency procedures, organisational structure and workplace communication channels and protocols
- impact on rest of mushroom production cycle of deviations of mushroom substrate quality from farm standards for substrate
- industry and workplace awards and conditions
- overview of mushroom production cycle
- overview of Phase I and Phase II substrate production
- relevant legislation and industry codes of practice
- site quarantine protocols.
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.

Rooms, work areas, machinery, equipment and materials that need to be prepared may include:

- rooms:
  - case run
  - growing
  - Phase II
  - spawn run
- work areas for:
  - adding casing
  - filling compost
  - mixing
  - storing
- machinery and equipment:
  - casing applicators
  - casing mixer
  - conveyors
  - filling equipment
  - forklifts
  - front-end loaders
  - probes
  - spawning hopper
  - trays and plastic liners
  - tunnels
- materials:
  - casing ingredients
  - chemicals
  - Phase I compost
  - Phase II compost
  - spawn.

Farm procedures may include:

- enterprise standard operating procedures (SOP)
- HACCP
- industry best practice guidelines on quality, food safety and hygiene
- legislative and regulatory requirements such as OHS procedures
- manufacturer service specifications and operator manuals
- oral and written instructions from managers or supervisors
- product labels
- material safety data sheets (MSDS)
- production schedules
- routine maintenance schedules
- waste disposal, recycling and re-use guidelines
- work notes.
PPE and clothing may include:
• aprons
• boots
• fluoro safety vests
• gloves
• hats or hair covering
• overalls
• waterproof jackets.

OHS requirements and hazards may include:
• OHS procedures such as:
  • appropriate use of PPE
  • assessing and reporting risks
  • basic first aid
  • cleaning, maintaining and storing tools, equipment and machinery
  • correct manual handling
  • identifying hazards
  • maintaining personal hygiene
  • reporting problems to supervisors
  • safe handling
  • safe operation of tools, equipment and machinery
• OHS hazards such as:
  • chemicals and hazardous substances
  • confined spaces
  • dust and substrate-borne micro-organisms
  • electricity
  • manual handling
  • moving equipment, machinery and vehicles
  • noise
  • sharp hand tools and equipment
  • slippery or uneven surfaces
• risk minimisation procedures:
  • restricting access of other personnel to work area
  • using correct manual handling techniques
  • wearing appropriate PPE.

Production information that should be recorded and reported may include:
• details relating to factors and critical points that apply at different stages of the process
• details relating to product such as:
  • pesticides added to casing
  • quality of water applied
  • spawn strain used
  • type of peat used.
Remedial action may include:

- action taken in response to problems identified by self, others or as directed, such as:
  - arranging for urgent maintenance or short-term repairs where equipment is not serviceable
  - checking machinery and equipment and providing instructions to other personnel where processes do not comply with farm standards
  - making process adjustments such as:
    - altering density of filling
    - adding more or less water to casing mixture.

Clean-up activities may include:

- cleaning, sanitising or disinfecting machinery, equipment and work areas
- removing products that have not met farm quality requirements
- removing spilt mushroom substrate or spawn.

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, such as RTE3801A Provide on-job training support.

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:

- observe and report discrepancies between farm standards and standards achieved
- supervise staff so that standards relating to productivity, workflow requirements, farm procedures and quality are met
- contribute as a team member to performance of mushroom substrate processes
- record and report production information.
Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed on a mushroom farm 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 supervise mushroom substrate preparation.

The candidate must also have access to the following resources:

- substrate preparation machinery and equipment appropriate to growing system in use on farm, including probes
- team members whose work requires coordination and supervision
- copies of farm procedures and work instructions (or samples)
- PPE.

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 supervise mushroom substrate preparation must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within mushroom farms using different growing equipment such as trays, shelves or tunnels.
RTE3512A Prepare raw materials and compost the feedstocks

Unit Descriptor
This unit of competency specifies the outcomes required to prepare and mix raw materials comprising compostable organic materials into a suitable feedstock mixture for commercial scale composting, and compost feedstock mixtures to manufacture compost products with suitable characteristics for intended use.

The unit involves the application of knowledge and skills to a range of processes and technologies.

Employability Skills
This unit contains employability skills.

Application of the Unit
Composting is used here as a general expression for the processing of organic materials; with this unit being relevant for both aerobic composting and vermiculture technologies.

This unit of competency applies to an employee of an enterprise engaged in commercial-scale composting operations. Work is likely to be performed as a part of a team and under the supervision of a site manager or operations manager.

Where work requires the use of load-shifting or other equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Organise for processing
1.1 Job sheet is reviewed to clearly identify all processing requirements.
1.2 Machinery, equipment and materials appropriate to the job requirements are selected and checked for serviceability and safe operation.
1.3 Potential OHS hazards are identified and assessed, and appropriate action is taken to minimise risk to self and others.
1.4 Suitable personal protective equipment (PPE) is selected, fitted, used, maintained and stored according to work requirements, manufacturer specifications and enterprise procedures.
1.5 Enterprise OHS guidelines are complied with.
2. Prepare raw materials and compost the feedstock mixture.

2.1 Raw materials and additives for processing are identified, collected and checked to ensure compliance with enterprise procedures, including assessment of physical contamination according to enterprise guidelines.

2.2 Composting technology and methods to be used are confirmed as appropriate to raw material types and enterprise product requirements.

2.3 Raw materials are variously pre-processed into suitable forms for composting according to enterprise product requirements.

2.4 Pre-processed raw materials are mixed into suitable feedstock mixtures for composting according to documented recipes or batches.

2.5 Feedstock mixtures for composting are handled according to technology, appropriate method, and industry best practice and enterprise procedures.

2.6 Batch numbers or codes are assigned and batch documentation is created to enable tracking of batch through compost production cycle.

3. Monitor composting process.

3.1 Composting batch is monitored by observation and use of field testing equipment to maintain effective composting process and efficient compost production schedule according to relevant Australian standards for the product.

3.2 Processing and operations records are maintained for process control and to track batch through the compost production cycle.

3.3 Faults or variations observed at any stage of process are reported to supervisor and remedial action is taken to maintain effective and consistent compost production.

4. Conduct quality control inspection.

4.1 Finished compost is inspected and assessed for compliance with enterprise product requirements and relevant Australian standards.

4.2 Faults or variations observed are reported to supervisor.

4.3 Non-compliant product is further processed with necessary adjustments made as directed to processing technique and compost batch management to achieve compliance with product quality requirements.

4.4 Compliance of compost batch with product requirements is confirmed.

4.5 Batch documentation is completed for compliant compost product.

4.6 Sales and operational staff members are informed that product is suitable for sale and/or preparation of value-added products.

4.7 Work outcomes are reported to supervisor, feedback on performance is sought and any required improvements are noted for future action.
5. Clean up area.  

5.1 Loading-shifting machinery and other processing equipment are cleared and cleaned as required to avoid contamination between batches.  

5.2 Raw materials and finished compost products are cleared away to designated areas, and processing site is cleaned to ensure safe and effective future operation according to enterprise procedures.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• establishing and maintaining accurately and promptly appropriate compost batch documentation  
• conducting basic field tests according to specified procedures  
• operating equipment safely and efficiently  
• identifying and handling raw materials and products  
• preparing batches for composting according to defined compost recipes  
• preparing raw materials in accordance with enterprise product requirements.

Required knowledge:

• awareness of compost quality standards  
• basic principles of composting science as related to commercial compost production  
• characteristics of a range of raw materials  
• fundamental characteristics of compost quality  
• key process control stages critical to consistent compost production  
• overview of systems and technologies used in compost production, particularly as relevant to candidate's workplace  
• range and characteristics of categories of compost product.

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.

Job sheet or work order may include:

• batch number  
• compost (batch) recipe  
• job number  
• product batch order and packaging requirements  
• raw materials or product quantity and quality requirements  
• raw materials preparation (pre-processing) requirements.
Machinery may include: • particle size screening machinery such as trommel screens, vibrating screens, power screens or screening plants • size reduction machinery such as tub-grinder, hammer mill, shredder or rotary shear • windrow turning machinery and other specialised machinery.

OHS hazards may include: • biological hazards associated with waste • ergonomic hazards associated with manual handling • physical hazards such as: • compressed air and water • dust • hammer mills and grinders • hot or cold weather conditions • noise • shredders • underfoot conditions • vehicles and mobile machinery • sharps or other physical contaminants in materials.

PPE may include: • dust masks • earmuffs • fire extinguishers • gloves • hard hats • protective clothing • reflector high visibility vests • safety footwear • safety glasses.

Enterprise procedures may include: • forms, work orders and job sheets • hazard, incident and non-conformance reporting processes • management system documents • policies • work practices, procedures and work instructions.
**Raw materials or compostable organic materials** may include:

- animal mortalities
- biosolids such as sewage sludge
- crop residuals
- dairy waste
- fats and oils
- food organics such as:
  - food processing waste
  - food waste
  - kitchen waste
- forestry residuals
- manures
- organic sludges
- other organic waste or by-product of processing
- paper mill wastes
- paper-based materials
- sewage facility grit and screenings
- wood and timber (non-treated).

**Additives** may include:

- biological inoculants that aid the processing of particular raw materials or manufacture of compost products with particular attributes
- ferrous sulphate or other chemical additives
- lime
- nutrients
- urea.

**Contaminants** may include:

- biological contaminants such as pathogens
- chemical contaminants such as pesticides or heavy metals
- physical contaminants such as:
  - glass
  - metals
  - plastics
  - rubble, stone and soil
  - sharps
  - other non-biodegradable materials.

**Composting and processing technologies and methods** may include:

- in-vessel, such as:
  - aerated turned trough
  - agitated bed
  - rotating drum
  - turned windrow composting
- open, such as:
  - aerated static pile
  - static pile
  - vermiculture.
Pre-processing of raw materials commonly involves:

- immediate incorporation with absorbent raw materials
- materials size reduction
- moisture adjustment through such things as addition of water
- particle size screening
- physical contaminant removal.

**Batch documentation** may include:

- manual or electronic recording systems that enable tracking of product such as:
  - delivery of final product via the assignment of batch numbers
  - individual batch preparation and formation
  - production process.

**Equipment** used for basic field tests may include:

- oxygen probe
- representative sampling protocol
- sample preparation: sieving, weighing and drying
- spade or fork
- test to assess moisture content
- temperature probe
- water electrical conductivity (EC) meter.

Processing and operational records may include:

- manual and electronic tracking systems
- finished product manufacturing work order
- laboratory analysis results and reports
- non-conformance, incident or customer complaint form and records
- product dispatch work order
- raw material receipt form and records
- windrow/batch construction and recipe work order
- windrow/batch data form and records
- windrow/batch recipe and work order
- windrow/batch release tags
- windrow/batch tags.

**Remedial action** or adjustments to processing technique and compost batch management required may include:

- action carried out to maintain effective and consistent compost production such as:
  - adding water
  - adjusting the air flow
  - drying out
  - turning
- action taken in response to problems identified by self or others, or at direction of manager.

**Load-shifting machinery** may include:

- backhoe
- conveyor belts and associated equipment
- excavator
- front-end loader
- skid steer loader
- wheel loader.
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 such as after:

- RTC2210A Maintain properties and structures
- RTC2701A Follow OHS procedures
- RTC2702A Observe environmental work practices
- RTE2507A Recognise raw materials, production processes and products on a composting site
- RTE2608A Set up, operate and maintain water delivery systems
- RTE2709A Recognise and respond to fire emergencies on a composting site.

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:

- prepare raw materials for composting according to enterprise product requirements
- prepare batches for composting according to defined compost recipes
- operate equipment in a safe and efficient manner
- conduct all work in a safe and efficient manner
- conduct basic field tests according to specified procedures
- interpret basic field test results to confirm effective processing and define intervention required to rectify composting processes
- establish and maintain appropriate compost batch documentation accurately and promptly.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and must be assessed in a commercial-scale composting facility or in a situation that reproduces and/or simulates operational 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 specified in this unit.

The candidate must also have access to the following resources:

- access to a commercial-scale composting facility
- access to a range of load-shifting equipment and a qualified operator if required
- PPE
- raw materials for recognition and preparation
- forms (batch recording forms)
- water or irrigation system
- copies of relevant product quality standards
- compost recipe calculators and procedures
- compost management procedures
- batch documentation systems.

Guidance information for assessment

To ensure consistency in performance, competency should preferably be demonstrated on more than one occasion over a period of time in order to cover a variety of circumstances and operational contexts, and where possible, over a number of assessment activities.

The skills and knowledge required to demonstrate competency must allow for application in a broad industry context, and should be transferable to a range of work environments. For example, this could include work within commercial-scale composting operations of varying scale; range of different raw materials; range of different composts and value-added products manufactured to meet the demands of different markets; located in an urban or rural context with varying environmental constraints; and using various equipment, practices, technologies and management systems.
RTE3513A Prepare value-added compost-based products

Unit Descriptor
This unit of competency specifies the outcomes required to prepare and/or blend finished compost with other materials or products to produce various value-added compost-based products.

The unit involves the application of well-developed skills with some discretion and judgement and limited supervision.

Employability Skills
This unit contains employability skills.

Application of the Unit
Composting is used here as a general expression for the processing of organic materials; with this unit being relevant for aerobic and anaerobic composting as well as vermiculture systems.

This unit of competency applies to people working at a commercial-scale composting facility that produces value-added products. It will require taking responsibility for work output with checking related to overall progress, and taking limited responsibility for the work output of others for example as a loader operator or team leader.

Where work requires the use of load-shifting or other equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

   1.1 Job sheet or work order is reviewed to clearly identify all product requirements.
   1.2 Equipment required for safe, effective and efficient product preparation is identified and organised.
   1.3 Occupational health and safety (OHS) hazards in workplace are identified, and risk is assessed and managed according to enterprise procedures.
   1.4 Environmental implications associated with product preparation are identified, assessed and reported to supervisor.
2. Prepare value-added products.

2.1 *Compost and product additives* are clearly identified and confirmed against job sheet and enterprise procedures.

2.2 Suitable personal protective equipment (*PPE*) and *clothing* are selected, used, maintained and stored according to OHS requirements.

2.3 Required quantities of compost and product additives are measured and transported to product preparation area.

2.4 Compost and product additives are regularly monitored and checked against value-added product specifications and variations or non-conformances are identified and reported, and remedial action is taken according to enterprise procedures and product specifications.

2.5 *Preparation method* and machinery to be used are confirmed as appropriate for product and as meeting enterprise product requirements.

2.6 Plant and machinery are operated in a *safe and controlled* manner, and monitored for performance and efficiency.

2.7 Compost, materials and other product additives are blended and processed according to product requirements.

2.8 Products are monitored and adjustments to machinery operations are made to meet job sheet specifications.

2.9 Batch numbers of compost materials and other additives are combined or reassigned.

2.10 Blending, processing machinery and site are cleared and cleaned as required to avoid contamination between batches according to enterprise procedures.

3. Conduct quality inspection and readiness for sale.

3.1 Value-added product is inspected and checked for compliance with job sheet and product requirements.

3.2 Product details are documented accurately and promptly according to enterprise procedures.

3.3 Value-added product is transported to holding bay and quantity of product is confirmed.

3.4 Value-added product is clearly labelled according to regulatory and customer requirements.

3.5 Value-added product is released for dispatch according to enterprise procedures.

3.6 Work outcomes are reported to supervisor, feedback on performance is sought and any required improvements are noted for future action.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• communicating with work team and supervisor
• demonstrating safe and environmentally responsible workplace practices
• following material safety data sheets (MSDS)
• identifying and handling raw materials, products, additives and contaminants
• interpreting and applying instructions
• measuring and calculating volumes and consumption requirements
• reading and interpreting job sheets
• recording and reporting equipment faults, workplace hazards and accidents
• using emergency and personal protective equipment.

Required knowledge:

• common product contaminants
• enterprise product specifications and standards
• environmental licence requirements, aspects and management measures associated with operation of machinery and equipment
• hazards in handling materials and additives and appropriate risk control measures
• identification of contaminants
• legislation, regulations and codes of practice with regard to workplace OHS and use and control of hazardous substances
• operating principles and methods for plant and machinery
• procedures for cleaning, securing and storing machinery, equipment and materials
• potential risks and hazards associated with operation of machinery and equipment
• product types and characteristics
• raw materials, compost and additives commonly used to manufacture value-added products
• relevant Australian standards for products
• relevant state and territory legislation, regulations and codes of practice with regard to licensing, roads and traffic requirements
• value-added product types and characteristics.
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.

**Value-added products:**
- are defined as a basic compost output with the addition of certain materials to form a new product
- are produced using defined batch recipes to meet documented product specifications
- may include:
  - composted and pasteurised mulches for various applications
  - composted and pasteurised soil conditioners for various applications
  - effluent, stormwater or emission treatment products
  - general and special purpose landscaping soils
  - soft fall or loose fill materials for playground surfacing or other applications
  - mushroom substrate
  - ornamental mulches
  - products for agricultural disease suppression
  - products for erosion control or site remediation
  - sports turf substrates
  - standard and specialised potting mixes
  - other products for specialised applications.

**Job sheet or work order**
- may include:
  - batch number
  - compost (batch) recipe
  - job number
  - product batch order and packaging requirements
  - raw materials or product quantity and quality requirements
  - raw materials preparation (pre-processing) requirements.

**Measuring equipment**
- used may include:
  - automatic volume measuring equipment
  - containers for measuring volume
  - scales or balances for measuring weight.
**OHS hazards:**

- may include:
  - dust
  - ergonomic hazards associated with posture and vibration
  - exposure to loud noise and fumes
  - extreme weather conditions
  - hazardous substances such as:
    - fertiliser
    - fuel
    - oils
  - machinery, including hydraulics
  - mechanical malfunctions and exposed moving parts
  - obstacles
  - oil and grease spills
  - pests
  - solar radiation
  - the presence of bystanders
  - varying gradients, potholes, ditches and embankments
- may be addressed by systems and procedures for:
  - appropriate use, maintenance and storage of PPE
  - hazard identification, assessment and reporting
  - outdoor work, including protection from solar radiation
  - pedestrian safety
  - protection from hazardous noise, mechanical vibration and organic and other dusts
  - protection of people in the workplace
  - safe lifting, carrying and handling
  - safe operation and maintenance of machinery and equipment, including hydraulics
  - guarding of moving parts.

**Environmental implications** associated with operation of plant and machinery may include:

- negative environmental impacts resulting from:
  - aerosol particulates
  - excessive noise and exhaust emissions
  - incorrect use and disposal of hazardous substances such as:
    - fuel
    - fertiliser
  - incorrect use and disposal of maintenance debris such as:
    - oil containers
    - chemical residues
    - organic dusts
  - impacts such as:
    - dust problems from high speed and frequent traffic
    - run-off flows of water and cleaning agents from servicing, maintenance and cleaning activities
    - soil disturbance.
Compost and product additives may include:

- finished compost of varying maturity and characteristics
- product additives such as:
  - biological inoculants
  - bulking agents or other products that alter the visual, physical, chemical or biological characteristics of finished product
  - colouring agents
  - inorganic or organic fertiliser
  - liming agents
  - wetting agents
- raw materials (compostable organic materials).

PPE and clothing may include:

- apparel such as:
  - appropriate footwear
  - gloves
  - hard hats
  - high visibility clothing
  - overalls
- emergency equipment and procedures such as:
  - emergency procedure guides
  - eye wash kit
  - fire extinguisher
  - first aid kit
  - MSDS
  - eye and hearing protection
- face shields and masks
- respirators.

Preparation methods may include:

- load-shifting
- measuring quantities
- mixing and blending materials
- particle size screening
- size reduction.

Safe and controlled operation of machinery and equipment may include:

- appropriate selection and use of machinery and equipment
- effective communication between work team members
- maintaining working loads within specifications
- using operational techniques for specific weather conditions.
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

It is preferred that this unit of competency be assessed in a commercial-scale composting facility.

The unit could be assessed on its own or in combination with other units of competency relevant to the job function such as after:

- RTC2210A Maintain properties and structures
- RTC2701A Follow OHS procedures
- RTC2702A Observe environmental work practices
- RTC2706A Apply chemicals under supervision
- 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.

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:

- interpret batch sheets and follow enterprise production procedures
- recognise, quantify and handle products according to enterprise requirements and procedures
- recognise value-added products and their characteristics
- prepare batches of value-added product according to defined batch recipes and methods
- conduct work in a safe and efficient manner
- establish and maintain appropriate documentation accurately and promptly.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and must be assessed in a commercial-scale composting facility or in a situation that reproduces and/or simulates operational 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 specified in this unit.

The candidate must also have access to the following resources:

• a commercial-scale value-added compost-based product facility
• a range of load-shifting machinery and measuring equipment
• PPE
• finished compost
• additives
• job sheets or work orders.

Guidance information for assessment

To ensure consistency in 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 demonstrate competency must allow for application in a broad industry context, and should be transferable to a range of work environments, including the ability to deal with unplanned events. For example, this could include work within composting operations of varying scale; processing a range of different raw materials; producing a range of different composts and value-added products to meet the demands of different markets; located in an urban or rural context with varying environmental constraints; and using various equipment, practices, technologies and management systems.
## RTE3818A Develop and apply fertiliser and soil ameliorant product knowledge

### Unit Descriptor
This unit of competency specifies the outcomes required to develop and apply product knowledge relating to fertiliser and soil ameliorants for the purpose of accurately identifying products and providing accurate information to customers about products and services. The unit includes providing information on environmentally responsible application and use of products.

### Employability Skills
This unit contains employability skills.

### Application of the Unit
This unit of competency applies to contractors and employees working in a number of roles within the fertiliser and soil ameliorant industry, including those involved in fertiliser and soil ameliorant spreading or application, warehousing, wholesale and retail sales and transport, and the storage of fertiliser and soil ameliorants. The functions may also be performed by people engaged in other agriculture, horticulture and land management activities.

### Unit Sector
No sector assigned

### ELEMENT PERFORMANCE CRITERIA

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| 1. Identify fertiliser and soil ameliorant products and associated occupational health and safety (OHS), food safety and environmental issues. | 1.1 Information about fertiliser and soil ameliorant product is provided to customers.  
1.2 OHS, food safety and environmental issues relating to particular products are explained to customers, with particular reference to their safe storage, handling and application according to industry code of practice.  
1.3 Bulk fertiliser and soil ameliorant product is identified using a combination of visual and physical examination of product characteristics.  
1.4 Correct terminology is used when distinguishing between different products and services. |
| 2. Work with fertiliser and soil ameliorant products. | 2.1 Storage and handling requirements of products are identified and applied consistently and according to industry codes of practice, enterprise quality assurance requirements, OHS procedures, environmental best practice and other relevant legislative and regulatory requirements.  
2.2 OHS hazards associated with particular products are identified and appropriate action is taken to minimise risks to self and others.  
2.3 Environmental risks associated with particular products are identified and appropriate action is taken to minimise any likely risks to self and others.  
2.4 Suitable personal protective equipment (PPE) is used and maintained in good condition.  
2.5 Inventory and labelling systems are used to locate products within the workplace or store. |
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

**Required skills:**
- communicating with customers and work colleagues
- observing product characteristics
- working safely with products.

**Required knowledge:**
- characteristics and key label components (e.g. product analysis, impurities and warnings) of the range of fertiliser and soil ameliorants sold or handled in one’s workplace
- key environmental, OHS and food safety risks associated with the use, spreading, storage, handling and transport of fertilisers and soil ameliorants.

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.

**Sources of information:**
- may include:
  - emergency procedure guides for dangerous goods
  - goods identification numbers and codes
  - local and regional information from catchment management, Landcare Australia and similar groups and public advisers
  - manufacturer specifications for equipment
  - material safety data sheets (MSDS)
  - operations manuals, job specifications and induction documentation
  - resources from training programs
  - customers’ attention should be drawn to the following sources of information:
    - codes of practice and regulations relating to the handling, transport, storage and sale of fertiliser and soil ameliorant products
    - labels
    - local and regional information from catchment management, Landcare Australia and similar groups and public advisers.
**Industry code of practice**  
(the Australian Fertiliser Services Association code of practice) addresses key requirements relating to fertilisers and soil ameliorants, such as:

- product knowledge
- spreading
- storage
- transport.

**Product characteristics**  
may include:

- bulk density
- chemical composition
- codes
- colour, texture, quality and weight
- flammability
- form for specific applications
- labelling
- location within the store
- packaging method and size
- perishability
- product identification and serial numbers
- security risk
- size and shape of granules
- smell
- storage and handling requirements
- toxicity.

**Relevant legislative and regulatory requirements**  
include:

- Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG code)
- Environmental Protection Act in relevant jurisdictions
- Fertiliser Act in relevant jurisdictions
- Occupational Health and Safety Act in relevant jurisdictions.

**PPE** may include:

- gloves
- harnesses
- hearing protection
- high visibility clothing
- respirators and breathing equipment
- safety glasses
- safety headwear and footwear
- sunscreen lotion.
Inventory and labelling systems used may include:

- inventory systems:
  - automated
  - computerised
  - manual
  - microfiche
  - paper-based
- labelling systems must comply with legislative requirements and industry codes of practice, including:
  - any requirements stipulated in relevant state and territory Fertiliser Acts
  - bar code
  - batch code
  - HAZCHEM codes
  - identification numbering systems
  - serial numbers
  - symbols for safe handling.

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.

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:

- identify fertiliser and soil ameliorant products using information about their characteristics
- work safely with fertiliser and soil ameliorant products in one's workplace
- provide information to customers about fertiliser and soil ameliorant products
- refer customers to other appropriate sources of information about products.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a fertiliser and soil ameliorant industry 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 develop and apply fertiliser and soil ameliorant product knowledge.

The candidate must also have access to the following resources:

- samples of products in the form normally sold or handled in one's workplace
- labels
- PPE
- codes of practice.

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 develop and apply fertiliser and soil ameliorant product knowledge must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within enterprises engaged in fertiliser and soil ameliorant spreading or application, warehousing, wholesale and retail sales, and transport and storage.
RTE4013A Manage mushroom crop development

Unit Descriptor
This unit of competency applies to work in the mushroom industry and specifies the outcomes required to manage mushroom crop development, including the selection, application and management of the mushroom casing, and all activities up to the end of the harvesting period.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to a manager on a mushroom farm who is involved in managing the mushroom growing process.

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Manage casing application

1.1 Casing materials and recipe are selected and instructions are given to appropriate personnel.

1.2 Occupational health and safety (OHS) requirements and hazards are identified and appropriate action is taken to minimise the risks to self and others.

1.3 Personal protective equipment (PPE) and clothing are selected and used according to farm OHS procedures.

1.4 Condition and quality of spawn run are assessed before casing and, if required, remedial action is taken according to farm procedures.

1.5 Where supplement is to be added to substrate at casing, product and its rate of application are selected and instructions are given to appropriate personnel.

1.6 Casing mixture is checked against farm standards for moisture, structure and depth, and remedial action is taken if required.

2. Control environment during casing colonisation growth phase.

2.1 Crop is installed in growing room according to farm procedures.

2.2 Air conditioning system in the growing room is set up and checked for correct functioning.

2.3 Temperature, relative humidity and carbon dioxide content are measured, recorded, and where required, adjusted.

2.4 Mycelium growth is assessed and decisions are made on the timing and quantity of water to be applied.

2.5 Pest and disease status is monitored and recorded and, where required, remedial action is taken.
3. Initiate fruitbody formation and manage pinning and prepicking growth phases.

3.1 Growth is assessed and changes are made to temperature and ventilation to initiate fruitbody formation according to farm procedures.

3.2 Temperature, relative humidity and carbon dioxide content are measured, recorded and adjusted.

3.3 Variations from expected or required ranges of temperature, relative humidity and carbon dioxide content are identified and analysed, and appropriate remedial action is taken.

3.4 Mycelium development and pin development are assessed and timing and quantity of water and additives to be applied to water are determined.

3.5 Pest and disease status are monitored and recorded, and remedial action is taken where required.

3.6 OHS requirements and hazards are identified and appropriate action is taken to minimise the risks to self and others.

4. Assess crop maturity, flush development and quality, and monitor the harvesting process.

4.1 Crop maturity is assessed to determine when and what to pick.

4.2 Pickers are given instructions about tasks to be performed.

4.3 Picking results are monitored to ensure instructions continue to be appropriate and are being carried out.

4.4 Markets are consulted to ensure product meets market needs and specifications.

4.5 Crop quality is monitored, disorders stimulated by environmental conditions are recognised, and remedial action is implemented if required.

4.6 Pest and disease status during this stage are monitored and recorded, and remedial action is taken where required.

4.7 Daily work schedule for waterers is planned and picking and watering schedules are coordinated.

4.8 Harvest process is reviewed for compliance with quality standards and areas for improvement are identified where appropriate, documented and implemented.

4.9 Feedback is provided to pickers on individual and team performance.
REQUIRED SKILLS AND KNOWLEDGE
This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
• accepting responsibility for quality of own work
• contributing to productive work environment
• developing work schedules
• explaining quality standards and task requirements to personnel
• keeping crop records and reading and interpreting trends in them
• managing own work and that of others
• maintaining safety of self and others
• monitoring and recording key parameters
• observing employment requirements
• promoting workplace cooperation.

Required knowledge:
• available options of additives to irrigation water to promote mushroom quality and the main considerations of their use
• basic understanding of air conditioning principles, particularly relative humidity
• casing function, application and depth and surface structure requirements
• desirable physical, biological and chemical characteristics of casing
• farm standards and procedures, including those relating to OHS, food safety, hazard analysis critical control point (HACCP), quality systems, emergency procedures, organisational structure and workplace communication channels and protocols
• goals and sub-stages of Phase II substrate preparation and impact of Phase II on yields and quality
• growth phases of a mushroom crop and interactions that occur between the compost, casing, environmental factors (such as temperature, water, relative humidity and carbon dioxide) and growth of the mushroom
• how nature of casing and the appearance and quantity of mycelium growth in casing affect the number, distribution and quality of fruitbodies formed
• impact of mushroom numbers and size on picking and quality
• industry and workplace awards and conditions
• overview of Phase I substrate production and its impact on yields and quality
• management impacts of supplementing at spawning or casing
• management requirements of casing - added at casing (CAC) and/or casing innoculum (CI)
• relevant legislation and industry codes of practice
• site quarantine protocols.
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.

**OHS requirements and hazards** may include:
- OHS requirements stipulated in procedures for:
  - appropriate use of PPE
  - assessing and reporting risks
  - basic first aid
  - correct manual handling
  - equipment and machinery
  - identifying hazards
  - maintaining personal hygiene
  - reporting problems to supervisors
  - safe handling
  - safe operation of tools
- OHS hazards associated with early phases of growth such as:
  - exposure to excessive levels of carbon dioxide
  - exposure to pesticides
  - moving equipment, machinery and vehicles
  - risks associated with climbing on beds
  - slippery or uneven surfaces
  - working alone in confined spaces
- risk minimisation procedures such as:
  - presence of warning signs
  - restricting access of other personnel to work area
  - using correct manual handling and climbing techniques
  - wearing appropriate PPE.

**PPE and clothing** may include:
- boots, overalls, gloves and aprons
- fluoro safety vests
- hats or hair covering
- respirator
- waterproof jackets.

**Farm procedures** may include:
- enterprise standard operating procedures
- HACCP
- industry best practice guidelines on quality, food safety and hygiene
- legislative and regulatory requirements such as OHS procedures
- manufacturer service specifications and operator manuals
- product labels
- material safety data sheets (MSDS)
- production schedules
- routine maintenance schedules
- waste disposal, recycling and re-use guidelines
- work notes.
Remedial action may include:

- action taken for crop management such as:
  - adding more or less casing - CAC or CI
  - adding more or less water at a certain crop stage
  - altering time taken to reduce temperature or carbon dioxide content during pinning
- applying the casing wetter or drier
- action taken for pest and disease control such as:
  - reviewing and amending farm hygiene procedures
  - terminating a crop early
  - treating pest and disease outbreaks.

**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.

**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:

- recognise stages of growth and development, and factors impacting on yields and mushroom quality
- recognise the interdependency of stages of growth and impact of early stages of production cycle on production results
- monitor and manage growing room conditions, watering and flush development of at least eight crops
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed on a mushroom farm 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 manage mushroom crop development.

The candidate must also have access to the following resources:

- mushroom crops at various stages of development and over a span of eight crops
- appropriate air conditioning system and measuring equipment
- a picking workforce whose work requires management
- copies of farm procedures (or samples)
- PPE.

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 manage mushroom crop development must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within mushroom farms using different growing equipment such as trays, shelves or tunnels.
RTE4027A Develop a soil health and plant nutrition program

Unit Descriptor
This unit of competency specifies the outcomes required to assess soil and develop a soil health and plant nutrition program in the agricultural industry. Planning requires consideration of site factors, plant species requirements, soil and plant tissue analysis, soil ameliorants and nutrient application procedures, and monitoring occupational health and safety (OHS) hazards and environmental impacts.

The unit involves the application of a broad knowledge base to identify and apply solutions to a range of problems. It involves the application of knowledge including plant biology; plant nutrition requirements; and soil, water and other growing media properties.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to work in a range of horticultural, agricultural or support enterprises, such as rural merchants. Work is likely to be undertaken without supervision, with only general guidance on progress by managers. Responsibility for and limited organisation of the work of others involved in the program may be required.

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector
No sector assigned
1. Determine relevant regional and site characteristics.

1.1 Goals and target site for assessment and development of program are defined following a review of enterprise production plan and in consultation with landholder.

1.2 Relevant climate data, environmental context information and site data are accessed and reviewed.

1.3 Appropriate soil, plant and water tests are determined according to plant species, climatic conditions, prevailing growth media, industry best practice and enterprise guidelines.

1.4 Soil, plant and water testing program is developed that defines sampling, field testing, off-site analysis activities, task responsibilities, involvement of contractors, scheduling and desired information outcomes.

1.5 Testing tasks are implemented and monitored, liaison procedures with outside testing agencies are supervised, and remedial action is undertaken where necessary.

1.6 Data and readings are compiled and presented in a form that can be easily understood.

1.7 Seasonal variations and requirements are determined from published data on species, historical records, own experience, industry best practice and enterprise guidelines.

1.8 Characteristics, condition and nutritional status of soils and plant species under production are determined by analysing collected data and comparing to accepted standards.

2. Define the requirements for plant production.

2.1 Different nutritional requirements of the plant during growing cycle and a range of conditions are identified according to published data on species, historical records, own experience and enterprise guidelines.

2.2 Program is developed to achieve appropriate soil conditions and nutrient availability for plant production according to enterprise production plan.

2.3 Soil amendments, management practices and fertiliser requirements needed for production are determined.

2.4 Resources, tools, equipment and machinery required for program are identified and costed, and availability is confirmed with suppliers, contractors and appropriate personnel.

2.5 Cost-effective approach to soil management, soil amendment, and provision of plant nutrients is determined.

2.6 OHS hazards associated with program are identified, risks are assessed and controls are developed and documented.

2.7 Environmental implications of program are identified and documented in plant nutrition program.
3. Document the soil health and plant nutrition program and specifications

3.1 Detailed plan, objectives, specifications and associated costs are established based on program requirements and are presented to land manager.

3.2 Detailed on-site procedures and schedules required for program are developed and documented.

4. Monitor production and evaluate the program.

4.1 Program implementation and results are monitored by testing soil, plants and/or produce according to industry practice to ensure requirements of enterprise production plan are achieved.

4.2 Program is reviewed and refined to ensure it is responsive to changing conditions.

4.3 Non-compliance with documented objectives and specifications is identified and remedial actions are implemented to alleviate or overcome identified shortcomings in program.

4.4 Remedial action to improve plant nutrition is taken, documented and reported to land manager according to enterprise plan.

4.5 Agreed changes are incorporated into a detailed plan.
REQUIRED SKILLS AND KNOWLEDGE
This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
• documenting plans, specifications and work procedures
• calculating cost and spatial and logistical requirements of components of plant nutrition program
• communicating and negotiating orally and in writing with staff, managers, contractors, consultants and customers
• complying with legislative requirements and codes of practice
• conducting literature and consultative research, and collating and analysing findings on plant nutritional requirements, nutrients available from soils and other growth media, and environmental implications of program
• recording all relevant information according to enterprise and industry standards
• writing reports for staff, managers, contractors and customers.

Required knowledge:
• characteristics of soil and other growth media types, uses and additives to enhance available nutrition for specific crops
• main simple and compound fertiliser products available to enterprise, including analysis, solubility, salt index, application rates and costs
• methods of nutrient uptake by plants and favourable conditions for effective uptake to occur
• nutrients and water required by plants grown within enterprise and affects of nutrient deficiency and toxicity on individual plant species and varieties, including visual symptoms
• OHS hazards associated with implementing a plant nutrition program and controls necessary to remove or minimise associated risks
• organic matter, pest and disease, and nutrient interactions in soil and nutrient cycling
• practical relevance of the concepts to specific plants and soils used in the enterprise
• practical understanding of environmental issues associated with selecting nutritional materials, implementing a plant nutrition program, needing to comply with legislation and ensuring minimal impact on environment
• processes and techniques for preparing, costing and documenting a plant nutrition program
• relationship between soil and growth media characteristics and availability of nutrients, including macro and micro elements, to plants
• site evaluation techniques, including methods of sampling and analysing soils and other growth media
• soil amendments commonly required to treat soil problems experienced by enterprise.
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.

Soil, plant and water tests conducted as part of a plant nutrition program may include:

- analysis of chemical characteristics such as:
  - acidity or alkalinity (pH)
  - cation exchange capacity
  - nutrient and carbonate content
  - salinity
- on-site testing and off-site analysis of growth media to determine physical characteristics such as:
  - colour
  - depth of root zone
  - depth of watertable
  - plant available water
  - soil organic matter
  - structure
  - texture
- testing nutrient status of plants through:
  - establishing likely effects on soil chemical and physical characteristics
  - plant tissue testing
  - testing water for suitability for plant growth.

Growth media may include:

- new areas to be planted
- soil sites of existing planted areas
- other growing media.

Plant species may include:

- bulbs
- containerised, field planted and stock specimens
- flowers and foliage
- fruit and vegetables
- herbs
- indigenous and exotic species and varieties
- mushrooms
- nuts
- oil crops
- pasture, broadacre cropping plants and turf species
- tree, shrub and ornamental plant species
- tubers
- vines and canes
- wild harvest.
Range of conditions that affect crop nutrition may include:

- crop load
- crop quality requirements
- cropping and fertiliser history
- grazing intensity
- growth media characteristics
- irrigation methods and scheduling
- seasonal influences
- soil management practices
- spraying program
- weather.

Soil amendments or ameliorants may include:

- animal manures
- composts
- cover crops
- gypsum
- lime
- materials to modify soil pH
- mulches
- soil amendments to improve chemical, physical and/or biological properties of soil to meet requirements of plant production.

Resources, tools, equipment and machinery may include:

- aerial photographs, charts and tables of soil characteristics and plant soil parameters
- application equipment and machinery such as:
  - air blowers
  - backpack spray equipment
  - irrigation systems set up for fertigation
  - pumps and pump fittings
  - rippers and spray equipment
  - seeders
  - tractors and trailed or three-point linkage spreaders
  - backhoe
- charts and illustrations of symptoms of plant nutrient deficiencies and toxicities
- hand-held salinity or electrical conductivity meter
- hand or powered auger
- nutrient application methods, including placement methods such as:
  - banding
  - broadcasting
  - ripping
  - spraying and fertigation on or below soil surface
- pH test kit or electronic pH testing device
- plastic overlays
- sample bags
- tape measure.
**OHS** hazards may include:

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

**Controls** introduced to minimise the risk of OHS hazards should include enterprise OHS policies and procedures for:

- appropriate use of personal protective equipment, including sun protection
- appropriate use of safety equipment, including signage and protective barriers
- assessing and reporting risks
- basic first aid available on site
- cleaning, maintaining and storing tools, equipment and machinery
- correct manual handling
- identifying hazards
- maintaining personal hygiene
- reporting problems to supervisors
- safe handling, use and storage of chemicals and hazardous substances
- safe operation of tools, equipment and machinery.
Environmental implications may include:

- beneficial impacts, including minimisation of nutrient run-off and toxic side effects in soil and surrounding environment achieved by:
  - improved application techniques and rates
  - improved assessment and targeting of nutrient requirements
  - reduction of toxic side effects of applied nutrients in crop plants
- negative impacts, including over-spraying or run-off into external environment resulting in nutrient overload or excess water affecting things such as:
  - loading atmosphere with greenhouse gas
  - mining native soil fertility
  - native plants
  - natural waterways
  - salinisation
  - water erosion
  - water logging
  - watertables and ecosystems
- methods which may aid in reversal of environmental degradation include:
  - allowing natural recovery and regeneration of native ecosystems
  - responsible fertilisation and watering practices.

Remedial action undertaken to improve plant nutrition may include:

- adjustments to soil amendments
- changes to fertiliser application and soil management practices
- irrigation scheduling
- nutrient application rates and methods
- use of foliar sprays.

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.
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:

• access and analyse information on regional and site factors
• select suitable management practices, soil amendments and fertilisers
• determine analytical and appropriate application techniques
• prepare resources and equipment for application of nutritional materials
• prepare implementation plans, specifications and associated documents.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in the workplace or in 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 develop a soil health and plant nutrition program.

The candidate must also have access to the following resources:

• soil, plant and water interpretation criteria
• analytical results
• site and operational information
• soil amendment product specifications and performance data
• fertiliser labels, product cards and material safety data sheets (MSDS)
• reference books.

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 develop a soil health and plant nutrition program must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work with new crop or pasture species not usually produced in the local area, crops for which there are little or no local interpretative criteria, or new fertiliser products.
RTE4028A Implement and monitor a horticultural crop harvesting program

Unit Descriptor
This unit of competency specifies the outcomes required to implement and monitor a horticultural crop harvesting program. It requires the application of skills and knowledge to estimate crop yield, assess risk, negotiate appropriate insurance, and schedule labour and equipment resources. It also requires knowledge of workplace safety, environmental protection and licensing requirements associated with harvesting operations.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to people working in horticultural enterprises, either as employees or contractors. The work is likely to be carried out under minimal supervision within enterprise guidelines.

Where work requires the use of load-shifting or other equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Plan for harvesting.

1.1 Crop maturity and quality are assessed.

1.2 Optimum time to harvest crop is estimated according to crop maturity assessment and customer requirements.

1.3 Pre-harvest treatments for control and eradication of pests are determined and carried out according to occupational health and safety (OHS) requirements.

1.4 Where applicable to enterprise's operations, requirements for licences or permits are identified and met.

1.5 Resource requirements are assessed, giving consideration to size of crop and estimated timing of harvest.

1.6 Labour and equipment required to carry out harvesting operations are confirmed and arranged within budgetary constraints.

1.7 Enterprise requirements for harvesting are identified and communicated to all harvest personnel.

1.8 Insurance requirements are assessed and risk management strategies planned and implemented as required.

1.9 Where applicable to enterprise's operations, requirements for fire prevention and control are identified and arranged according to OHS requirements.
2. Coordinate the harvest strategy.

2.1 Effective communication strategies are implemented to ensure personnel safety and smooth flow of operations.

2.2 Harvesting operations are implemented and adjusted as required, according to factors such as market or customer requirements, weather, equipment and staff or contractor availability.

2.3 Equipment operation is coordinated for maximum efficiency and monitored for performance effectiveness.

2.4 Existing and potential hazards are identified and controlled according to OHS and enterprise requirements.

3. Complete harvest operations.

3.1 Storage resources are located for efficient operations.

3.2 Strategies for drying crops are identified if necessary.

3.3 Work is monitored to ensure that crop is graded, packed and stored according to enterprise requirements.

3.4 Harvesting operations and outcomes, including resource allocation, are evaluated against harvest strategy.

3.5 Feedback on performance is provided to personnel under supervision.

3.6 Own performance is assessed, feedback on performance is sought and any required improvements are noted for future action.

3.7 Relevant information is documented for continual analysis and effective planning management.
REQUIRED SKILLS AND KNOWLEDGE
This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• establishing strategies, procedures and controls for crop harvesting
• estimating and calculating volumes and quantities
• explaining and delivering instructions with regard to harvest operations to both staff and contractors
• implementing safe workplace and positive environmental practices
• interpreting, analysing and extracting information from a range of sources and discussions
• maintaining budgetary controls
• negotiating and arranging contracts and agreements
• organising and scheduling maintenance of plant and equipment
• preparing written plans and procedures for implementation by others.

Required knowledge:

• crop measurement techniques and parameters
• customer requirements
• environmental controls and codes of practice applicable to harvesting operations
• functions and limitations of harvesting equipment
• market information and sources
• location and relative skills and abilities of available staff, contractors or casual staff
• relevant legislation and regulations relating to OHS, contractor engagement, chemical use and application, and vehicle and plant use
• required productivity rates
• weather or other conditions that may affect harvest
• where relevant to enterprise's production: food safety and hazard analysis critical control point (HACCP) requirements, and requirements for export markets, such as EUREP-GAP, Codex Alimentarius and the Bioterrorism Act (US).

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.

Horticultural crops include:

• field crops
• flowers
• other crops such as mushrooms and specialty fungi
• tropical and temperate tree crops
• vine crops, including grapes.

Objective methods for assessing field measurements for crop yield may include:

• past records
• sampling for size, maturity, colour, sugar or oil content
• visual assessment.
Safe OHS systems and procedures may include:

- adopting protection against solar radiation, noise, and organic and other dusts when working outdoors
- applying correct techniques when lifting and carrying
- controlling hazards and risks
- correct manual handling
- correctly mounting and dismounting machinery
- ensuring loads are secure and within working specifications
- guarding exposed moving parts
- handling, applying and storing hazardous substances
- identifying and avoiding obstacles during harvesting operations
- operating and maintaining machinery and equipment, including hydraulics
- protecting people in the workplace
- using and maintaining personal protective equipment (PPE) appropriately
- working from elevated platforms
- working within confined spaces.

Equipment required to carry out harvesting operations may include:

- contracted resources
- field bins and boxes
- grading gauge
- knives
- platforms
- scales
- trolleys
- trucks, trailers and tractors
- waste containers.

Enterprise requirements may include:

- enterprise policies and procedures, including waste disposal, recycling and re-use guidelines
- food safety and HACCP procedures and requirements
- harvesting methods or techniques to be used
- industry standards
- manager's oral or written instructions
- manufacturer specifications
- material safety data sheets (MSDS)
- operator manuals
- processes or actions undertaken to meet customer requirements
- product labels
- production schedules
- productivity rates
- quality standards to be achieved
- requirements for export markets such as:
  - Bioterrorism Act (US)
  - Codex Alimentarius
  - EUREPGAP
- standard operating procedures
- work notes and plans.
Crop insurance is likely to cover:
- fire
- hail
- transport damage.

Fire prevention measures may include:
- communication devices
- constructions such as firebreaks
- fire vehicles
- fixtures such as dams, tanks, pumps and water mains.

Hazards to health and safety may include:
- applying pre-harvest chemical treatments
- cuts from knives or other harvesting tools
- dust
- occupational overuse syndrome (OOS)
- working in confined and enclosed spaces
- working in vicinity of pesticide residues
- working with and close to vehicles and plant.

Storage resources may include:
- coolrooms and cold storage
- field bins
- other controlled atmosphere storage facilities
- pallets
- racks
- temporary storage.

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 such as:
- BSBHR402A Recruit and select personnel
- RTC4908A Supervise staff routines and work performance.

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:
- organise resources
- negotiate resource and labour contracts
- estimate crop yield
- arrange storage and delivery requirements.
Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in the 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 implement and monitor a horticultural crop harvesting program.

The candidate must also have access to the following resources:

- crops for harvesting
- equipment and labour resources required for harvesting.

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 implement and monitor a horticultural crop harvesting program must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include different crops or different climatic regions.
RTE4029A Assess olive oil for style and quality

Unit Descriptor
This unit of competency specifies the outcomes required of growers to assess olive oil in terms of style and quality. The work is carried out so that horticultural and processing factors that may affect style and quality can be manipulated or adjusted.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to olive growers who are assessing oil produced from heir olive crop. Work is likely to be performed without supervision.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Establish and implement appropriate tasting protocols.
   1.1 Appropriate tasting conditions are established.
   1.2 Accepted industry tasting procedures are applied.
   1.3 Oils are tasted in the order that will best show character of each oil.

2. Determine style and sensory quality of the olive oil.
   2.1 Characteristics of the olive oil are identified and assessed.
   2.2 Style of oil is assessed by tasting.
   2.3 Sensory quality of oil is assessed by smelling and tasting.
   2.4 Observed defects are analysed and recorded for future action.

3. Determine the analytical quality of the olive oil.
   3.1 Samples of oils are sent to laboratory for testing of key chemical indices.
   3.2 Analytical quality of oil is assessed by interpreting key chemical indices.
   3.3 Observed chemical indices that are beyond the normal range are recorded for future action.

4. Identify factors influencing the style and quality of the olive oil.
   4.1 Horticultural factors that may influence style and quality of the olive oil are identified.
   4.2 Processing factors that may influence style and quality of the olive oil are identified.
   4.3 Other factors that may influence style and quality of the olive oil are identified.

5. Implement findings of tastings and chemical analysis.
   5.1 Records of season's tastings and chemical analyses are maintained according to enterprise procedures.
   5.2 Horticultural and processing activities and methods are evaluated in terms of modifications and improvements to be made for next season.
   5.3 Horticultural production plan for next season is adjusted, documented and communicated to horticultural personnel according to enterprise procedures.
   5.4 Processing requirements for next season are documented and communicated to processing personnel according to enterprise procedures.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

**Required skills:**

- accurately recording results of tasting
- general tasting skills, including ability to detect and describe aromas and flavours, and to distinguish between bitterness and pungency in oils.

**Required knowledge:**

- cause of olive oil defects and how they can be remedied
- horticultural and processing practices that affect olive oil style, and reasons for the effect
- relationship between critical chemical parameters and oil style and quality.

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.

**Tasting protocols**

include:

- avoiding strong flavoured food, drinks and perfumed soaps before tasting
- olive oil tasting profile sheets for recording tasting results
- sequence of tasting (milder oils are tasted first)
- using clean tasting cups or glasses
- warming oil to about 28-30°C before tasting.

**Accepted industry tasting procedures**

include:

- COI/T.20/Doc. no. 13 General Methodology for the Organoleptic Assessment of Virgin Olive Oil
- methods and standards adopted by the International Olive Oil Council for the sensory analysis of olive oil.

**Chief characteristics** of an olive oil are:

- balance
- bitterness
- character and intensity of aroma and flavour
- freshness
- length
- pungency.

**Key olive oil styles** are:

- mild
- medium
- robust.
Most common **defects** in olive oil are described as:
- burnt
- dried
- earthy
- frosted
- fusty
- muddy
- musty
- rancid
- winey.

Key **chemical indices** of olive oil quality and shelf life include:
- free fatty acid content
- induction time
- peroxide value
- polyphenol level.

**Horticultural factors** that may influence style and quality of olive oil include:
- quality parameters may be affected by:
  - disease or disorder of the fruit
  - frost damage
  - pest infestation
- style will be influenced by:
  - climatic conditions
  - irrigation level
  - olive variety/cultivar
  - ripeness of olives at harvest
  - soil type.

**Processing factors** that influence style and quality of olive oil may include:
- style may be influenced by:
  - conditions and length of storage in vats
  - frequency of racking of oil off sediment
  - mill hygiene, including cleanliness of machinery
- quality may be influenced by:
  - amount and timing of water use during processing
  - length and temperature of malaxation.

**Other factors** that influence style and quality of olive oil may include:
- age of oil
- assemblage of blend
- method and period of post-harvest fruit storage
- method of harvest
- time between harvesting and processing.

Information that may be **recorded** includes:
- cleanliness of olives at harvest
- crop yield
- malaxation temperature and time
- maturity of fruit at harvest
- oil yield
- type and degree of disease or disorders
- water flow rates during processing.
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, such as RTE4920A *Develop harvesting and processing specifications to produce an olive oil*.

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:

- identify olive oil styles
- identify common olive oil defects
- plan to remedy variations from desired style and quality through modification of horticultural and/or processing practices.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and may be assessed in an olive oil production 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 assess olive oil for style and quality.

The candidate must also have access to the following resources:

- examples of oils of different styles
- examples of oils made from different olive varieties
- examples of oils showing each of the common defects
- tasting equipment.

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 assess olive oil for style and quality must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within one’s own grove or in another enterprise.
RTE4113A 
Handle, store and grade deer velvet

Unit Descriptor
This unit of competency specifies the outcomes required to undertake the postvelveteting handling, storing and grading of deer velvet on farm. It requires the application of food safety and quality assurance requirements.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to activities performed by velvet producers or their staff. Work is likely to be performed under minimal or no supervision and in accordance with the requirements of the National Velvet Accreditation Scheme (NVAS).

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Handle and store velvet. 1.1 Equipment required for handling, storing and grading velvet is checked to ensure that it is available, serviceable and functioning correctly.

1.2 Harvested velvet is handled according to food safety and NVAS requirements.

1.3 Individual pieces of velvet are cleaned, weighed and stored according to industry quality assurance and NVAS criteria.

2. Grade and sell velvet. 2.1 Factors affecting grade of velvet are identified and applied in grading process.

2.2 Industry-accepted grading specifications are used.

2.3 Frozen velvet is transported according to industry quality assurance procedures and sold through national pool or to private clients.

2.4 Sales and personal grading assessments are reviewed and compared with grades and feedback provided by professional graders.

REQUIRED SKILLS AND KNOWLEDGE
This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• accurately assessing velvet style and quality
• establishing and maintaining consistent methods of grading
• laying out a grading area for efficient operation
• recording grading results.

Required knowledge:

• food safety requirements
• grading specifications
• requirements for handling and storing velvet to maximise quality.
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.

**Equipment** used for grading may include:
- boxes, liners and ties
- brooms, water and cleaning cloths
- chairs
- freezers
- grading charts and tapes
- grading tables
- pens, pencils, calculators and record books
- protective footwear and clothing
- rubbish bins
- scales for weighing velvet
- suitable light source.

Methods used to ensure velvet is **cleaned** and **stored** correctly include:
- cleaning methods such as:
  - brushing off dust and dirt
  - making sure velvet is dry
  - using soft surfaces to prevent rack marks and dimples
  - washing carefully
  - wiping with a clean cloth
- storing methods such as:
  - cooling and storing on a rack at a 15 degree angle
  - freezing within 30 minutes of harvest at a temperature of -18 C.

Factors that may impact on the **grade** of velvet include:
- anaesthetics
- colour
- conformation
- freezing techniques
- handling techniques
- hygiene during harvest and storage
- size
- stage of growth.

**Grading specifications:**
- include those detailed in *Australian Deer Industry Velvet Antler and Venison Co-products Language and Specifications Guide* (grading chart) developed by the Rural Industries Research and Development Corporation
- are continually amended and updated and so care must be taken to ensure that current specifications are used.

**Pool** refers to:
- national velvet pool run by Australian Deer Horn and Co-products Pty Ltd, through which most velvet is sold in Australia.
Feedback provided by professional grader to operator may include:

- comments on quality, presentation and cleanliness, time of cut and damage
- general comment on the velvet line
- informed comment in reference to information such as weighing or tally of graded velvet
- weight of velvet in each grade and total weight.

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.

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:

- handle and store velvet carefully according to food safety legislation
- accurately grade velvet using industry grading specifications.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a deer 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 handle, store and grade deer velvet.

The candidate must also have access to the following resources:

- a range of different sizes and qualities of deer velvet for grading
- grading chart (Australian Deer Industry Velvet Antler and Venison Co-products Language and Specifications Guide)
- grading table and other basic equipment for grading and storing deer velvet.
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 handle, store and grade deer velvet must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within deer farms of different sizes which are raising different breeds of deer.
RTE4121A
Select and establish an apiary site

Unit Descriptor
This unit of competency specifies the outcomes required to select and establish a site for an apiary. The unit also includes monitoring the continued suitability of the site, including the availability of adequate nutrition for honey bees.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to beekeepers. Work is likely to be undertaken with limited or no supervision and requires a broad range of knowledge about beekeeping and honey production.

Where work requires the use of load-shifting or other equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Plan to select and establish an apiary site.
   1.1 Criteria for selecting a site are established.
   1.2 Suitable locality in which to search for site is identified.
   1.3 Suitable personal protective equipment (PPE) is selected and checked prior to use.
   1.4 Tools and equipment required to select and establish an apiary site are selected and checked prior to use.
   1.5 Occupational health and safety (OHS) hazards associated with selecting and establishing an apiary site are identified and actions are taken to minimise risk to self and others.

2. Select the apiary site
   2.1 Detailed information about potential sites in selected locality is gathered and analysed using site selection criteria.
   2.2 Capacity of available flora to support desired number of hives at site is determined.
   2.3 Most suitable site(s) is selected.
   2.4 Precise area(s) within site to place hives is selected taking into account proximity to flora, water, gates, stockyards and movement of the sun.
   2.5 Permission to locate beehives at site is obtained from land owner or manager.

3. Establish the apiary at the selected site.
   3.1 Access of bees to floral sources and water is monitored and hives are repositioned as required or a new site is sought.
   3.2 Where required, supplementary feeds of nectar and/or protein substitutes are provided at concentration and frequency required by bees to obtain desired results.
   3.3 Results of inspections and any remedial action taken are recorded and used as basis for future beekeeping operations.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
• bush sense
• correct manual handling
• loading and unloading beehives
• map reading
• negotiating with land owners and managers
• reading the potential of flora.

Required knowledge:
• potential productivity of flora, including its potential for pollen and nectar flow
• nutritional requirements of colony
• sources of information about potential sites.

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.

Criteria for selecting an apiary site may include:
• availability of suitable flora, including identification of a floral calendar for region
• ease of access to and within site
• land use in bees’ flight range
• likelihood of spraying with pesticides on adjacent land
• nuisance aspects
• potential change in land use
• rents, insurance and/or other arrangements for using site
• stocking rate
• suitability of site for organic production.

PPE may include:
• bee-proof overalls and gloves
• ear protection
• face masks
• safety goggles
• steel capped boots/shoes
• sunhats
• bee veils
• sunscreen lotion.

Tools and equipment required for these tasks may include:
• binoculars
• compass
• detailed locality maps
• geographic positioning system (GPS)
• load-shifting equipment.
OHS hazards may include:
- bee stings
- fire and flood
- incorrect techniques when manual handling and lifting heavy hives
- livestock
- snakes.

**Detailed information** that may be obtained about potential sites includes:
- access times and conditions
- access to a suitable water supply for bees
- ant activity
- availability and condition of existing access tracks
- availability of suitable camping site for beekeeper
- ease of access for vehicles
- intended change of land use or condition, such as ploughing or mowing
- land tenure and ownership
- nature of activities undertaken on adjoining land, including activities not compatible with production of honey or other hive products, especially if planning for organic production
- nectar and pollen flora available
- obligations of beekeeper when using site
- other nearby apiaries
- potential escape routes in an emergency
- potential OHS issues
- proximity to livestock
- rents to be paid (or other arrangements)
- requirements or restrictions on clearing the site or making access tracks
- restrictions on use of site and attitude of land owner/manager
- risk of disease
- risk of flood, fire and destructive winds
- whether spraying with insecticides has occurred recently or is planned in the future.

Supplementary feeds provided may include:
- pollen or pollen substitute made available inside or outside hive
- recommended mixture prepared by beekeeper
- sugar
- supplementary feeds obtained from a supplier
- those for organic production that must comply with requirements of the National Standard for Organic and Biodynamic Produce.
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 such as:

- RTC2016A Recognise plants
- RTC5011A Collect and classify plants.

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:

- identify flora and assess its productivity
- communicate with land owners/managers
- determine site selection criteria
- select apiary location.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a beekeeping 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 select and establish an apiary site.

The candidate must also have access to the following resources:

- maps and other information about potential sites
- tools and equipment to load, unload and move beehives.

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 select and establish an apiary site must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within small and large-scale apiaries and in apiaries producing a range of different hive products and services.
### RTE4122A Produce and harvest royal jelly

#### Unit Descriptor
This unit of competency specifies the outcomes required to induce the production of royal jelly by honey bees and to collect and store the finished product.

#### Employability Skills
This unit contains employability skills.

#### Application of the Unit
This unit of competency applies to beekeepers involved in the specialist production of royal jelly. Work is likely to be performed under limited or no supervision according to established procedures and in line with food safety and quality assurance requirements.

#### Unit Sector
No sector assigned

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<th>ELEMENT</th>
<th>PERFORMANCE CRITERIA</th>
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| 1. Prepare to produce and harvest royal jelly. | 1.1 Hive is assessed for **suitability** for production of royal jelly.  
1.2 Production of royal jelly is **stimulated**.  
1.3 Personal protective equipment (PPE) is selected and used.  
1.4 Occupational health and safety *(OHS)* **hazards** associated with working with bees are identified and appropriate action is taken to minimise risks to self and others.  
1.5 All **equipment** used in process of collecting royal jelly is cleaned and sanitised either by heat, alcohol or irradiation according to food safety requirements and enterprise procedures. |
| 2. Collect and store royal jelly | 2.1 Personal hygiene requirements are met, including washed hands and clean clothing.  
2.2 Wax is cut from selected grafted queen larvae cells just above the royal jelly to aid and speed up collection.  
2.3 Larvae are carefully removed from cell with a grafting tool so as not to harm or contaminate jelly, and larvae are discarded.  
2.4 Royal jelly is **removed** from each cell.  
2.5 Royal jelly is filtered through fine nylon net to remove traces of wax or larvae.  
2.6 Harvested royal jelly is placed into appropriate hygienic **containers**, avoiding excessive exposure to air, and is refrigerated immediately. |
| 3. Finalise tasks. | 3.1 Equipment is checked, cleaned and returned to store area.  
3.2 Records are made and maintained according to enterprise procedures, and food safety and quality assurance requirements. |
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
• bee handling
• carefully collecting and filtering royal jelly
• record keeping
• removing larvae.

Required knowledge:
• bee handling
• correct cleaning and sanitation methods
• field floral conditions
• food safety requirements
• role of nurse bees in royal jelly production
• quality assurance, including requirements of honey bee industry quality assurance program (BQUAL).

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.

Factors that make a hive suitable for production of royal jelly include:
• located in area of fresh pollen and nectar flows
• strong double colony full of young nurse bees.

Royal jelly production may be stimulated by:
• grafting artificial queen cells into a queenless hive.

PPE may include:
• bee veils
• bee-proof overalls and gloves
• ear protectors
• face masks
• safety goggles
• steel capped boots/shoes.

OHS hazards may include:
• bee stings
• incorrect manual handling
• sharp hand tools and equipment
• slippery and uneven surfaces.
Equipment used to collect royal jelly includes:

• fine nylon net
• grafting tools
• moveable queen cell bar with wax or plastic queen cells
• queen excluders
• refrigerator
• spatula or suction devices
• suitable food grade containers.

Royal jelly is **removed** from each cell by methods including:

• suction from a mouth-operated or pump-operated device
• use of a small spatula.

Appropriate **containers** for storing royal jelly include:

• dark glass vials
• food-grade plastic containers that are dry.

**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, such as RTE3156A *Rear queen bees*.

**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:

• graft larvae
• hygienically collect and store royal jelly
• keep records.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a beekeeping 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 produce and harvest royal jelly.

The candidate must also have access to the following resources:

- a suitable hive
- queen cells and queen cell bars
- equipment required to produce and harvest royal jelly
- PPE.

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 produce and harvest royal jelly must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within an apiary specialising in royal jelly production or one where royal jelly is collected as a co-product of honey.
RTE4126A Oversee alpaca farm activities

Unit Descriptor
This unit of competency specifies the outcomes required to oversee activities on an alpaca farm, particularly to successfully maintain the farm's administrative affairs. The unit requires the application of skills and knowledge necessary to identify and nominate alpacas for sale, exhibition or competition in line with established protocols, and the completion and forwarding of required pedigrees and transfer forms. It also requires the maintenance of up-to-date records of the property that reflect industry best practice.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to people performing a managerial role on an alpaca stud farm. The work will be carried out independently within own area of responsibility.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Maintain farm records.
   1.1 Information required to successfully manage farm activities is identified and obtained.
   1.2 Record keeping and information management systems in place within farm are maintained and managed to ensure that sound records may be accessed at any time.
   1.3 Required pedigrees and histories are obtained from, or supplied to, relevant controlling body.
   1.4 Alpaca transfer and registration forms are completed and forwarded to relevant controlling body.

2. Identify and nominate alpacas for sale, exhibition or competition.
   2.1 Individual alpacas are considered for sale, exhibition or competition according to enterprise objectives and procedures.
   2.2 Appropriate entry forms are obtained, completed and submitted for specified activity and any required entry fees are paid.

3. Oversee alpaca farm activities.
   3.1 Risks associated with alpaca farm activities are identified.
   3.2 Site quarantine and other biosecurity protocols, including hygiene and cleanliness of work areas, are applied to all animals and activities as appropriate.
   3.3 Services to be provided for clients' animals are agreed with each client and documented.
   3.4 Plan is developed and agreed with each client for management of identified risks in relation to services provided.
   3.5 Alpacas arriving at the property are identified in line with established farm protocols.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• communicating with clients and providing information about clients' alpacas
• keeping alpaca farm records that comply with requirements of controlling body
• reading and interpreting cost sheets, production information, target statistics, quantities of feed and other inputs, and material safety data sheets (MSDS).

Required knowledge:

• relevant legislation and regulations relating to waste and environment management, animal health and welfare, and employment of staff and contractors
• relevant state and territory legislation, regulations and codes of practice with regard to workplace occupational health and safety, and the use and control of machinery and equipment
• requirements and procedures laid down by the breed society for recording and communicating farm records
• risk management procedures required when providing services to clients' animals.
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.

Information gathered and managed may include:

- records relating to all animals on property regardless of owner, including:
  - breeding histories
  - classes of alpacas, including:
    - farm males
    - entire and wethered males
    - bred and unmated females
    - weanlings
    - crias
    - show stock
    - sale stock
  - contracts for agistment, mating or sale
  - costs associated with each activity (e.g. feed and veterinary services)
  - feeding regimes
  - fleece statistics and shearing dates
  - relevant pedigrees
- farm management records, including:
  - basic financial records relating to income and expenditure
  - location of various stock
  - maintenance of buildings and machinery
  - paddock rotation and pasture management equipment
  - personnel
  - annual calendar of events compiled for a commercial alpaca farm, including:
    - animals affected by different events and operations
    - timing of events and operations throughout the year.

Farm activities to be overseen may include:

- agistment
- monitoring neonates
- observing and assisting with birthing
- preparing animals for sale, exhibition or competition
- providing males for mating
- shearing and fleece handling
- supervising mating of females.

Controlling body for alpaca farm records is:

- Australian Alpaca Association (AAA) that maintains the International Alpaca Register (IAR) database
- show committees may also have specific requirements regarding documentation to be produced as part of the entry criteria.
Administrative procedures involved in complying with breed society rules when nominating and registering alpacas include:

- applying to the AAA for appropriate forms for registration
- completing forms correctly
- submitting forms as required.

Details that should accompany any animal arriving at the property include:

- animal’s details, including:
  - colour
  - cria at foot and its date of birth if appropriate
  - date of birth
  - IAR number
  - owner-assigned identification
  - previous mating date if pregnant
  - sex
  - vaccination history
- owner’s details, including:
  - name
  - address
  - phone and fax number
  - email where available.

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 such as:

- RTE4115A Plan to exhibit livestock or fleece
- RTE4901A Administer finance, insurance and legal requirements.

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:

- complete appropriate forms and records
- manage nomination of alpacas for sale, exhibition and competition
- maintain operational and breeding records.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed on an alpaca farm 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 oversee alpaca farm activities.

The candidate must also have access to the following resources:

- pro formas or sample documents for recording alpaca farm records
- show entry forms.

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 oversee alpaca farm activities must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events.
RTE4128A Provide bee pollination services

Unit Descriptor
This unit of competency specifies the outcomes required to provide bee pollination services. Work will require the application of a broad range or knowledge about bee husbandry and bee behaviour, as well as the ability to negotiate commercial agreements with customers.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to beekeepers providing pollination services to a crop grower under a commercial arrangement. Work is likely to be performed under minimal or no supervision.

Unit Sector
No sector assigned

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>PERFORMANCE CRITERIA</th>
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| 1. Assess pollination service requirement. | 1.1 Pollination services to be provided are confirmed with customer.  
1.2 Number and types of colonies required for crop are determined.  
1.3 **Strength and condition** of bee colonies are assessed for their suitability for use as crop pollinators.  
1.4 Risk of pollination problems is assessed with customer and process to monitor risk is agreed and established.  
1.5 **Technical information** is provided to customer. |
| 2. Price and formalise agreement for pollination services. | 2.1 Costs in providing pollination services are identified and calculated.  
2.2 Price for pollination services is agreed with customer.  
2.3 Formal **agreement** is made with customer and documented. |
| 3. Monitor pollination performance of bee colonies. | 3.1 Crop is monitored within appropriate timeframe for **evidence** of bee foraging and pollination efficiency.  
3.2 **Remedial action** is taken where required.  
3.3 Hive strength and condition are demonstrated to customer where required.  
3.4 Swarm control is maintained.  
3.5 Bee husbandry practices are carried out as required. |
| 4. Comply with industry and legislative requirements. | 4.1 Appropriate health certificates and permits are obtained where bees are to be moved across state borders.  
4.2 Appropriate pollination code of practice is followed.  
4.3 All state or territory Apiary Acts and **other relevant Acts and regulations**, and local government regulations affecting beekeeping are addressed. |
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• calculating strength and numbers of bee colonies required to pollinate crop
• communicating with customers and others
• managing pollination of honey bee colonies
• monitoring chemical use near hives
• monitoring climate and weather
• monitoring hive activity on target crop
• pricing and negotiating provision of services.

Required knowledge:

• chemicals used on each crop to be pollinated and available alternatives
• environmental and climatic factors affecting bee foraging behaviour and pollination
• essential elements of a valid contract
• location of colonies to maximise pollination
• management of health and performance of bee colonies
• nutrition and water requirements of bees
• pollination requirements of major crops in locality of operation, including nearby crops/plants that may be more attractive to foraging bees
• public liability insurance requirements.

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.

Factors to be considered when assessing **strength and condition** of bee colonies for pollination include:

• healthy active queen and brood area
• healthy hive, including absence of American foulbrood, European foulbrood and Chalk brood
• stores of pollen and honey
• type of crop to be pollinated
• worker activity
• young brood.

*Risks* associated with pollination that may be **monitored** include:

• regular observation by beekeeper and/or customer and employees at appropriate times of the day for:
  • hive activity
  • number of bees on target crop
  • use of pesticides
  • advice given by customer to nearby farms that bees are present before placing hives.
**Technical information** provided to customer should include:

- duration of pollination
- need for any weed spraying and/or pruning to be completed before placing hives
- need to feed bees if pollination is occurring in a glasshouse or, if conditions require it, to stimulate bees to forage in crops outside
- number and strength of hives to successfully pollinate
- requirement for customer to comply with pesticide Acts.

**Agreement** should include:

- access to customer’s services and facilities
- dates of hive introduction and removal
- payment for feed and strength of hives
- placement of hives
- restrictions on use of pesticides before and during pollination period
- stocking rates
- vehicle access
- agreements may also include details relating to:
  - independent audit of hive strength and condition
  - liability for random stinging by bees
  - payment for removal of hives in event of pesticide applications
  - provision of water for bees
  - theft of hives
- agreements may be either formal written agreements or contracts, or documents detailing a verbal contract.

**Evidence** of bee foraging and pollination efficiency may include:

- bee activity which will vary according to time of day and temperature but is likely to include:
  - flight direction
  - fruit or seed set
  - pollen returning to hive
  - number of bees on target crop
  - wilted flowers and petal fall.

**Remedial action** taken to achieve appropriate colony strength and condition may include:

- introducing new colonies
- relocating hives on property
- removing old colonies
- supplementary feeding.

**Other relevant Acts and regulations** that apply to pollination activities include those covering:

- animal health and welfare
- beekeeping activities
- fair trading as enacted in jurisdictions where services are provided
- insurance
- occupational health and safety
- use of pesticides.
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.

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:

• assess need for pollination
• negotiate price and pollination agreement
• comply with all industry and legislative requirements
• identify suitable locations within crop or site for hive placement
• objectively assess hive condition and suitability for pollination
• monitor performance of contract and of bee colonies.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a beekeeping 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 provide bee pollination services.

The candidate must also have access to the following resources:

• colonies of bees for pollinating crops in fields or glasshouses
• customer's crop pollination requirements.

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 provide bee pollination services must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include the pollination of a variety of field and glasshouse crops.
RTE4130A Trap and store pollen

Unit Descriptor
This unit of competency specifies the outcomes required to trap and store pollen from honey bees. Pollen may be intended for use as supplementary bee feed or for human consumption. Work is likely to be performed under minimal supervision and according to established industry procedures.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to beekeepers involved in the specialist production of pollen. Work is likely to be performed under limited or no supervision according to established procedures and in line with quality assurance requirements. Where pollen is intended for human consumption, work must be carried out in accordance with food safety requirements.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare to trap and store pollen.
   1.1 Colony is assessed for suitability for pollen collection.
   1.2 Personal protective equipment (PPE) is selected and used.
   1.3 Occupational health and safety (OHS) hazards associated with working with bees are identified and appropriate action is taken to minimise risks to self and others.
   1.4 All equipment used in process of collecting pollen is cleaned and sanitised according to food safety requirements and enterprise procedures.

2. Collect pollen.
   2.1 Suitable pollen trapping mechanism is constructed and installed in hive.
   2.2 Personal hygiene requirements are met, including washed hands and clean clothing.
   2.3 Pollen is collected at appropriate frequency, depending on its intended use as bee feed or for human consumption.
   2.4 Risk of theft by ants is assessed and steps are taken to reduce likelihood of this occurring.
   2.5 Risk of colony decline is assessed and pollen collection is stopped if necessary.
   2.6 Pollen is temporarily stored in a suitable container to be transported to processing facilities.

   3.1 Pollen is cleaned to remove all foreign material.
   3.2 Pollen is air dried until moisture content is appropriate to prevent fermentation and deterioration.
   3.3 Pollen is stored appropriately and according to its intended use.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
• basic woodworking skills to construct a pollen trap
• bee handling
• record keeping.

Required knowledge:
• bee colony’s pollen requirements
• bee handling
• correct cleaning and sanitation methods
• knowledge of appropriate floral sources
• quality assurance and food safety, including requirements of honey bee industry quality assurance program (BQUAL)
• requirements for commercial processing.

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.

Factors that indicate a colony is suitable for pollen collection include:
• absence of fungus or bee disease (pollen collection should cease if evidence of fungus or bee disease is observed or if colony’s population is declining)
• abundance of pollen at time of assessment
• if continuous trapping is required, traps may need modification to allow some bees to pass through with their pollen.

PPE may include:
• bee veils
• bee-proof overalls and gloves
• ear protection
• face masks
• safety goggles
• steel capped boots/shoes.

OHS hazards may include:
• bee stings
• incorrect manual handling
• sharp hand tools and equipment
• slippery and uneven surfaces.
Characteristics of an efficient pollen trapping mechanism include:

- bottom board trap:
  - covered with mesh to prevent bees from reclaiming pollen
  - mesh removes pollen from bees' legs
  - replaces the bottom board of hive

- front mounted trap:
  - similar to bottom board trap but fastened to front of hive to cover existing entrance
  - can be easily removed but has less storage capacity

All pollen traps must be fitted with drone escapes.

Factors to consider when pollen is collected from collection trays:

- damp days or humid weather require more frequent collection to avoid fermentation and growth of mould or bacteria
- pollen for human consumption should be collected every 2-3 days with sanitary handling at all times
- pollen for bee feed should be collected every 5-7 days.

Containers for temporary storage of pollen include:

- ventilated containers which hold 5-7 kg of pollen.

Methods used to clean pollen include:

- gravity fed screening system
- sieving (different sized sieves)
- both systems allow pollen to pass through small holes, leaving larger debris behind.

Factors relating to moisture content that need to be considered when storing pollen include:

- moisture content reduced by spreading pollen about 2 cm thick on flywire mesh and forcing warm dry air through it to remove moisture
- recommended air temperature for drying pollen is 45°C, though the air may have to be dried before it is heated
- storage moisture content range of 2.5-6%
- freshly collected pollen has a moisture content range of 7-21%.

Criteria used to determine how processed pollen is stored include:

- dried pollen can be stored in airtight containers at room temperature
- for bee feed:
  - collected and then frozen to retain maximum levels of nutrient value to meet honey bee dietary requirements
  - must be irradiated before being fed to bees
- for human consumption:
  - fresh pollen placed in clean, airtight containers and frozen for 24-48 hours to protect it from insect infestations
  - must comply with relevant food safety requirements.
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, such as RTC2016A Recognise plants.

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:

- build a suitable pollen trap and install trap onto hive
- correctly collect and process pollen
- keep records
- manage a hive.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a beekeeping 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 trap and store pollen.

The candidate must also have access to the following resources:

- materials to build a trap
- hive with a colony
- PPE
- suitable containers for pollen storage.

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 trap and store pollen must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within small and large-scale beekeeping enterprises.
RTE4131A Collect and store propolis

Unit Descriptor

This unit of competency specifies the outcomes required to collect and store propolis. Work is likely to be undertaken with limited or no supervision and requires a broad range of knowledge about beekeeping and honey production.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency applies to beekeepers involved in the specialist production of propolis. Work is likely to be performed under limited or no supervision according to established procedures and in line with food safety and quality assurance requirements.

Unit Sector

No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare to collect propolis.
   1.1 Suitable colony is selected or acquired.
   1.2 All equipment to be used in collection of propolis is cleaned and sanitised according to quality assurance and food safety requirements.
   1.3 Suitable personal protective equipment (PPE) is selected and checked prior to use.
   1.4 Occupational health and safety (OHS) hazards are identified and action is taken to minimise risks to self and others.
   1.5 Suitable propolis trap is constructed and installed, or cracks are created for bees to place propolis.
   1.6 Propolis production is stimulated by manipulation of environmental conditions.

2. Collect and store propolis.
   2.1 Quality assurance and food safety requirements are complied with throughout collection and storage of propolis.
   2.2 Propolis is collected from traps by shaking into a container.
   2.3 Appropriate extraction method is selected and propolis is extracted according to quality assurance and food safety requirements.
   2.4 Extracted propolis is stored in appropriate clean and dry conditions.
REQUIRED SKILLS AND KNOWLEDGE
This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
- basic woodworking skills
- bee handling
- extracting propolis
- identifying propolis-producing flora.

Required knowledge:
- bees and their behavior
- food safety requirements
- quality assurance, including requirements of honey bee industry quality assurance program (BQUAL)
- suitable conditions and constraints on collecting propolis.

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.

Colonies suitable for propolis collection include:
- hives of the honey bee (Apis mellifera)
- when flora is yielding propolis and colonies have plenty of field bees.

Equipment needed to collect, extract and store propolis include:
- distillation apparatus
- fridge or freezer
- heat source
- large capacity bottle that can be tightly closed
- scales
- strainer such as:
  - cotton balls
  - filter paper
  - layers of clean cotton cloth
- vacuum dryer or freeze dryer.

PPE may include:
- bee veils
- bee-proof overalls and gloves
- ear protection
- face masks
- safety goggles
- steel capped boots/shoes.

OHS hazards may include:
- bee stings
- incorrect manual handling
- sharp hand tools and equipment
- slippery and uneven surfaces.
Propolis trap refers to:
- screens or plates with holes that simulate cracks in hive walls
- an economic propolis trap is comprised of an inner cover with a large hole.

Methods used to stimulate propolis production include:
- letting light and air into hive to stimulate propolis production
- propping lid of hive slightly open.

Appropriate extraction methods may include:
- aqueous (water) extraction
- dried powder ethanol extraction
- ethanol extraction
- glycol extraction
- oil extraction
- quick extraction.

Suitable conditions for storing propolis include:
- airtight containers
- away from excessive and direct heat
- kept in the dark
- kept at less than 10-12°C.

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.

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:
- recognise suitable flora for propolis production
- recognise propolis and distinguish it from other substances collected by bees
- maintain a healthy hive and colony
- judge suitability of a colony for propolis collection
- correctly handle bees and work safely around them
- collect propolis
- apply quality assurance and food safety procedures.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a beekeeping 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 collect and store propolis.

The candidate must also have access to the following resources:

- a suitable colony
- propolis collection and extraction equipment
- PPE.

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 collect and store propolis must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events.
Perform queen bee artificial insemination

This unit of competency specifies the outcomes required to perform the artificial insemination (also known as instrumental insemination) of queen bees. It requires the application of knowledge and skills to identify appropriate artificial insemination (AI) techniques and to match them to breeding and queen and drone bee management requirements. The unit also requires the ability to schedule and obtain resources for insemination activities and to match queen and drone cycles to resource availability in order to maximise success rates. Work will involve recording and monitoring the AI program, identifying when reinsemination is necessary, and monitoring and suggesting improvements for future breeding programs.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency applies to people involved in the specialist area of queen bee artificial insemination. Work is likely to be performed under limited or no supervision according to established procedures and industry standards and in line with quality assurance requirements. Work may be performed as part of a team.

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 in line with *breeding objectives.*
1.2 Artificial breeding option is selected and matched to resources so as to meet enterprise’s *queen and drone management program.*
1.3 *Resource requirements* of breeding programs are identified, sourced and arranged.
1.4 *Program schedules* are prepared according to available resources.
1.5 Suitable *clothing and work environment* for self and breeding support staff are made available and comply with occupational health and safety (OHS) and enterprise requirements.
2. Implement breeding method.

2.1 **Genetic material** is obtained from **reliable and legitimate sources**.

2.2 Genetic material is **received, checked and stored** to ensure maximum viability and program outcomes, according to industry codes of practice.

2.3 Rearing times are managed so that queen bees and drones are of **appropriate age and condition** when AI is scheduled to occur.

2.4 Semen is collected from drones and queens are **prepared** and inseminated using hygienic techniques to minimise risk of contamination.

2.5 After insemination, queen is placed in a colony of suitable strength and monitored to determine whether further insemination or treatments with carbon dioxide are required.

3. Monitor and maintain program.

3.1 Adjustments in genetic material transfer practices are reviewed to enhance success of future programs.

3.2 Data on genetic material transfer programs is **documented** and maintained according to enterprise requirements.

3.3 Success rates are determined from breeding objectives and are calculated and used to determine success of AI program.

3.4 Information is supplied to relevant authorities to promote research and improvements in industry practice.

3.5 **Necessary modifications** to queen and drone management program are identified and recorded to assist continuous improvement processes.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- communicating effectively with staff, veterinarians and other personnel
- determining AI timing
- keeping records
- identifying queen bee laying fertilised eggs
- performing AI
- preparing queen and drone honey bees for AI.

Required knowledge:

- artificial breeding methods and benefits, and limitations of each method
- anatomy and physiology of reproductive organs and reproductive process in queen and drone honey bees
- enterprise and industry identification system for queen and drone honey bees and semen
- enterprise and industry policies with regard to AI, and the recording and reporting requirements
- honey bee health and abnormalities
- knowledge of enterprise breeding programs
- preparation requirements for AI
- principles of genetics
- physical resource requirements and how to safely handle and transport them
- relevant commonwealth, state or territory legislation, regulations and codes of practice with regard to workplace OHS
- semen collection and homogenising processes
- semen thawing techniques.

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.

Artificial breeding options:

- include:
  - AI sourced from own stock
  - AI from stock that has been sourced externally
- things to consider when choosing artificial breeding options include:
  - costs involved in AI, including extra handling and feeding
  - estimated breeding values
  - reliability of method
  - success rates
  - supplementary feeding costs.
**Breeding objectives** may include:
- improving quality of stock
- increasing its diversity
- maintaining current desired genetic stock
- meeting market specifications
- obtaining desired colony characteristics.

**Queen and drone management program** may involve:
- disease control
- importation of genetic material
- long-term survival of breeding stock
- post-AI management of queens
- pre-AI management of queens and drones
- record keeping.

**Resource requirements** may include:
- AI apparatus and personnel
- antibiotics
- buffers
- carbon dioxide containers
- collection equipment for AI
- drone flight cage
- drones, queens and hives
- genetic materials
- homogenising equipment
- identification tags or similar
- laboratory equipment
- sheds
- temperature and humidity controlled room.

**Things to consider when preparing AI program schedules** include:
- facility use
- genetic material preparation
- insemination
- preparation of intended recipients
- re-insemination as required
- sourcing and supply of genetic materials
- staff and equipment resources.

**Clothing and work environment** requirements include:
- very clean clothing
- very clean environment in which to work.

**OHS** requirements may include:
- identifying hazards, and assessing and reporting risks
- safe handling of veterinary equipment such as:
  - needles
  - syringes
- safe honey bee handling systems and procedures
- safe manual handling (including lifting) systems and procedures
- safe systems and procedures for applying and storing hazardous substances.
**Genetic material** may include:
- live drone bees
- live queen bees
- semen.

**Reliable and legitimate sources** include:
- industry-recognised suppliers of genetic materials that meet legislative and industry requirements.

Procedures for **receiving, checking and storing** genetic material include:
- checking against records and requirements
- receiving safely and without damage to genetic materials
- storing to ensure that viability and successful outcomes are maximised.

**Appropriate age and condition for queen bees and drones** used in AI include:
- drones should be about 20 days old
- virgin queens should be:
  - about 6-7 days old
  - clipped
  - confined to prevent them flying
  - marked for identification.

**Preparation** for intended recipients may involve:
- checking that queens are in correct age range before insemination
- ensuring that a colony of suitable size will be ready to support queen bee after AI procedure
- subduing queens by use of carbon dioxide.

**Documented information** should include:
- any observed abnormalities
- breeding line and identification details of queen and drone
- breeding management information
- date of insemination
- insemination procedures.

**Necessary modifications** may relate to:
- insemination processes and procedures before insemination
- insemination processes and procedures after insemination.
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 such as:

- RTE3156A Rear queen bees
- RTE5101A Develop and implement a breeding strategy.

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:

- collect semen from drone honey bees
- inseminate queen bees
- manage queen bees after insemination
- maintain required hygiene standards
- keep records in relation to AI program.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in the 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 perform queen bee AI.

The candidate must also have access to the following resources:

- AI apparatus
- clean room, maintained at appropriate temperature and humidity
- carbon dioxide, buffers and antibiotics
- drone flight cages and queen cages
- honey bee colony.

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 perform queen bee AI must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events.
RTE4133A Manage organic livestock production

Unit Descriptor
This unit of competency specifies the outcomes required to integrate livestock production into an organic production system. The unit requires the ability to plan for livestock production within an organic farming system, including complying with animal health and welfare guidelines, developing grazing strategies which optimise nutrient recycling within the system, monitoring animal health and maintaining relevant records.

Managing organic livestock production requires knowledge of animal health and welfare, animal husbandry and management, breeding practices, organic certification requirements, and relevant animal welfare legislation and codes of practice.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to people working on a farm that is managed according to the principles of organic agriculture. Work is likely to be done without formal supervision and according to the requirements of the National Standard for Organic and Biodynamic Produce.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Manage animal health and welfare.

1.1 All work is undertaken in an environmentally appropriate manner and according to the principles of organic agriculture, occupational health and safety requirements and enterprise guidelines.

1.2 Natural behaviours of animals and requirements of animal welfare codes of practice are considered in planning for organic livestock production.

1.3 Genetic resistance to parasites is incorporated into breeding strategy.

1.4 Livestock is monitored constantly for health and welfare and records are kept according to enterprise requirements.

1.5 Animal health preventative strategies are developed, communicated to others working on farm and implemented.

1.6 Use of prohibited/restricted substances for organic livestock is documented and treated animals are identified and quarantined.

1.7 Animal transport is conducted humanely and in compliance with organic certification requirements.

1.8 Livestock records required for organic certification are maintained.

2. Develop and implement feed production and storage requirements.

2.1 Planning for winter feed and drought preparedness is undertaken.

2.2 Haymaking and/or cropping are incorporated into annual program for animal feed and on-farm sustainability.

2.3 Long term storage for hay and feed is implemented and quality and quantity are monitored.
3. Develop and implement grazing strategies to achieve biodiversity, recycling and sustainability.

3.1 **Soil and plant health** are optimised to provide a nutrient-dense and balanced diet for livestock.

3.2 Pastures are assessed for diversity, health, vigour and ground cover.

3.3 Infrastructure required for implementing **rotational grazing strategies** is identified and incorporated into property improvement program.

3.4 Rotational grazing strategies are developed and implemented.

3.5 Impact of grazing strategies on nutrient recycling and pasture diversity, persistence and vigour is evaluated.

3.6 Strategies for controlling weeds in pastures are implemented.

4. Research and source allowable inputs for organic livestock production.

4.1 Level of nutrients exported from farm is estimated.

4.2 Soil-testing program, including observation of pasture species present, is implemented in order to monitor and maintain optimal pasture species and soil health.

4.3 Soil nutrient levels are replenished through recycling, optimising nutrient availability in soil, and sourcing allowable inputs where necessary.

4.4 **Organic fertilisers and soil conditioners** are applied to ensure a mineral-balanced and healthy soil.

4.5 Certification protocols for sourcing essential fodder off-farm are followed.

4.6 Fodder is sourced and fed to stock, minimising risk of weed spread and maintaining adequate records.

**REQUIRED SKILLS AND KNOWLEDGE**

This describes the essential skills and knowledge and their level, required for this unit.

**Required skills:**

- animal handling and husbandry techniques
- feed budgeting
- maintaining records
- parasite and disease monitoring
- recognising plants and appraising pastures
- assessing and sampling soil
- interpreting soil tests.

**Required knowledge:**

- animal parasites and diseases
- animal welfare code of practice
- grazing management, including pasture identification and assessment, feed budgeting and grazing strategies
- management options for animal health based on an understanding of pest life cycles, genetic selection and acquired immunity
- permitted, restricted and prohibited inputs and activities as described in the National Organic Standards for Organic Livestock Production
- principles of organic agriculture
- relationship between soil, plant and animal health.
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.

**Principles of organic agriculture** include:
- demonstrating integrity in organics
- integrating the farm
- learning from nature and human culture
- managing soil, to increase health of whole system
- reading the landscape
- understanding farm ecology.

**Natural behaviours** considered in planning may include:
- foraging
- grooming
- interactions within a group of animals
- mating
- nesting.

**Health and welfare** issues that need to be monitored include:
- diet and water
- housing and accommodation
- illness and injury
- natural lighting
- protection from predators
- provision of shade and shelter
- stocking densities and available space
- transport
- ventilation.
Preventative strategies may include:

- allowable treatments as detailed in the National Organic Standards for Organic Livestock Production
- boosting natural resistance levels in stock
- cultural practices, including all strategies used to optimise nutrient availability to plants and animals such as:
  - composting
  - cropping and growing of grain and winter crops
  - green manuring
  - harrowing of pastures
  - haymaking
  - mulching
  - repasturing
  - strategic tillage
  - using biological preparations
- enhancing biodiversity
- fencing off riparian areas
- improving quality of diet
- minimising exposure to health challenges for susceptible stock
- providing trees for shade
- using homeopathic treatments.

Livestock records may include:

- animal health treatments
- inputs brought in
- mating and birthing records
- production records
- quarantine records.

Factors to consider in optimising soil and plant health include:

- biological activity
- diversity of plant community
- level of recycling of nutrients through plants and animals back to the soil
- plant vigour
- soil mineral balances.

Infrastructure required to implement rotational grazing strategies may include:

- livestock handling facilities
- subdivision fencing and laneways
- watering point.

Organic fertilisers and soil conditioners that may be used include:

- those described in the National Organic Standards for Organic Livestock Production.
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.

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:

- monitor and maintain animals in an organic production system
- provide a suitable diet and living environment for animals based on the National Organic Standards for Organic Livestock Production
- integrate animals into an organic production system
- manage grazing of animals and allowable inputs to enhance soil health and fertility, thereby providing a nutrient-dense and balanced diet for animals and humans.

Context and specific resources for assessment

Assessment for this unit of competency must include evidence of the ability to apply organic farming principles to organic livestock production. It will be most appropriately assessed on an organic farm or in a situation that reproduces those conditions.

For valid assessment, one must have opportunities to participate in a range of exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge required to manage organic livestock production.

The candidate must also have access to the following resources:

- an organic enterprise that includes animals
- animal handling facilities
- animal welfare code of practice
- national organic standards.
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 manage organic livestock production must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within a range of livestock enterprises, including sheep, cattle, goats, alpacas, pigs and poultry.
**RTE4408A Supervise activities on infected premises**

**Unit Descriptor**
This unit of competency specifies the outcomes required to supervise others in the range of activities required on infected premises (IP). The unit involves knowledge of the procedures for valuation, destruction and disposal, as well as those for decontaminating property, equipment and personnel. It requires the ability to communicate effectively with a wide range of people.

**Employability Skills**
This unit contains employability skills.

**Application of the Unit**
This unit of competency applies to personnel who have been appointed or engaged to undertake a role within an emergency disease or plant pest incursion response.

Where work requires the use of load-shifting or other equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

**Unit Sector**
No sector assigned

### ELEMENT PERFORMANCE CRITERIA

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1</td>
<td>Plan emergency disease or plant pest control activities on an IP.</td>
</tr>
<tr>
<td>1.1</td>
<td><strong>Emergency disease or plant pest</strong> control activities are planned under direction from IP operations manager and in consultation with property owner/manager.</td>
</tr>
<tr>
<td>1.2</td>
<td><strong>All IP procedures</strong> are confirmed with IP operations manager and communicated to property owner/manager.</td>
</tr>
<tr>
<td>1.3</td>
<td>Schedule for implementation of emergency disease or plant pest control activities is developed and <strong>resources</strong> required for planned activities are requested according to instructions from IP operations manager.</td>
</tr>
<tr>
<td>1.4</td>
<td>Reporting processes are established according to instructions from IP operations manager.</td>
</tr>
<tr>
<td>1.5</td>
<td>Staff rosters are established to support activities in a cost-effective manner and with minimal stress on personnel.</td>
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</tbody>
</table>
2. Oversee emergency disease or plant pest control activities.

   2.1 Personnel are assigned to team leader and worker positions according to IP operations functions to be performed and are given directions about tasks to be performed.

   2.2 Emergency disease or plant pest control activities are conducted in ongoing consultation with IP operations manager and property owner/manager.

   2.3 Emergency disease or plant pest control activities are **overseen** to ensure that they are cost-effective, make effective use of resources, and avoid unnecessary property damage and livestock or crop destruction.

   2.4 Valuations of materials requiring destruction, use of plant, equipment and materials, and all IP service provision are monitored to ensure they adhere to relevant standards, protocols and contract requirements.

   2.5 Supplies of materials and resources are monitored to ensure that they are adequate to meet needs of control activities.

   2.6 Incident log is maintained that includes details of all activities undertaken and contractors' hours and performance.

   2.7 Effective communications with IP operations manager and property owner/manager are established and maintained throughout operation.

   2.8 Personnel are supervised and motivated to carry out specific emergency disease or plant pest control activities to the standard required and according to occupational health and safety (OHS) and legislative requirements.

3. Check effectiveness of emergency disease or plant pest control activities.

   3.1 Effectiveness and progress of control activities are monitored and compared with planned objectives.

   3.2 Inspections of teams on site are carried out with sufficient regularity to ensure that standards are applied in line with required standards and protocols.

   3.3 **Progress reports** are provided to IP operations manager according to agreed reporting schedule and format.

   3.4 **Records** are kept as required by standards and protocols.

4. Revise site-specific emergency disease or plant pest control activities.

   4.1 Control activities are revised as required to address relevant protocols, maintain cost-effectiveness (including appropriate resource allocation) and contain wider impacts.

   4.2 Revisions to activities are communicated promptly to local control centre (LCC).
REQUIRED SKILLS AND KNOWLEDGE
This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
- communicating effectively by imparting understanding of issues and giving directions
- operating effectively under stress
- maintaining records
- managing people
- supervising application of emergency disease or plant pest control measures on an IP, in line with relevant response plan.

Required knowledge:
- appropriate standards and protocols for the emergency disease or plant pest e.g. Australian Veterinary Emergency Plan (AUSVETPLAN) or Australian Emergency Plant Pest Response Plan (PLANTPLAN)
- OHS and other legislative requirements in an emergency disease or plant pest incursion response
- principles underpinning control procedures
- procedures necessary to ensure that environmental values are protected during and after emergency disease or plant pest control program
- record keeping requirements
- reporting requirements
- safety practices related to use of equipment and materials used in emergency disease or plant pest control.

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.

Emergency diseases or plant pests may include:
- diseases that may affect animals, fish and other marine animals including:
  - disease that is exotic to Australia
  - serious infectious disease of unknown or uncertain cause
  - severe outbreak of a known endemic disease that is considered to be of national significance with serious social or trade implications
  - variant of an endemic disease
  - species, biotype or strain of invertebrate pest or pathogen injurious to plants or plant health.
**IP procedures** may include:

- collection of emergency disease or plant pest information
- decontamination
- destruction
- disposal
- eradication
- mustering
- property security and quarantine
- sentinel restocking
- valuation and inventory
- vector control.

**Resources** required may include:

- personnel
- plant, facilities, equipment and materials for livestock or crop destruction, disposal, cleaning and disinfection
- staff amenities.

Factors to take into account when **overseeing** IP control activities may include:

- cost
- direction by LCC
- effectiveness of emergency disease or plant pest control operations
- OHS requirements
- relevant standards and protocols
- staff welfare
- wider impact on things such as:
  - animal welfare
  - environment
  - industry
  - local businesses
  - local community
  - neighbouring properties
  - other non-susceptible livestock or crops
  - property owners and managers.

**Relevant standards and protocols** may include:

- animal welfare codes of practice
- approved standard operating procedures
- AUSVETPLAN or PLANTPLAN protocols
- commonwealth, state and territory legislation
- environmental legislation
- impact on and potential for damage to property
- OHS requirements and legislation.

**Progress reports** may include information about:

- estimated completion dates
- problems encountered
- recommendations for change to priorities or procedures
- resource requirements
- successful solutions
- work completion and work in progress.
**Records** may be kept of:

- any other records relevant to outbreak or incursion
- authorisations for personnel and equipment to enter and leave IP
- damage to equipment and property
- inventories of livestock or crops alive/destroyed
- materials and stockfeed destroyed
- personnel employed
- stores ordered and supplied
- work done by private contractors.

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**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.

**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:

- effectively supervise range of activities required to achieve emergency disease or plant pest control in an outbreak or incursion
- effectively communicate and give directions.

**Context and specific resources for assessment**

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in an emergency disease or plant pest simulation exercise or in responses to outbreaks or incursions.

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 supervise activities on IP.

The candidate must also have access to either real or simulated IP.
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 supervise activities on IP must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events.
RTE4409A Carry out field surveillance for a specific emergency disease or plant pest

**Unit Descriptor**
This unit of competency specifies the outcomes required to carry out field surveillance for a specific emergency disease or plant pest. Field surveillance teams work under instructions from the control centre.

**Employability Skills**
This unit contains employability skills.

**Application of the Unit**
This unit of competency applies to personnel who have been appointed or engaged to undertake a role within an emergency disease or plant pest incursion response.

Where work requires the use of load shifting or other equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

**Unit Sector**
No sector assigned

**ELEMENT**

**PERFORMANCE CRITERIA**

1. Look for signs of a specific emergency disease or plant pest.
   1.1 Work instructions from surveillance coordinator or other appropriate authority are received and confirmed.
   1.2 **Signs** of an emergency disease or plant pest are identified, appropriate samples for testing are collected and evidence is gathered to support a diagnosis according to relevant standards and protocols.
   1.3 Available expertise is accessed to assist in diagnosis, as appropriate.
   1.4 Diagnostic samples are collected, handled, packaged and dispatched according to relevant standards and protocols.

2. Respond to an emergency disease or plant pest.
   2.1 Where signs of an emergency disease or plant pest are found, surveillance coordinator is alerted.
   2.2 **Appropriate measures** are taken to immediately contain emergency disease or plant pest, according to instructions from control centre and relevant guidelines.
   2.3 **Information relevant** to management of emergency disease or plant pest outbreak is collected and reported to surveillance coordinator.
   2.4 Property owners/persons in charge are given directions and warnings about suspected emergency disease or plant pest.
   2.5 Personal decontamination and, where appropriate, decontamination of equipment and vehicles, are conducted according to relevant standards and protocols for emergency disease or plant pest.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• applying relevant standards, protocols and procedures
• communicating with a range of people
• problem solving to deal with unexpected issues
• working as part of a team where required.

Required knowledge:

• appropriate standards and protocols for the emergency disease or plant pest, such as Australian Veterinary Emergency Plan (AUSVETPLAN) or Australian Emergency Plant Pest Response Plan (PLANTPLAN)
• emergency disease or plant pest control procedures
• personal and general decontamination procedures.

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.

Signs of emergency disease or plant pest may include:

• abnormality
• clinical signs
• high levels of morbidity in populations
• mode of death
• mortalities
• presence of highly specific vectors
• results of post-mortem examinations
• symptoms and decline.

Emergency diseases or plant pests include:

• diseases that may affect animals, fish and other marine animals including:
  • disease that is exotic to Australia
  • serious infectious disease of unknown or uncertain cause
  • severe outbreak of a known endemic disease that is considered to be of national significance with serious social or trade implications
  • variant of an endemic disease
• species, biotype or strain of invertebrate pest or pathogen injurious to plants or plant health.
Relevant **standards and protocols** may include:

- approved standard operating procedures
- commonwealth, state and territory legislation
- emergency disease or plant pest specific guidelines such as AUSVETPLAN or PLANTPLAN
- other relevant guidelines for handling an emergency disease or plant pest
- transportation of dangerous goods.

**Appropriate measures** to contain emergency diseases or plant pests may include:

- decontaminating people, products, materials and premises
- disposing of carcasses or plants and plant products
- implementing movement controls
- notifying appropriate authorities
- quarantining one or more premises.

**Relevant information** may include:

- clinical signs
- disease history
- epidemiology
- livestock or crop data
- owner/manager contact details
- premises data
- surveillance
- tracing.

**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.

**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:

- follow work instructions
- follow biosecurity and decontamination procedures
- communicate findings to supervisor in a timely and accurate manner
- communicate with property owner while observing confidentiality requirements.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in an emergency disease or plant pest response simulation exercise or in responses to an emergency disease or plant pest incursion.

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 carry out field surveillance for a specific emergency disease or plant pest.

The candidate must also have access to the following resources:

- standards, protocols and procedures such as AUSVETPLAN or PLANTPLAN
- operational plan and survey plan
- personal protective and decontamination equipment.

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 carry out field surveillance for a specific emergency disease or plant pest must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work with outbreaks of different emergency diseases or plant pest incursions and with possibly unfamiliar species.
RTE4515A Manage mushroom substrate preparation

Unit Descriptor

This unit of competency applies to work in the mushroom industry and specifies the outcomes required to manage and control all activities associated with the preparation of mushroom substrate.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency supports the role of a manager who is involved in managing the preparation of mushroom substrate either in a general mushroom farming enterprise or in a specialist substrate preparation enterprise.

Where work requires the use of load-shifting equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector

No sector assigned

ELEMENT PERFORMANCE CRITERIA


1.1 Mushroom substrate preparation processes are overseen and managed to ensure that work is performed according to farm procedures, and that all equipment is operated according to manufacturer instructions and at a speed that maintains safe and continuous operation.

1.2 Details of quantities of substrate required and dates/times to be achieved for each process stage are determined and communicated to personnel involved in the various stages of substrate preparation.

1.3 Availability, quality, serviceability, and cleanliness of all rooms, work areas, machinery, equipment and materials required for mushroom substrate preparation are ascertained.

1.4 Sufficient suitable staff is obtained.

1.5 Where problems with process are identified, remedial action is initiated as required and according to farm procedures.

1.6 Personal protective equipment (PPE) and clothing are selected and used by all personnel involved in mushroom substrate processing tasks.

1.7 Impact of mushroom substrate preparation processes on other enterprise activities is determined, personnel advised and adjustments to schedules and operations are made where required and according to farm procedures.

1.8 Occupational health and safety (OHS) requirements and hazards associated with each task are identified and appropriate action is taken to minimise risks to self and others.

1.9 Site quarantine protocols and farm and personal hygiene requirements are determined, applied and managed as required.

1.10 All work of team is managed to ensure that it is performed according to farm procedures and in an environmentally aware and safe manner.
2. Confirm quality and consistency of Phase II outputs.

2.1 Phase II process is managed to ensure it conforms to required production schedule and farm procedures.

2.2 Key factors and critical points are recorded.

2.3 Random representative samples of end product are taken in line with farm procedures and are dispatched to laboratory for analysis.

2.4 Test results are recorded in farm records, compared to farm standards and remedial action is taken if required.

3. Monitor and manipulate spawning and spawn run.

3.1 Condition and quality of compost are assessed before spawning and, if required, remedial action is taken according to farm procedures.

3.2 Temperature readings are taken and recorded according to farm procedures and adjustments are made to thermostat if required.

3.3 Carbon dioxide content is measured, recorded and controlled according to farm procedures.

3.4 Spawn growth and appearance of mycelium are monitored during spawn run period.

3.5 Where supplement is to be added to substrate at spawning, product and its rate of application are selected and instructions are given to appropriate personnel.

3.6 Room hygiene and occurrence of pests and diseases are monitored and, if required, control measures are implemented according to farm procedures.

4. Manage clean-up procedures.

4.1 Clean-up activities at the end of each process stage are managed to ensure they comply with farm procedures.

4.2 Cook-out or chemical disinfestation treatment is conducted as appropriate prior to removal of spent substrate.

4.3 Return of equipment and hand tools to storage area after cleaning, basic preventative maintenance and checking for future serviceability is monitored to ensure compliance with farm procedures.

4.4 Faults are reported to maintenance personnel for remedial action.

4.5 Inventory of all inputs is made to ensure availability of sufficient stock for future use.

4.6 Records are completed legibly and accurately according to farm procedures.

4.7 Feedback on performance is provided to personnel under supervision.

4.8 Own performance is assessed, feedback on performance sought and any required improvements are noted for future action.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

**Required skills:**

- accepting responsibility for quality of own work
- contributing to productive work environment
- developing work schedules
- explaining quality standards and task requirements to personnel
- managing own work and that of others
- maintaining safety of self and others
- monitoring and recording key parameters
- observing employment requirements
- promoting workplace cooperation.

**Required knowledge:**

- casing function, application, required depth and required surface structure
- detailed knowledge of all stages in Phase II substrate preparation process
- farm standards and procedures, including those relating to OHS, food safety, hazard analysis critical control point (HACCP), quality systems, emergency procedures, organisational structure and workplace communication channels and protocols
- how mushrooms are grown, with a focus on interaction between compost, environmental factors (such as temperature, water, relative humidity, carbon dioxide and ammonia) and mushroom growth
- industry and workplace awards and conditions
- key parameters to be recorded and monitored and appropriate ranges in relation to temperature, ammonia, relative humidity, moisture content, carbon dioxide and time
- overview of Phase I compost production
- overview of mushroom production cycle and possible impact of deviations from farm standards on substrate and rest of production cycle
- relevant legislation and industry codes of practice
- site quarantine protocols.
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.

**Farm procedures** may include:

- enterprise standard operating procedures
- HACCP
- industry best practice guidelines on quality, food safety and hygiene
- legislative and regulatory requirements such as OHS procedures
- manufacturer service specifications and operator manuals
- product labels
- material safety data sheets (MSDS)
- production schedule
- routine maintenance schedules
- waste disposal, recycling and re-use guidelines
- work notes.

**Rooms, work areas, machinery, equipment and materials** that need to be prepared may include:

- rooms:
  - case run
  - growing
  - Phase II
  - spawn run

- work areas for:
  - adding casing
  - filling compost
  - mixing
  - storing

- machinery and equipment:
  - casing mixer
  - conveyors
  - forklifts
  - front-end loaders
  - probes
  - spawning hopper
  - trays and plastic liners
  - tunnels and filling equipment

- materials:
  - casing ingredients
  - chemicals
  - Phase I compost
  - Phase II compost and supplement
  - spawn.
**Remedial action** may include:

- adjusting parameters if substrate needs more or less compression depending on moisture and structure
- arranging for urgent maintenance or short-term repairs where equipment is not serviceable
- checking machinery and equipment and providing instructions to other personnel where processes do not comply with farm standards
- checking probes for accuracy and placement during Phase II.

**PPE and clothing** may include:

- aprons
- boots
- fluoro safety vests
- gloves
- hats or hair covering
- overalls
- waterproof jackets.

**OHS requirements and hazards** may include:

- OHS procedures such as:
  - appropriate use of PPE
  - assessing and reporting risks
  - basic first aid
  - cleaning, maintaining and storing tools, equipment and machinery
  - correct manual handling
  - identifying hazards
  - maintaining personal hygiene
  - reporting problems to supervisors
  - safe handling
  - safe operation of tools, equipment and machinery
- OHS hazards associated with handling and moving boxes such as:
  - chemicals and hazardous substances
  - confined spaces
  - dust and substrate-borne micro-organisms
  - electricity
  - manual handling
  - moving equipment, machinery and vehicles
  - noise
  - sharp hand tools and equipment
  - slippery or uneven surfaces
- risk minimisation procedures such as:
  - restricting access of other personnel to work area
  - using correct manual handling techniques
  - wearing appropriate PPE.
Key factors and critical points to be monitored and recorded may include:

- those that apply to Phase II process such as:
  - air and substrate
  - air flow
  - level of ammonia and moisture content
  - relative humidity
  - time when air has reached objective
  - chemical tests results once available
- those that apply during spawn run such as:
  - carbon dioxide
  - relative humidity
  - temperature
- those that apply during the post-crop cook-out such as temperature achieved over a specified period of time.

Clean-up activities may include:

- cleaning, sanitising or disinfecting machinery, equipment and work areas
- removing products that have not met farm quality requirements
- removing spilt mushroom substrate or spawn.

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 such as:

- RTC4908A Supervise work routines
- RTE4516A Control Phase II mushroom substrate process.

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:

- monitor and manipulate all interactions between inputs, conditions and outputs for each stage of substrate process
- record and analyse production data
- establish and review farm procedures for mushroom substrate preparation
- set and monitor productivity standards and resources required to achieve them
- comply with OHS requirements and procedures and ensure compliance of other personnel.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed on a mushroom farm or substrate preparation facility 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 manage mushroom substrate preparation.

The candidate must also have access to the following resources:

- machinery and equipment appropriate to growing system in use on farm
- personnel whose work requires management
- copies of farm procedures and work instructions (or samples)
- PPE.

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 manage mushroom substrate preparation must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within mushroom farms using different growing equipment such as trays, shelves or tunnels.
RTE4516A Control Phase II mushroom substrate process

Unit Descriptor
This unit of competency applies to work in the mushroom industry and specifies the outcomes required to manage and control the Phase II stage of the mushroom substrate preparation process.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency supports the role of a manager on a mushroom farm who is involved in managing the Phase II stage of the mushroom substrate preparation process.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Confirm the requirements for Phase II mushroom substrate preparation.

   1.1 Phase II mushroom substrate process is monitored and managed to ensure that process is performed according to farm procedures and schedules, and that all equipment is operated safely and according to manufacturer instructions.

   1.2 Checks are made to ensure all temperature probes are functioning correctly.

   1.3 Occupational health and safety (OHS) requirements and hazards associated with Phase II process are identified and appropriate action is taken to minimise risks.

   1.4 Personal protective equipment (PPE) and clothing are selected and used according to farm OHS procedures.

   1.5 Site quarantine protocols and farm and personal hygiene requirements are determined, applied and monitored as required by farm procedures.

   1.6 Condition and quality of compost are assessed before filling and any required remedial action is communicated according to farm procedures.
2. Carry out Phase II process.

2.1 Placement of probes in air and substrate is monitored to ensure placement complies with required farm procedures.

2.2 The evenness of filling and amount filled are checked.

2.3 Room or tunnel is checked at completion of filling to ensure that doors are secure and vents and thermostats are set according to farm procedures.

2.4 **Key factors and critical points** are measured and recorded legibly and accurately according to farm procedures.

2.5 Equipment settings are adjusted as required and according to farm procedures to ensure optimum conditions for each Phase II sub-stage.

2.6 Random representative samples are taken for laboratory chemical testing.

2.7 Ammonia measurements are taken or ammonia levels assessed prior to cooldown for spawning.

2.8 Feedback on performance is provided to personnel under supervision.

2.9 Own performance is assessed, feedback on performance sought and any required improvements are noted for future action.
REQUIRED SKILLS AND KNOWLEDGE
This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
- accepting responsibility for quality of own work
- contributing to productive work environment
- developing work schedules
- explaining quality standards and task requirements to personnel
- maintaining safety of self and others
- managing own work and that of others
- monitoring and recording key parameters
- observing employment requirements
- promoting workplace cooperation.

Required knowledge:
- basic interpretation of chemical test results
- concept of compost selectivity and biological indicators of compost quality
- factors influencing air quantity and distribution
- farm standards and procedures, including those relating to OHS, food safety, hazard analysis critical control point (HACCP), quality systems, emergency procedures, organisational structure and workplace communication channels and protocols
- industry and workplace awards and conditions
- key parameters to be recorded and monitored relating to temperature, ammonia and moisture content
- knowledge of how different systems (shelf, tray and tunnel) impact on temperature zones in substrate
- knowledge of objectives and desired parameters of each sub-stage of Phase II substrate preparation
- overview of Phase I compost production and how it impacts on Phase II process
- relevant legislation and industry codes of practice
- site quarantine protocols
- understanding of importance of correct probe placement and calibration.

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.

Farm procedures may include:
- enterprise standard operating procedures
- food safety
- HACCP
- industry best practice guidelines
- legislative and regulatory requirements such as OHS procedures
- manufacturer service specifications and operator manuals
- production schedule
- routine maintenance schedules
- work notes.
**OHS requirements and hazards** may include:

- general OHS procedures such as:
  - appropriate use of PPE
  - assessing and reporting risks
  - basic first aid
  - identifying hazards
  - maintaining personal hygiene
  - safe operation of tools and equipment
- OHS hazards associated with Phase II process such as:
  - ammonia gas
  - confined spaces
  - electricity
  - high temperatures
  - noise
  - slippery or uneven surfaces
  - substrate-borne micro-organisms
- risk minimisation procedures such as:
  - following farm procedures
  - restricting access of other personnel to work area
  - wearing appropriate PPE.

**PPE and clothing** may include:

- boots
- fluoro safety vests
- gloves
- overalls
- respirator.

**Remedial action** may include:

- adjusting process parameters according to farm procedures, such as thermostat and damper settings when temperatures are not within required range or at correct set point
- arranging for urgent maintenance or short-term repairs where equipment is not serviceable
- making checks and adjustments such as:
  - filling that do not meet farm standards:
  - adding water or altering filling density
  - machinery and equipment
- provision of instructions to other personnel.

**Key factors and critical points** to be monitored and recorded include:

- air and substrate temperature at intervals specified in farm procedures
- air damper setting
- ammonia content at 'kill' and during conditioning
- fan speeds
- length of time at each sub-stage of process (e.g. levelling, 'kill' and conditioning)
- oxygen content where equipment available
- substrate's structure, colour, moisture content, texture, amount of free water and smell (anaerobic and ammonia).
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.

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:

- differentiate between Phase I substrate and substrate ready for spawning and describe desired parameters of each stage
- monitor and manage Phase II process for at least eight crops
- assess room or tunnel layout and determine most appropriate locations for taking substrate and air measurements
- carry out effective troubleshooting during Phase II process.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed on a mushroom farm or a Phase II facility 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 control Phase II mushroom substrate process.

The candidate must also have access to the following resources:

- a Phase II facility and equipment appropriate to growing system in use on farm
- copies of farm procedures and work instructions (or samples)
- samples of crop records.
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 control Phase II mushroom substrate process must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within mushroom farms using different growing equipment such as trays, shelves or tunnels.
RTE4517A Manage organic soil improvement

Unit Descriptor

This unit of competency specifies the outcomes required to improve and manage soils for organic production. The unit involves taking samples of soil and plant tissue and analysing results. It also requires improving soil fertility in response to sample testing by modifying cultivation practices. Competency in this unit requires knowledge of the processes of soil formation and interactions between the soil, plants and animals.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency applies to people working on a farm that is managed according to the principles of organic agriculture. Work is likely to be done without formal supervision and according to the requirements of the National Standard for Organic and Biodynamic Produce.

Unit Sector

No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Monitor indicators of soil fertility.

1.1 Work is undertaken in an environmentally appropriate manner and according to workplace information, principles of organic agriculture, occupational health and safety requirements and enterprise guidelines.

1.2 Soil testing is conducted at reference sites according to enterprise procedures and organic industry standards.

1.3 Soil acidity or alkalinity (pH), mineral balances and organic matter levels are assessed and recorded.

1.4 Soil texture, structure, salinity and sodicity are assessed and recorded.

1.5 Results are analysed to identify trends and areas for improvement.

2. Assess soil-related factors for selected plants.

2.1 Nutritional requirements of selected plant species are identified.

2.2 Soil analyses to be conducted and suitable testing facilities are selected.

2.3 Soil and plant tissue sample collection is conducted according to enterprise procedures and requirements of testing facility.

2.4 Results of soil and tissue testing are analysed in relation to requirements of the farming system.

2.5 Soil condition is assessed for drainage, compaction, aeration and water infiltration in relation to requirements for desired plant growth for selected species.

2.6 Soil biological activity is assessed by identifying and evaluating presence of organisms.

2.7 Soil health is assessed by identifying and evaluating plant species present.
3. Select and implement allowable techniques and inputs to optimise soil fertility.

3.1 Range of allowable inputs is identified according to requirements of the National Standard for Organic and Biodynamic Produce.

3.2 Suitable nutrient cycling techniques are identified and evaluated.

3.3 Appropriate inputs are calculated, based on soil/plant analyses, crop removal and plant/animal observations.

3.4 Cover crop and pasture systems are selected and managed.

3.5 Mulching and composting systems are developed, applied and monitored.

3.6 Rotations to optimise soil fertility are designed and implemented.

3.7 Cultural practices to enhance soil fertility are selected and implemented.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• applying organic soil improvements, such as compost
• assessing biodiversity and plant health through observation of plant community
• observing animal health and relating it to plant and soil nutrient status
• operating equipment safely
• recording and interpreting results of soil tests
• sampling soil and plant tissues.

Required knowledge:

• availability, use and definition of commercial organic fertilisers
• different structural properties of soils
• factors contributing to soil acidity, sodicity and salinity
• factors promoting soil and plant water-holding capacity
• importance of soil biological activity
• major nutrient elements and their role in plant growth
• methods and inputs that can be used to correct imbalances and maintain soil fertility
• principles of organic agriculture
• processes and practices that impact on soil structure, biological activity, water-holding capacity and weed patterns
• processes of aggregate and colloid formation
• range of soil analyses available and benefits and drawbacks of each
• relationship between soil structure and fertility
• role of organic matter, humus and micro-organisms
• role of livestock in enhancing soil fertility
• role of macro and micro-elements in soil and plants
• role of weeds
• significance of levels and balance of soil fertility indicators
• soil food chains and food webs
• soil textural types and determinants
• when and how to take soil samples to test for indicators of soil fertility.
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.

**Principles of organic agriculture** include:

- demonstrating integrity in organics
- integrating the farm
- learning from nature and human culture
- managing soil to increase health of whole system
- reading the landscape
- understanding farm ecology.

**Mineral balance** criteria should be applied according to:

- ratios identified by the Albrecht testing method.

**Allowable inputs** listed in the National Standard for Organic and Biodynamic Produce apply to:

- farm diary or logbook records
- plant and animal pest and disease control
- soil conditioning
- soil fertilising.

Suitable nutrient **cycling techniques** include:

- biodynamic preparations
- compost teas
- composting
- inoculants
- livestock grazing
- mulching
- slashing.

Reasons for **mulching** using a range of allowable inputs to cover soil include:

- cooling soil or preventing frost damage
- moisture retention
- treating sunburn or transplant shock
- weed suppression.

Requirements for aerobic and anaerobic **composting systems** may include:

- heat
- inputs
- maturity
- time
- processing techniques and parameters approved by the National Standard for Organic and Biodynamic Produce.

**Rotations** include:

- use of different plants or animals cropped or grazed in a cyclical sequence.
**Cultural practices**

include:

- physical practices such as:
  - cultivation and harrowing
  - deep ripping
  - grazing
  - hand pulling
  - pruning
  - slashing
- other non-chemical techniques.

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**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.

**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:

- understand and apply principles of organic agriculture
- understand and apply knowledge of interrelationships between soil fertility, animals, plants, pests and diseases
- devise and implement a soil improvement plan to correct imbalances and maintain soil fertility
- analyse soil test results for a range of indicators of soil fertility
- work with natural processes and allowable inputs to improve and maintain soil fertility.

**Context and specific resources for assessment**

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in an organic production workplace or in a situation that reproduces normal work conditions.

For valid assessment, one must have opportunities to participate in a range of exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge required to manage organic soil improvement.

The candidate must also have access to the following resources:

- sampling equipment
- diagnostic services or reports for interpretation
- farm with equipment such as manure/compost spreader and cultivation implements.
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 manage organic soil improvement must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work with soils in different areas or on properties producing different crops or raising livestock.
RTE4518A
Unit Descriptor

Manage biodynamic production

This unit of competency specifies the outcomes required to manage a farming system according to the principles and using the practices of biodynamic agriculture. The unit requires the ability to make and apply biodynamic preparations and compost, to plan for biodynamic production, and to manage a biodynamic enterprise.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency applies to people working on a farm that is managed according to the principles of biodynamic agriculture. Work is likely to be done without formal supervision and according to the requirements of the National Standard for Organic and Biodynamic Produce.

Unit Sector

No sector assigned

<table>
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<tr>
<th>ELEMENT</th>
<th>PERFORMANCE CRITERIA</th>
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| 1. Prepare a plan for a biodynamic farming enterprise. | 1.1 Work is undertaken in an environmentally appropriate manner and according to occupational health and safety requirements and enterprise guidelines.  
1.2 Requirements for biodynamic certification are identified.  
1.3 Personal, ecological and financial goals for a biodynamic enterprise are incorporated into an enterprise plan.  
1.4 Marketing plan for biodynamic produce is developed which maintains product quality and integrity.  
1.5 Research findings for biodynamic agriculture are trialled within enterprise and incorporated into plans where appropriate. |
| 2. Make and apply biodynamic field spray preparations. | 2.1 Horn Manure (500), Horn Silica (501) and Horn Clay preparations are made and stored correctly.  
2.2 Preparations are stirred by creating vortex and chaos.  
2.3 Equipment for application of biodynamic preparations is selected.  
2.4 Equipment is calibrated and adjusted for suitable application rate.  
2.5 Preparations are applied according to biodynamic principles. |
| 3. Use biodynamic compost preparations, composts and liquid brews. | 3.1 Biodynamic compost preparations are used and stored according to biodynamic principles.  
3.2 Materials and mineral inputs for compost are identified from farm production plan.  
3.3 Compost heap is built.  
3.4 Biodynamic preparations are applied to compost according to biodynamic principles.  
3.5 Aeration, moisture and temperature of compost heap are monitored.  
3.6 Compost is applied to enhance natural cycles. |
4. Apply biodynamic principles and techniques to enhance soil and plant health.

4.1 Planting, harvest and pruning times are planned with regard to **moon rhythms and planetary patterns**.

4.2 Soil and plant health is optimised using biodynamic preparations, cover crops, crop rotation, mulching and composting and through application of **farm-based fertility products**.

4.3 Weeds and insect pests in enterprise are identified.

4.4 Options for managing weeds and insects are evaluated that consider natural predators, life cycles, **cultural practices**, soil health and the plant community.

4.5 Plan for managing pests and weeds is developed and implemented.

5. Manage animals within a biodynamic production system.

5.1 Soil and plant health are optimised to provide a nutrient-dense and balanced diet.

5.2 **Grazing and feeding strategies** are developed and incorporated into biodynamic system.

5.3 Homeopathic remedies and **allowable treatments** are incorporated into animal health strategies.
REQUIRED SKILLS AND KNOWLEDGE
This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• analysing soil test results and applying them to a biodynamic farm
• calibrating sprays and calculating application rates
• developing a biodynamic management plan (from start-up to full implementation)
• developing biodynamic spray programs for various types of agriculture and horticulture systems
• making and using biodynamic compost, manure concentrate, seaweed tea, various liquid brews and foliar sprays
• making and using biodynamic preparations
• stirring and spraying systems
• stirring water and other liquids by creating vortexes and chaos
• using planetary rhythms for seed sowing and cultivation.

Required knowledge:

• animal health
• biodynamic preparations and their role in soil food web and atmosphere
• biodiversity, shelter belts, birds and native bush on biodynamic farm
• calcium-clay-silica polarities
• crop and animal rotation systems
• cultivation methods
• etheric and astral forces and how they relate to biodynamics
• experiments and testing methods such as chromatography and sensitive crystallisation
• green manuring
• management of insects and birds
• paradigms of various farming systems: biodynamics, organics and permaculture, and holistic management
• peppering for animals and insects
• planting calendar
• purpose of various herbs and organs used for making biodynamic preparations
• relationship between soil, plant, animal and human health
• research in biodynamics
• rhythms and cycles of planets and moon
• role of the biodynamic preparations 500-5 08
• role of bacteria and fungi
• role of humus
• soil: food web information, how it is made, its structure and feeding cycle
• water retention
• weed management.
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.

References for biodynamic principles include:

- Biodynamic Resource Manual, first edition, Biodynamic Agriculture Australia
- Proctor, P 1997, Grasp the Nettle: Making Biodynamic Farming and Gardening Work, Random House, Auckland, NZ

Production plan should include:

- information relating to soil fertility program such as:
  - animal rotation program
  - biodynamic spray program
  - composting
  - crop rotation
  - green manuring
  - pasture management program
  - weed management
- additional information relating to topics such as:
  - biodiversity
  - certification
  - marketing
  - riparian zone management
  - supply chain
  - value adding.
- building soil fertility by:
  - using biodynamic preparations, biodynamic solid and liquid composts
  - green manures and rock dusts
  - increasing fungal and bacterial foods
  - building organic matter
  - rectifying soil drainage.

Moon rhythms and planetary patterns that should be considered include:

- annual and monthly planetary cycles
- apogee and perigee cycles
- ascending
- descending
- moon cycles
- moon nodes
- moon opposite Saturn
- retrograde planetary cycles
- waxing and waning moon cycles.
**Farm-based fertility products** may include:
- biodynamic preparations
- blood and bone brew
- compost
- fish emulsion
- manure concentrate
- seaweed tea
- weed teas.

**Cultural practices** may include:
- ashing
- burial and lifting Horn Manure and Horn Silica
- making and applying peppers
- timing of spraying preparations.

**Grazing and feeding strategies** may include:
- parasite management
- pasture management cycles
- rotational feeding cycles.

**Allowable treatments** for animal health may include:
- allowed substances from National Organic Standards for Organic Livestock Production such as:
  - kelp
  - licks
  - herbal remedies
  - homeopathic remedies
  - potentised peppers.

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**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.

**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:
- understand and apply biodynamic principles
- make and apply biodynamic preparations and compost
- enhance soil and plant health
- integrate and manage animals in a biodynamic enterprise
- plan for biodynamic production.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will be most appropriately assessed in a biodynamic workplace or 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 manage biodynamic production.

The candidate must also have access to the following resources:

- soil testing equipment
- materials and equipment to prepare and apply biodynamic preparations
- planetary charts and the Antipodean Astro Calendar
- an area of land with which to work.

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 manage biodynamic production must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work on biodynamic farms producing a variety of produce.
RTE4519A Develop a composting recipe

Unit Descriptor

This unit of competency specifies the outcomes required to calculate composting recipes from documented formulas that can be followed in the preparation and mixing of raw materials of known characteristics in specified proportions for composting.

The unit involves applying a broad knowledge base to identify and apply solutions to a range of unpredictable problems, and taking responsibility for production outputs in relation to specified quality standards.

Employability Skills

This unit contains employability skills.

Application of the Unit

Composting is used as a general expression for the processing of organic materials; with this unit being relevant for both aerobic composting and vermiculture technologies.

This unit of competency applies to people working at a commercial-scale composting facility. It will require taking responsibility for own work output and that of others, for example as a site foreman or operations supervisor.

Where work requires the use of load shifting or other equipment, appropriate training/certification must be provided according to state and territory safety and licensing requirements.

Unit Sector

No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Identify and characterise raw materials.
   1.1 **Raw materials** are visually identified and categorised against established enterprise criteria.
   1.2 Raw material **characteristics** are entered into enterprise compost recipe calculator to achieve a balanced recipe.
   1.3 Where raw material identity or characteristics are uncertain or unknown, designated personnel are requested to take representative samples of material for laboratory analysis.
   1.4 Receival and handling requirements for raw materials are determined.

2. Establish production objectives.
   2.1 Identified market requirements and priorities are translated into product specifications using product performance data and enterprise records.
   2.2 Raw material combinations that can potentially meet market requirements are identified.
3. Calculate compost recipe.

3.1 Raw material characteristics are recorded in enterprise compost recipe.

3.2 Raw material proportions or ratios suitable for composting by the enterprise by a particular technology and method are specified by weight in resulting compost recipe.

3.3 Pre-processing requirements of raw materials, feasible volumes of compost upon formation, and compost production plan are determined.

3.4 Composting batch management procedures are reviewed and any required variations to standard management procedures are defined and documented as a new procedure.

3.5 Compost production schedule is estimated and documented.

3.6 Compatibility of resulting compost recipe and production schedule is confirmed against documented customer requirements and priorities.

3.7 Density of pre-processed raw materials is quantified, and weight-based recipe is translated into volume-based recipe for production.

3.8 Volumetric compost recipe and production procedures are recorded as operational batch or bucket recipe and procedure.

4. Validate compost recipe.

4.1 Raw materials are pre-prepared and mixed according to new compost recipe to form feedstock for composting.

4.2 Composting batch is managed according to revised enterprise procedure.

4.3 Composting process is monitored for efficiency in relation to estimated production schedule and enterprise requirements.

4.4 Environmental and occupational health and safety (OHS) aspects and impacts are monitored for compliance with enterprise plan and regulatory requirements.

4.5 Faults, variations or problems observed at any stage of process are identified and remedial action is carried out to maintain effective compost production.

4.6 Sampling and testing of material during composting is conducted to determine completion of production process.

4.7 End product quality is evaluated against established product specifications.

4.8 Compost recipe, production schedule and procedures are revised to improve process efficiency and reliability, and product compliance with defined specifications.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- documenting procedures in writing
- interpreting and applying written procedures and formulas
- reading and interpreting laboratory results
- reading and interpreting sampling and testing data
- using a computer.

Required knowledge:

- control of hazards in handling raw materials and composting materials
- processing duration required for various raw materials
- range of commercial compost-based products
- raw materials and their characteristics
- relationship between key compost recipe variables and compost production
- systems, technologies and methods in compost production.

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.

**Raw materials or compostable organic materials may include:**

- animal mortalities
- biosolids such as sewage sludge
- crop residuals
- dairy waste
- fats and oils
- food organics such as:
  - food waste
  - kitchen waste
  - food processing waste
- forestry residuals
- manures
- organic sludges
- other organic waste or by-product of processing
- paper mill wastes
- paper-based materials
- plant materials such as:
  - garden organics
  - green organics
  - green waste
  - yard waste
- sawdust and wood shavings
- sewage facility grit and screenings
- wood and timber (non-treated).
Raw materials can be **characterised** by their:

- physical, chemical or biological properties
- point of origin and any associated issues arising such as variability in material qualities.

**Compost recipe:**

- is a mixture of materials that results in characteristics suitable for rapid and reliable biological transformation while minimising potential for negative environmental emissions
- compost recipe calculations may involve:
  - simple calculations that can be carried out by hand or using a computerised spreadsheet
  - determination of carbon to nitrogen (C:N) ratio with suitable moisture content, structure and porosity for efficient and trouble-free composting for a given site and processing method
- key variables in compost recipe that need to be balanced such as:
  - C:N ratio
  - moisture content
  - other nutrients
  - acidity or alkalinity (pH)
  - structure and porosity.

**Pre-processing** of raw materials commonly involves:

- immediate incorporation with absorbent raw materials
- materials size reduction
- moisture adjustment through such things as addition of water
- particle size screening
- physical contaminant removal.

**Compost production plan** may include:

- additional water required
- compost recipe
- final product or market specifications to be met
- handling and pre-processing requirements for raw materials
- maximum size of compost pile for effective management with available machinery
- monitoring schedule
- processing duration
- value adding required.
**Environmental** aspects and impacts of production may include:

- attraction of pests
- emissions from vehicle and machinery operations
- erosion
- fire
- leaks
- litter
- noise
- odours
- organic dusts
- spills
- water pollution from run-off or leachate.

**OHS hazards** may include:

- biological hazards associated with raw materials or product
- ergonomic hazards associated with manual handling
- physical hazards such as:
  - compressed air and water
  - dust
  - hammer mills and grinders
  - hot or cold weather conditions
  - noise
  - shredders
  - underfoot conditions
  - vehicles and mobile machinery
  - sharps or other physical contaminants in materials.

**Remedial action** may include:

- action taken in response to problems identified by self or others or at direction of manager such as:
  - actions carried out to maintain effective and consistent compost production
  - adjustments to compost batch management
  - adjustments to processing technique.

**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 such as after:

- RTE3512A Prepare raw materials and compost the feedstocks
- RTE3513A Prepare value-added compost-based products
- RTE3713A Carry out workplace OHS procedures
- RTE3714A Maintain and monitor environmental work practices.
The critical requirements for this unit of competency as a whole are listed below.

Assessment must confirm one's ability to:

- calculate a compost recipe that is consistent with the technology and method available from combinations of raw materials
- produce a compost recipe that will achieve defined product specifications
- document compost production plan consistent with plant capabilities and site constraints.

Assessment for this unit of competency is to be largely practical in nature and must be assessed in a commercial-scale composting facility or in a situation that reproduces and/or simulates operational conditions.

For valid assessment, one should have opportunities to participate in exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge specified in this unit.

The candidate should also have access to the following resources:

- a range of load-shifting equipment
- hand tools and equipment such as temperature probe, oxygen probe, mulch fork, gloves and shovel
- personal protective equipment
- raw materials for assessment, recognition and preparation
- drying oven for testing
- electronic balance or scales
- batch recording forms and compost recipe forms
- water and irrigation system
- compost recipe calculators, either manual or electronic
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 demonstrate competency must allow for application in a broad industry context, and should be transferable to a range of work environments, including the ability to deal with unplanned events. For example, this could include work within composting operations of varying scale; processing a range of different raw materials; producing a range of different composts and value-added products to meet the demands of different markets; located in an urban or rural context with varying environmental constraints; and using various equipment, practices, technologies and management systems.
RTE4520A Plan and schedule compost production

Unit Descriptor
This unit of competency specifies the outcomes required to plan and schedule composting operations to meet production requirements.

The unit involves applying a broad knowledge base to identify and apply solutions to a range of unpredictable problems, and taking responsibility for production outputs in relation to specified quality standards.

Employability Skills
This unit contains employability skills.

Application of the Unit
Composting is used as a general expression for the processing of organic materials; with this unit being relevant for both aerobic composting and vermiculture technologies.

This unit of competency applies to people working at a commercial-scale composting facility. It will require taking responsibility for own work output with checking related to overall progress, and taking responsibility for the work output of others for example as a site foreman or operations supervisor.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Establish production requirements.
   1.1 Raw material supply contracts and receival data, sales and market trend information, and corporate marketing plan and strategy are reviewed to quantify production requirements.
   1.2 Conditions that may affect production requirements are identified in consultation with executive management and designated sales and marketing personnel.
   1.3 Production requirements across product portfolio to meet customer requirements and site and equipment capacity are estimated in consultation with executive management and designated sales and marketing personnel.
   1.4 Environmental and occupational health and safety (OHS) impacts are monitored for compliance with enterprise plan and licence conditions.
   1.5 Production plan is documented and submitted for executive management approval.
   1.6 Facilities, personnel, machinery and equipment required for compost production are confirmed as being available.
   1.7 Contingency plan to address potential oversupply or undersupply of raw material or product is developed and documented.

2. Schedule production to meet requirements.
   2.1 Batch types and volumes of compost-based products to be produced are calculated.
   2.2 Laboratory and field test data of compost materials during and post-production is obtained.
   2.3 Production schedule is monitored and adjusted according to field and laboratory test results.
   2.4 Product is made available to customer in required quantities, to required quality and at required time.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- analysing and interpreting supply contract documents, production data, weighbridge/receival data, field and laboratory results
- documenting procedures in writing
- identifying and diagnosing problems with production
- interpreting and applying written procedures and formulas
- using a computer
- visually recognising problematic mixtures of raw materials for composting.

Required knowledge:

- control of hazards in handling raw materials and product
- processing duration required for various raw materials
- raw materials and their characteristics
- relationship between key compost recipe variables and compost production
- systems, technologies and methods in compost production.

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.

Raw materials or compostable organic materials may include:

- animal mortalities
- biosolids such as sewage sludge
- crop residuals
- dairy waste
- fats and oils
- food organics such as:
  - food waste
  - kitchen waste
  - food processing waste
- forestry residuals
- manures
- organic sludges
- other organic waste or by-product of processing
- paper mill wastes
- paper-based materials
- plant materials such as:
  - garden organics
  - green organics
  - green waste
  - yard waste
- sawdust and wood shavings
- sewage facility grit and screenings
- wood and timber (non-treated).
Compost production plan may include:

- additional water required
- compost recipe
- final product or market specifications to be met
- handling and pre-processing requirements for raw materials
- maximum size of compost pile for effective management with available machinery
- monitoring schedule
- processing duration
- value adding required.

Environmental aspects and impacts of production may include:

- attraction of pests
- emissions from vehicle and machinery operations
- erosion
- fire
- leaks
- litter
- noise
- odours
- organic dusts
- spills
- water pollution from run-off or leachate.

OHS hazards may include:

- biological hazards associated with raw materials or product
- ergonomic hazards associated with manual handling
- physical hazards such as:
  - compressed air and water
  - dust
  - hammer mills and grinders
  - hot or cold weather conditions
  - noise
  - shredders
  - underfoot conditions
  - vehicles and mobile machinery
  - sharps or other physical contaminants in materials.

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.
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:

- identify and interpret relevant information and conditions that could influence production
- produce and document a production schedule
- document compost production plan consistent with enterprise capabilities and constraints
- develop and document contingency plans.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and must be assessed in a commercial-scale composting facility or in a situation that reproduces and/or simulates operational conditions.

For valid assessment, one should have opportunities to participate in a range of exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge specified in this unit.

The candidate should also have access to the following resources:

- supply contracts
- materials receipt and sales data
- enterprise marketing plan
- enterprise marketing strategy
- batch recording forms and compost recipe forms
- sample production schedules
- compost recipe calculators.

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 demonstrate competency must allow for application in a broad industry context, and should be transferable to a range of work environments, including the ability to deal with unplanned events. For example, this could include work within composting operations of varying scale; processing a range of different raw materials; producing a range of different composts and value-added products to meet the demands of different markets; located in an urban or rural context with varying environmental constraints; and using various equipment, practices, technologies and management systems.
**RTE4814A Provide information and referrals on environmentally responsible fertiliser and soil ameliorant use**

**Unit Descriptor**
This unit of competency specifies the outcomes required to provide information and referrals on fertilisers, soil ameliorants and related environmental information to primary producers.

**Employability Skills**
This unit contains employability skills.

**Application of the Unit**
This unit of competency applies to people employed in a sales role in an agricultural or horticultural support enterprise.

**Unit Sector**
No sector assigned

### ELEMENT PERFORMANCE CRITERIA

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>PERFORMANCE CRITERIA</th>
</tr>
</thead>
</table>
| 1. Gather information about the customer's fertiliser or soil ameliorant requirement. | 1.1 *Basis* of customer’s *fertiliser or soil ameliorant* requirement is identified.  
1.2 Planned use of fertiliser or soil ameliorant is evaluated against legislative requirements, *local* productivity and *environmental guidelines and food safety regulations*.  
1.3 *Soil, plant tissue and water samples* are taken as required.  
1.4 Where appropriate, customer is provided with relevant sampling kits and advice on required sampling processes to be followed. |
| 2. Provide information on good nutrient management program/environmental stewardship for the planned use. | 2.1 Information and referrals about the fertiliser and soil ameliorant product are provided to customer, with particular reference to occupational health and safety (OHS), food safety and environmental issues and according to industry codes of practice.  
2.2 Use of *nutrient management tools* is recommended where necessary.  
2.3 Changes to *application method* and/or *timing* are suggested if necessary. |
| 3. Provide necessary service or product. | 3.1 Customer is referred to an appropriately qualified specialist adviser if required.  
3.2 Customer is supplied with information and recommendations regarding transporting, storing and handling fertiliser and soil ameliorants in a safe and environmentally responsible manner.  
3.3 Where required by customer, the *transport, handling and storage* of fertiliser and soil ameliorants in a *safe and environmentally responsible manner* are arranged.  
3.4 Fertiliser and soil ameliorants are supplied that meet *legislative requirements* and productivity, food safety and environmental guidelines.  
3.5 Details of transaction are recorded according to enterprise and industry guidelines. |
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• reading product and application information, and adviser recommendations
• taking soil, water and plant tissue samples
• analysing fertiliser and soil ameliorants from information included on a product card or label
• communicating orally and in writing
• using safe and environmentally responsible work practices.

Required knowledge:

• areas of environmental concern in the local district
• chloride and salinity issues
• crop nutrients, particularly nitrogen and phosphorus, but also potassium, sulphur, calcium, magnesium and trace elements
• effect of soil ameliorants in dispersion and adjustment for acidity or alkalinity (pH)
• fertiliser and soil ameliorant application methods, including timing and frequency of fertiliser and soil ameliorant application to minimise losses
• fertiliser and soil ameliorants in common use in Australia and local area
• fertiliser security
• legislative requirements relating to the transport, handling and storage of dangerous goods, hazardous substances and scheduled poisons
• local farming practices and crops and pastures grown
• local fertiliser and soil ameliorant programs, including rates, application methods, timing and frequency of fertiliser and soil ameliorant application and how these aspects of the programs fit environmental guidelines
• local sources of technical information
• major nutrient management risks of leach, run-off, load, blow, mine and how these relate to the main environment-related issues
• nutrient management advisory tools and processes used by advisers in making a crop nutrition recommendation
• organisational OHS procedures, practices and policies in operating sampling equipment
• packaging and dispatch procedures for samples
• physical, chemical and biological properties related to a healthy soil and environment, including texture, structure, slaking, dispersion, organic matter and pH
• rainfall patterns in local area
• sampling tools and methods, including soil, plant tissue and water tests; yield monitoring; and electrical conductivity survey
• structural decline, fertility decline, acidification, salinity, fertiliser and soil ameliorant impurities, and greenhouse gas emissions
• transport, handling and storage requirements of fertiliser and soil ameliorants in terms of environmental stewardship and human safety.
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.

A fertiliser or soil ameliorant requirement should be based on:

- local district guidelines
- nutrient management tools
- use of a nutrient management plan.

Fertiliser or soil ameliorants that form part of a nutrient management plan include:

- inorganic or organic solids and fluids applied directly to soil or plant via foliar sprays such as:
  - liquefied gases
  - solutions
  - suspensions
- nitrogen input from leguminous green manure crops or leguminous pastures
- soil ameliorants such as:
  - any by-product used to change soil pH balance or soil calcium level
  - gypsum
  - liming products including:
    - dolomite
    - mixtures of lime and magnesium oxide
- quantity of fertiliser and soil ameliorant required is calculated using variables such as:
  - number of hectares to be treated
  - fertiliser and soil ameliorant application rate determined by:
    - plant/soil nutrient analyses
    - nutrient management plan
  - nutrient management/interpretive tool.

Local guidelines may include:

- catchment management guidelines
- common local conventions and environmental standards which apply to:
  - application method
  - fertiliser and soil ameliorant used
  - frequency of application
  - rate of application
  - timing of application
- district best practice guidelines.
Environmental guidelines and food safety regulations may include:

- application method and placement
- exclusion distances from water courses
- guidance relating to environmental risk factors such as:
  - blow and mine
  - leach
  - load
  - run-off
- irrigation management as related to soil type
- limits placed on fertiliser and soil ameliorant use by environmental agencies or catchment natural resource management strategies and plans
- nutrient source used
- rate of application
- soil conservation measures
- time of year to apply fertiliser or avoid application as related to soil moisture or rainfall events
- timing and frequency of application
- water quality management.

Procedures for representative collection and sample handling of soil, plant tissue and water samples include:

- sample collection and handling based on Australasian Soil and Plant Analysis Council (ASPAC) guidelines
- samples sent to an accredited laboratory
- soil, plant tissue and water sampling guidelines from ASPAC.

Nutrient management tools may include:

- interpretive tools used by advisers
- nutrient budgeting
- nutrient management plan which may consist of:
  - consideration of production and environmental implications
  - documentary evidence of assessment of nutrient status
  - expected yield
  - fertiliser and soil ameliorant applied
  - nutrient/soil ameliorant requirements
  - order for fertiliser or soil ameliorant
- soil salinity and/or pH survey
- soil, plant tissue, sap and water testing
- yield and/or protein monitoring.
Application methods that apply to fertiliser and soil ameliorants to ensure better production and environmental outcomes may include:

- banding methods such as placement relative to:
  - roots
  - seed
  - seedling
- foliar methods such as spraying by:
  - aerial
  - ground rig
- lateral placement in row crops
- soil incorporated methods such as:
  - drilled
  - fertigation
  - injected
  - surface applied followed by cultivation
- surface methods such as broadcast, including:
  - aerial
  - ground rig.

Application timing factors that apply to fertiliser and soil ameliorants may include:

- variables in relation to crops:
  - pre-sowing
  - at sowing
  - post-sowing
  - at defined crop stages
  - post-harvest
- variables in relation to pastures:
  - as defined by environmental guidelines
  - by season
  - mindful of animal health issues
  - post-grazing.

Transport, handling and storage of fertiliser and soil ameliorants may involve:

- relevant legislation and codes of practice or enterprise work procedures in relation to:
  - environment
  - OHS
  - security.

Procedures for performing tasks in a safe and environmentally responsible manner are contained in:

- appropriate industry or enterprise’s codes of practice
- Australian Fertiliser Services Association (AFSA) code of practice.

Legislative requirements for supply of fertiliser and soil ameliorant require that:

- customer is provided with appropriate information at point of sale such as:
  - product labels
  - product warning statements
  - material safety data sheets (MSDS)
- supplier fulfils a duty of care towards the customer.
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.

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:

• determine customer requirements
• take soil, plant tissue and water samples
• use and explain use of nutrient management tools
• identify when a customer should be referred to a specialist adviser
• understand relationship between soil types, water, crops, fertiliser and soil ameliorant use
• understand and explain to customers legislative requirements relating to use of fertiliser and soil ameliorants, including requirements relating to environmentally responsible use, food safety and security.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in the 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 provide information and referrals on environmentally responsible fertiliser and soil ameliorant use.

The candidate must also have access to the following resources:

- soils or soil sample results from the local area
- fertiliser and soil ameliorants, labels, MSDS and product cards
- soil, plant tissue and water sampling guides as used by a laboratory
- AFSA code of practice
- industry or enterprise code of practice relevant to the market serviced
- recommendation reports from fertiliser and soil ameliorant advisory tools used by specialist advisers
- local environmental guidelines
- Australian Cadmium Minimisation Strategy
- environmental protection plan in place in the local area.

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 provide information and referrals on environmentally responsible fertiliser and soil ameliorant use must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work with different crop segments, soil types, fertiliser and soil ameliorants or application methods. It could also include different areas with different topography, hydrology and associated environmental risk.
RTE4920A Develop harvesting and processing specifications to produce an olive oil

Unit Descriptor
This unit of competency specifies the outcomes required to develop harvesting and processing specifications for an olive oil that will produce the required quantity, style and quality of oil from an olive crop.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to people involved with the commercial-scale growing of olives for the production of olive oil. Work will typically be performed without supervision.

Unit Sector
No sector assigned

ELEMENT	PERFORMANCE CRITERIA

1. Specify the style and other characteristics desired of the olive oil.
   1.1 Desired properties of the olive oil are specified using standard industry terminology.

2. Establish the appropriate time and conditions for harvesting.
   2.1 Maturity of fruit is estimated using informal and formal methods, and according to enterprise and industry procedures.
   2.2 Harvest is scheduled so that fruit picked will produce desired quality, style and amount of olive oil.
   2.3 Range of harvest methods available is evaluated and the ones most likely to contribute to production of desired olive oil are selected.
   2.4 Where required, harvesting personnel are obtained and briefed about harvest requirements and procedures.

3. Specify post-harvest handling and processing method.
   3.1 Post-harvest handling and treatment for olive crop are specified using standard industry terminology.
   3.2 Processing method is specified using standard industry terminology.
   3.3 Packaging, storage and transport requirements for processed olive oil are specified using standard industry terminology.

4. Select an olive oil processor
   4.1 Details of suitable available processors are obtained.
   4.2 Criteria for selecting a processor are reviewed and applied.
   4.3 Most suitable processor is selected using predetermined criteria.
   4.4 Specifications and related processing requirements are agreed with selected processor and incorporated into a contract.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• judging crop maturity
• negotiating contract requirements
• oral and written communication
• researching available processors and methods of extraction
• tasting skills to assess olive oil style and quality.

Required knowledge:

• how an olive oil is produced from olives
• market preferences for styles of olive oil
• methods of olive oil extraction and advantages/disadvantages associated with each
• relevant legislation and regulations covering food safety, trade practices and contract law
• influence of processing on chemical composition of oil (polyphenols, aroma and flavour compounds)
• influence of various harvesting methods on olive oil style and quality (bitterness, pungency, aroma and flavour)
• post-harvest handling (including storage and transport) requirements for olive fruit intended for olive oil processing
• post-processing storage and handling requirements of olive oil.

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.

Methods used to estimate the maturity of the fruit may include:
• formal methods such as use of a maturity index
• informal methods such as:
  • skin colour observation
  • oil content by touch.

Details about suitable processors should include:
• availability, particularly at time of optimum maturity
• capability, supported by referees
• cleanliness, capacity and location of the mill
• commercial terms offered
• flexibility regarding processing parameters
• methods of extraction available
• price or processing fee
• type and condition of pre-processing handling and storage facilities
• type of olive milling.
Contractual requirements to be agreed may include:

- arrangements for delivery and collection of harvested crop
- cost per tonne of fruit processed
- delivery and collection of processed olive oil
- price paid for processing, or amount of oil traded in lieu of processing fee.

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 such as RTE4029A Assess olive oil for style and quality.

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:

- select an appropriate style of oil that can be produced from crop and describe it using standard industry terminology
- estimate fruit maturity
- arrange for appropriate method of processing to produce desired style and quality of oil.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in the workplace or in a situation that reproduces normal work conditions.

For valid assessment, one must have opportunities to participate in a range of exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge required to develop harvesting and processing specifications to produce an olive oil.

The candidate must also have access to the following resources:

- olive grove to assess maturity of crop
- processing mills (field visits).
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 develop harvesting and processing specifications to produce an olive oil must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include working with olive fruit grown in different regions or of different varieties. Decisions regarding harvesting and processing specifications will vary depending on these factors.
RTE5015A Manage the harvest of agricultural and horticultural crops

Unit Descriptor
This competency standard covers the process of planning for and implementing the harvest of agricultural and horticultural crops. It includes the estimation of the crop yield and value, the planning for resources that will be required, the negotiation of both insurance and equipment supply contracts, as well as planning for any emergencies that may occur. It requires the need to assess crop quality, and to budget and organise for the resources to arrive at the appropriate time and place.

Managing the harvest is likely to be undertaken without supervision, with only general guidance on progress sought from others. This unit requires a detailed practical knowledge of some areas such as crop measurement techniques and parameters, and market information and sources.

Unit Sector No sector assigned

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>PERFORMANCE CRITERIA</th>
</tr>
</thead>
</table>
| 1. Determine crop quality | 1.1 The potential **crop** yield is assessed by **measurements** made in the field.  
1.2 The potential quality of the crop is assessed by **testing the quality** parameters before harvest.  
1.3 The value of each crop is estimated using the measurements taken and assessments made before harvest. |
| 2. Determine crop readiness | 2.1 Pre-harvest samples are sent to the laboratory/marketing agent to determine the potential quality of the crop.  
2.2 Weather patterns are monitored to assist in estimating the rate of ripening.  
2.3 The crop maturity is monitored to anticipate when the crop will be at its optimum, and thus when the harvest will begin.  
2.4 The incidence of pests is assessed to determine the requirement for, and the type of, pre-harvest treatment.  
2.5 Pre-harvest treatments are selected to ensure that the crop meets market requirements.  
2.6 All OHS and environmental requirements are adhered to throughout the application of pre-harvest treatments. |
| 3. Assess the need for insurance | 3.1 If the crop is estimated to be of sufficient **value**, and where commitments were made to **insure** the crop, these commitments are honoured.  
3.2 Strategies to manage financial risk are analysed and assessed, and implemented where they are found to be appropriate |
4. Plan harvest strategy

4.1 The commencement date and the time span for harvest are estimated, so that the crop will be maintained in optimum condition.

4.2 The equipment and labour resources required for harvest are calculated from the size of the crop and the time limitations on the harvest.

4.3 The equipment and labour resources required are analysed against those available within the enterprise, and the amount of labour and equipment to be contracted is determined.

4.4 Any equipment preparation that is required prior to harvest is planned for, in order that it is ready at the appropriate time.

4.5 Where pre-harvest pest control treatments are to be applied, these are planned for according to the recommendations of the manufacturer and the legislative requirements.

4.6 Any requirements for licenses, permits and notifications are determined, and arrangements are made for these requirements to be met.

4.7 The order in which the harvest is to occur is determined, planned, and described in the plan.

5. Plan for OHS hazard management

5.1 All people involved in harvesting are made aware of the OHS hazards that may be present, their responsibilities for action, and the systems that are in place to deal with such hazards.

5.2 Suitable controls are put in place to minimise or eliminate the OHS hazards, and so reduce risks.

5.3 At each stage of the harvesting process, OHS hazards are monitored, identified and the associated risks are assessed.

6. Plan for fire prevention and control

6.1 The property is evaluated and the fire risks and hazards are identified where appropriate.

6.2 A fire prevention and control strategy that addresses the identified risks and hazards, and includes the measures to be taken, is prepared where appropriate.

6.3 The fire prevention and control strategy, and the specific measures to be taken are assessed to ensure that they meet legislative requirements where appropriate.

6.4 Fire breaks are prepared in the manner, and locations identified in the strategy, where appropriate.

6.5 Arrangements are made to ensure that firefighting equipment that is serviceable and meets appropriate fire authority standards and/or guidelines is available in the quantities prescribed by the strategy, where appropriate.

6.6 Community fire control practices are understood and put in place where appropriate.
7. Decide on storage and delivery requirements

7.1 **Storage** facilities for the crop are allocated and arrangements are made for the immediate delivery of the crop to packing sheds, the bulk handling system, or other purchasers.

7.2 Silos, storage bins and other containers are located to enable harvesting and transport operations to be as efficient as possible.

7.3 Any **OHS hazards** presented by silo operation are identified and practices put in place to reduce risk to the health of operators.

7.4 **Storage** is planned in such a way that it enables flexible marketing and distribution initiatives.

7.5 **Resources** required for crop transport are evaluated, and where contractors are required, they are engaged.

7.6 Where crops are to be dried, the strategies and resources for doing so are identified, ensuring safe working practices are enabled at all times.

8. Implement the harvest strategy

8.1 Where the weather patterns permit, pre-harvest pest control treatments are applied in the manner, and at the time, scheduled in the harvesting plan.

8.2 All OHS and environmental requirements are adhered to throughout the application of pre-harvest treatments.

8.3 All labour and equipment that is required for the harvest is organised to be ready and available at the scheduled place and time.

8.4 The harvest is begun at the scheduled time when the crop will be at its optimum.

8.5 All OHS practices are monitored throughout the harvest to ensure that staff and contractors work safely at all times.

8.6 The order of the harvest described in the harvesting plan is followed.

8.7 Harvesting operations are monitored regularly and adjusted to allow for weather, contracting and equipment maintenance needs.

8.8 Truck, tractor and harvester operators are instructed on procedures to deliver each crop load at maximum quality.

9. Segregate crop for quality

9.1 As the crop is harvested, it is monitored for quality and assessed against the quality expectations in the harvesting plan.

9.2 The quality of the crop is assessed throughout the harvest and segregated into the various marketing grades.

9.3 Each grade is located and stored in the appropriate place as determined by the harvesting plan.
10. Monitor moisture content

10.1 Where relevant, crops are monitored for moisture content against classification standards.

10.2 Weather patterns and forecasts are monitored to determine impact on moisture content.

10.3 Harvesting operations are adjusted, as required, to control moisture in stored crop.

10.4 When the ambient conditions cannot bring moisture to market standard, the crop is dried according to the prepared plans for drying and storage.

11. Implement harvest schedule

11.1 The schedules for harvest are reviewed in light of the weather and other conditions immediately before and during the harvest.

11.2 Operating hours are managed to suit the resources available throughout the harvest.

11.3 Equipment operation is co-ordinated for maximum efficiency, including allowances for downtime, maintenance and servicing requirements.

11.4 Operator diaries are collated regularly throughout the harvest to identify any actual, or potential maintenance or operator issues.

11.5 Any changes that are made to the initial plan are noted and a report made for input to subsequent harvest review and 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.

<table>
<thead>
<tr>
<th>Key Competency</th>
<th>Example of Application</th>
<th>Performance Level</th>
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</thead>
<tbody>
<tr>
<td>Communicating ideas and information</td>
<td>By discussing and explaining the harvesting operation with the full range of field staff, contractors, bulk handling authority, insurance and stock agents.</td>
<td>3</td>
</tr>
<tr>
<td>Collecting analysing and organising information</td>
<td>In evaluating and assessing crop yield, value and resources.</td>
<td>3</td>
</tr>
<tr>
<td>Planning and organising activities</td>
<td>In selecting, scheduling and putting people and equipment to work.</td>
<td>3</td>
</tr>
<tr>
<td>Working with others and in teams</td>
<td>In working with groups of people to complete specified activities and operations for the harvest.</td>
<td>2</td>
</tr>
<tr>
<td>Using mathematical ideas and techniques</td>
<td>In evaluating and assessing crop yield and quality, and subsequent value.</td>
<td>2</td>
</tr>
<tr>
<td>Solving problems</td>
<td>In recognising where amendment is required to the harvesting plan, and in contingency and emergency situations.</td>
<td>3</td>
</tr>
<tr>
<td>Using technology</td>
<td>In operating any necessary equipment prior to, and during, the harvest - communication technology, calculating equipment and measuring equipment.</td>
<td>2</td>
</tr>
</tbody>
</table>

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 crops may be subject to the yield assessment? All crops harvested for the business may be assessed for yield. These may be agricultural crops such as wheat and coarse cereals, pulses, legumes, cotton, sugar, oilseeds, pasture seeds, and horticultural crops such as tree crops, vine crops, field crops, fruit and vegetables.

What kind of measurements are taken in the field? Measurements are primarily objective and may include sampling, transects, past records, and visual assessment.
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which aspects of crop quality will be tested before harvest?</td>
<td>Crops may be tested for moisture, protein, colour, size, ripeness, skin defects, sugar content, and size.</td>
</tr>
<tr>
<td>How might the order of harvesting be arranged?</td>
<td>Time of maturity, which may be influenced by soil type and crop variety and value, might affect order of harvest.</td>
</tr>
<tr>
<td>How is crop value determined?</td>
<td>This is done using current and forward market information.</td>
</tr>
<tr>
<td>What might be covered by any insurance taken out?</td>
<td>Crop insurance is likely to cover events such as fire, hail and transport.</td>
</tr>
<tr>
<td>What are the OHS hazards during a crop harvesting process?</td>
<td>Hazards that may arise include dust, extreme weather conditions, 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.</td>
</tr>
<tr>
<td>What measures may be taken to prevent and control fires?</td>
<td>As part of the strategies that are put in place, the following issues and equipment might be considered: fire vehicles, portable equipment such as knapsacks and personal protective equipment, fixtures such as dams, tanks, pumps and water mains, communication devices, and constructions such as fire breaks.</td>
</tr>
<tr>
<td>There are a variety of ways in which crops can be stored. What might they include?</td>
<td>Storage facilities include portable field bins, boxes and containers, silos (temporary or fixed), horizontal storage, and direct delivery to bulk handling authority.</td>
</tr>
<tr>
<td>What resources might be required for haulage?</td>
<td>Equipment and vehicles will be required, and these could include trucks, trailers, tractors, augers, and/or field bins.</td>
</tr>
<tr>
<td>What OHS issues might impact on the harvesting operations?</td>
<td>Throughout the planning and operations for harvesting, precautions should be taken for fire prevention and control, dust protection, working in hot weather, working in confined and enclosed spaces, and working in the vicinity of pesticide residues. There are also issues concerning the use of vehicles and of pre-harvest chemical treatments.</td>
</tr>
<tr>
<td>What might the evaluation of fire risks and hazards cover?</td>
<td>Fire risk evaluation covers the possible nature of fires started on the property, equipment suitable to manage these fires, potential losses, capital available to purchase and maintain equipment, and range of possible fires that could enter the property.</td>
</tr>
</tbody>
</table>
EVIDENCE GUIDE

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

Competence in managing the harvest requires evidence that the harvesting plan and schedule is prepared and implemented in the light of the research and analysis conducted initially in crop estimation, resource planning and contract negotiating. Competence also requires that communication between all the relevant parties is clear, whether in the form of a discussion, or the preparation of a written plan. Overall competence will lead to an efficient harvest that maintains the optimum quality of the crop, while the possibility of emergencies is anticipated and prevented or controlled.

The skills and knowledge required to manage the harvest must be transferable to a different work environment. For example, the way in which the harvesting operations will occur will vary depending on the moisture levels of the crop, the crop type, and the equipment available.

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:

- capability and use of harvesting equipment
- crop measurement techniques and parameters
- market information and sources
- location and relative skills and abilities of available contractors
- contracting requirements for crop insurance
- management of the moisture content of crops, including drying and aeration
- storage options and local storage availability
- bushfire prevention and control legislation
- bushfire prevention and control strategies and equipment
- contact details for local fire services
- 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 the business and to the harvesting operations
- sound management practices and processes to minimise noise, odours, and debris from the harvesting operations.
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 harvesting operations, including amendment of these during the operation itself
- organise and schedule the maintenance of plant and equipment
- establish processes/strategies, procedures and controls for crop harvesting
- prepare written plans and procedures for implementation by others
- interpret, analyse and extract information from a range of sources and discussions
- assess potential yields
- negotiate and arrange contracts and agreements
- explain, and deliver instructions about the plans and scheduling of the harvest operations to both staff and contractors, as well as suppliers, customers, and neighbours
- 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.
RTE5108A Harvest deer velvet

Unit Descriptor
This unit of competency specifies the outcomes required to harvest deer velvet. It includes preparing for harvest, the harvesting process and some post-harvest activities, including the management of the deer.

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.

Prerequisite Unit(s)
RTE5105A Comply with deer industry national velvet accreditation requirements

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Prepare for velveting.

1.1 Facilities, materials and equipment to be used in velveting are checked to ensure that they are available, serviceable, set up and functioning correctly and will contribute to a safe, hygienic and stress free environment for animals and operators.

1.2 Veterinary supervision is arranged and appropriate drugs, equipment, emergency equipment and personal protective equipment (PPE) are made ready for use.

1.3 Animals selected for velveting are drafted and restrained according to animal welfare and occupational health and safety (OHS) requirements.

2. Harvest velvet.

2.1 Volume of analgesic or anaesthetic drug is determined for each animal and administered under supervision of attending veterinarian.

2.2 Antler is surgically removed under supervision of attending veterinarian and following NVAS requirements, using hygienic techniques and applying appropriate standards.

2.3 Human and animal emergency procedures are ready for implementation if required.

2.4 Work is conducted according to OHS procedures.

2.5 Information is collected during harvesting process for annual return/audit.

2.6 Velvet is tagged for identification and cross-referenced to the animal velveted to allow for full trace back.
3. Complete harvesting process.

3.1 Animal is released into \textit{recovery area} and monitored closely for adverse reactions, and appropriate action is taken as required.

3.2 Velveting area and equipment are cleaned and \textit{waste} is disposed of according to organisational and OHS procedures.

3.3 Hazardous substances and used equipment are disposed of according to legislative requirements and codes of practice.

3.4 Equipment is stored, drug usage is recorded and remaining drugs are placed in a secure locked facility.

3.5 In the event of an animal’s post-velveting death, industry procedures are followed.

\textbf{REQUIRED SKILLS AND KNOWLEDGE}

This describes the essential skills and knowledge and their level, required for this unit.

\textbf{Required skills:}

- administering analgesics and anaesthetics under veterinary supervision
- communicating specific and detailed requirements to support staff
- complying with the NVAS and quality assurance program of the Deer Industry Association of Australia (DIAA)
- dealing with aggressive or difficult animals
- developing and maintaining a bona fide veterinarian-client working relationship
- handling and restraining animals
- implementing emergency response procedures such as cardiopulmonary resuscitation (CPR)
- performing unassisted deer velveting under veterinary supervision
- reading and interpreting legislation and industry codes of practice
- recognising stress and pain in deer and their effect during velveting
- setting up and maintaining a clean work environment.

\textbf{Required knowledge:}

- animal welfare legislation and issues
- definitions of, and requirements with respect to, veterinary supervision and legal responsibilities of deer producers and veterinarians
- drug legislation relating to deer velvet harvesting
- food safety requirements relating to drug residues and withholding periods, and the hygienic handling of velvet
- management of deer before and after velveting
- surgical velveting procedures
- NVAS and quality assurance program of the DIAA.
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.

Facilities, materials and equipment required for velveting may include:

- general facilities and handling equipment such as:
  - freezer
  - fridge
  - lanes
  - scales
  - secure locked facility for storing drugs
  - sprinkler system for dust control
  - stock handling crush
  - stock watering systems
  - tapes and charts, including safety charts
  - wash up facilities
  - waste water and product disposal
  - yards and sheds
- specialised materials and equipment such as:
  - appropriate restraint equipment for use with difficult animals
  - biohazard sharps container
  - blindfolds
  - boxes and labels
  - CPR chart
  - clean saw
  - drugs for analgesia and anaesthetic
  - first aid kit
  - gloves for handling product
  - grading chart and scales
  - needles
  - new grading tape
  - NVAS tags for application to each stick of antler and re-growth
  - rack for velvet
  - record sheets for weight and grade
  - syringes
  - tourniquets
  - water and antiseptic for washing equipment and facilities.

Factors involved in a hygienic and stress free environment include:

- animal familiarity with general surroundings, including:
  - handling procedures and handlers
  - laneways and yard facilities
- compliance with strict hygiene standards according to food safety regulations
- cool weather conditions.
Precise harvesting time for animals selected for velveting depends on:

- date of button casting
- specific market requirements (e.g. those of the Taiwanese or Korean markets).

**Restraint** may include:

- chemical methods such as:
  - sedation
  - local analgesia
- physical methods using a crush and regional analgesia
- combination of physical and chemical methods
- where possible, physical restraint methods should be used in preference to chemical methods.

**Animal welfare** refers to:

- a state of being well or healthy and free from disease
- wellbeing or freedom from stress and ability to exhibit normal behaviour.

**OHS requirements** include procedures for:

- adequate protection during outdoor work, including:
  - appropriate PPE
  - protection from solar radiation
- applying and storing hazardous substances such as:
  - anaesthetics
  - analgesics
  - drenches
  - vaccines
- safe animal handling systems and procedures, including:
  - controlling zoonoses (e.g. leptospirosis)
  - using chemicals and drugs
  - using safe manual handling techniques when lifting and moving items
  - working safely with deer in yards and confined spaces
  - working with machinery and equipment
- safe handling of veterinary equipment, particularly:
  - drugs
  - needles
  - syringes.

**Analgesics or anaesthetic drugs in velveting** may include:

- drugs administered by an accredited person
- drugs prescribed and dispensed by a registered veterinarian
- drugs for the sedation of deer, including:
  - xylazine 2% solution
  - yohimbine to reverse effects of the xylazine
- local anaesthetic such as lignocaine 2% (without adrenaline).
Emergency procedures include:

- animal emergency response procedures such as:
  - moving animal to a dry shaded area where appropriate action can be implemented while waiting for assistance
  - seeking veterinarian assistance immediately
- human emergency response procedures for:
  - accidental injection or exposure of humans to drugs used for velveting
  - CPR application requirements
  - location of CPR chart in a visible location in facilities where velvetting occurs.

Information collected for the annual NVAS audit/return includes:

- drug usage
- farmer's accreditation number
- method of velveting
- number of post-velvetting deaths
- personal details
- signature of supervising veterinarian on audit
- standard of facilities and operator as determined by veterinarian
- supervising veterinarian's name and contact details
- type of deer velveted.

Requirements for velvet to be tagged include:

- all sticks of velvet must be tagged for sale or export
- consignments must have NVAS identification tags of the correct colour attached to each stick, and person to whom tag is registered (who must have current accreditation with the NVAS)
- tags used are issued by the NVAS secretariat for accredited NVAS operators or registered veterinarians.

Features of a recovery area may include:

- appropriate opaque fencing
- free of obstacles that could cause harm to an animal recovering from sedation or anaesthesia such as:
  - creeks
  - dams
  - irrigation channels
  - other features.

Waste products may include:

- biological material such as velvet fragments
- disposable equipment such as:
  - contaminated swabs
  - needles
  - sharps
  - syringes
  - hazardous substances
  - surgical debris.
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:

- velvet unassisted a minimum of three deer under supervision of a registered veterinarian
- administer drugs to deer under supervision of a registered veterinarian
- manage deer effectively before and after velveting
- develop and maintain effective working relationships with a range of organisations operating in the deer industry.

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 harvest deer velvet.

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 harvest deer velvet must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within regional and remote, or small and large deer farms carrying different species of deer.
RTE5406A Manage the implementation of an emergency disease or plant pest control program

Unit Descriptor
This unit of competency specifies the outcomes required to manage activities in a control centre or in the field to effectively control or eradicate an emergency disease or plant pest from a specified area.

Employability Skills
This unit contains employability skills.

Application of the Unit
The unit applies to personnel who have been appointed or engaged to undertake a role within an emergency disease or plant pest incursion response.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Initiate emergency disease or plant pest control program.
   1.1 Control procedures needed to manage an infection or infestation are identified, sourced or developed according to standards, protocols and situational variables.
   1.2 Operational plans are developed for own area of responsibility.
   1.3 Contributions are made as required to other plans and strategies.
   1.4 Resources required to control or eradicate emergency disease or plant pest are sourced.

2. Direct implementation of emergency disease or plant pest control procedures
   2.1 Implementation of emergency disease or plant pest control plan and procedures is managed according to operational plan, other specified guidelines and situational variables.
   2.2 Reports on progress of emergency disease or plant pest control are disseminated as required.
   2.3 Relevant management systems are implemented, and confirmed as functioning and available as required.

3. Monitor emergency disease or plant pest control procedures.
   3.1 Emergency disease or plant pest status of properties is monitored in line with relevant guidelines and operational or control plan.
   3.2 Appropriateness and effectiveness of emergency disease or plant pest control procedures being used are monitored.
   3.3 Resource expenditure and availability are monitored to ensure adequacy for job.
   3.4 Effectiveness of emergency disease or plant pest control information management system is monitored.

4. Review emergency disease or plant pest control program.
   4.1 Emergency disease or plant pest control operational plans and procedures are reviewed and revised.
   4.2 Emergency disease or plant pest control information management procedures are revised as appropriate to ensure a complete set of records.
   4.3 Where required, resources are reallocated or acquired.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• accessing standards and protocols such as Australian Veterinary Emergency Plan (AUSVETPLAN) or Australian Emergency Plant Pest Response Plan (PLANTPLAN) to interpret and determine requirements for implementing specific emergency disease or plant pest control strategies
• collating, interpreting and analysing relevant information
• communicating effectively when imparting understanding of issues and directions to other response staff
• operating effectively under stress in tasks involving high-level problem solving and decision making
• managing people under stressful conditions.

Required knowledge:

• application of emergency management principles when implementing an emergency disease or plant pest control program
• common reactions and behaviours of people working under stressful conditions
• occupational health and safety requirements, particularly for use of chemicals, specific control procedures and managing personnel under emergency conditions
• relevant public sector policies, practices and constraints in relation to emergency disease or plant pest management
• relevant standards and protocols, such as AUSVETPLAN or PLANTPLAN
• requirements of relevant commonwealth, state and territory legislation.

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.

Relevant standards and protocols may include:

• approved standard operating procedures
• emergency disease or plant pest specific guidelines such as AUSVETPLAN or PLANTPLAN
• jurisdiction’s approved response plan
• state and territory legislation defining legal powers in an emergency disease or plant pest situation
• other relevant guidelines for handling an emergency disease or plant pest.
Emergency diseases or plant pests include:

- disease that may affect animals, fish and other marine animals including:
  - disease that is exotic to Australia
  - serious infectious disease of unknown or uncertain cause
  - severe outbreak of a known endemic disease that is considered to be of national significance with serious social or trade implications
  - variant of an endemic disease
  - species, biotype or strain of invertebrate pest or pathogen injurious to plants or plant health.

Emergency disease or plant pest control procedures may include:

- cleaning and decontaminating
- collecting samples
- destruction
- disposal
- epidemiological assessments
- movement control
- permits
- quarantine
- surveillance
- tracing
- vaccination
- vector control measures
- wild animal control measures.

Formats that may be used for reports include:

- electronic
- paper-based.

Management systems may include:

- electronic
- paper-based.

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.
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:

- direct and monitor activities of one or more operational units
- source resources
- work effectively under stressful conditions
- apply approved standards and protocols for emergency disease or plant pest control within a specific area
- provide accurate and detailed reports to appropriate authorities.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in an emergency disease or plant pest response simulation exercise or in responses to an emergency disease or plant pest incursion.

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 manage the implementation of an emergency disease or plant pest control program.

The candidate must also have access to a functioning emergency disease or plant pest control centre, or a control centre established for an emergency disease or plant pest response simulation exercise.

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 manage the implementation of an emergency disease or plant pest control program must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within control centres established to deal with a range of different emergency disease or plant pest incursion responses.
RTE5407A Manage active operational emergency disease or plant pest sites

Unit Descriptor
This unit of competency specifies the outcomes required to manage activities required to eradicate emergency disease or plant pests from infected premises and dangerous contact premises.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to personnel who have been appointed or engaged to undertake a role within an emergency disease or plant pest incursion response.

Work is performed at the control centre and will involve the management of personnel and contractors operating in the field.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Plan control procedures across the declared area.
   1.1 Planning is carried out in effective and ongoing consultation with stakeholders and field personnel.
   1.2 Planning is conducted in line with relevant standards and protocols, and according to instructions from operations director.
   1.3 All required resources are identified, obtained, scheduled, prioritised and deployed according to relevant standards and protocols.
   1.4 Occupational health and safety (OHS) requirements, and hazards associated with implementing control procedures, are identified and appropriate action is taken to minimise risks to self and others.
   1.5 Criteria for implementing control procedures are decided and agreed to satisfy relevant standards and protocols with minimal livestock or crop destruction and property damage.
   1.6 Contingency plans for effective control of emergency disease or plant pest are prepared.

2. Manage the implementation of control procedures.
   2.1 Control procedures are coordinated to achieve effective emergency disease or plant pest control outcomes.
   2.2 Ongoing consultation and communication links are maintained with all stakeholders, field staff, property owners/managers and others in control centre.
   2.3 Control procedures and services supplied under contract are implemented according to standards, protocols and contractual requirements.
   2.4 Written and verbal reports are prepared and submitted as required.
3. Monitor and review the effectiveness of control procedures.

   3.1 Personnel are monitored to ensure that they are achieving specified objectives.
   3.2 Supply of resources is monitored to ensure that it is appropriate and available to carry out required tasks.
   3.3 **Implementation of control procedures** is monitored to ensure cost-effective compliance with relevant standards and protocols.
   3.4 Priorities for emergency disease or plant pest control operations are reviewed, and confirmed or revised as appropriate, according to relevant standards and protocols.

4. Implement review findings

   4.1 Control activities are revised as required.
   4.2 Revisions to control activities are promptly and effectively communicated to relevant stakeholders and personnel for implementation.

**REQUIRED SKILLS AND KNOWLEDGE**

This describes the essential skills and knowledge and their level, required for this unit.

**Required skills:**

- applying relevant standards and protocols such as Australian Veterinary Emergency Plan (AUSVETPLAN) or Australian Emergency Plant Pest Response Plan (PLANTPLAN) to determine requirements and/or guidelines applying to on-site control and eradication procedures
- communicating effectively and giving direction
- managing resources effectively to achieve emergency disease or plant pest control and eradication
- operating effectively under stress in tasks involving high-level problem solving and decision making.

**Required knowledge:**

- or plant pest control program
- common reactions and behaviours of people working under stressful conditions
- OHS requirements, particularly for use of chemicals, specific control procedures and managing personnel under emergency conditions
- relevant public sector policies, practices and constraints in relation to emergency disease or plant pest management
- relevant standards and protocols, such as AUSVETPLAN or PLANTPLAN
- requirements of relevant commonwealth, state and territory legislation and local government regulations.
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.

**Stakeholders** may include:

- industry representatives and organisations
- local community
- local government authorities and other government departments
- property owners, operators and managers
- suppliers of goods and services.

**Relevant standards and protocols** may include:

- approved standard operating procedures
- commonwealth, state and territory legislation
- emergency disease or plant pest response agreements
- emergency disease or plant pest specific guidelines and manuals included in the relevant national response plans such as AUSVETPLAN and PLANTPLAN
- other relevant guidelines for handling an emergency disease or plant pest incursion, such as local government regulations.

**Resources** may include:

- contractors and other service providers
- documents such as:
  - plans
  - pro formas
  - maps
- equipment such as:
  - trucks
  - tankers
  - pumps
- facilities such as portable shower blocks
- operations personnel and teams responsible for:
  - clerical and administrative duties
  - decontamination
  - destruction
  - disposal
  - pest control
  - site supervision of infected premises
  - valuation.
Control procedures required may cover:

- decontamination
- destruction
- disposal
- pest control
- security
- surveillance and testing
- treatment
- vaccination
- valuation
- vector control measures
- wild animal control measures.

Reports may include:

- input into situation reports and control centre planning activities
- use of emergency disease or plant pest management software
- verbal progress and activity reports
- written reports.

Personnel monitoring may involve consideration of:

- appropriate resources
- first aid
- meals
- OHS
- personal protective equipment
- providing information to personnel
- right range of skills on sites
- shelter
- staff rosters
- stress levels.

Implementation of control procedures may be monitored through:

- site inspections
- specific software
- usage levels of major resources such as time, equipment and materials
- verbal and written reports.

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.
The critical requirements for this unit of competency as a whole are listed below.

Assessment must confirm one's ability to:

- manage emergency disease or plant pest control operations at a number of operational sites
- ensure procedures implemented at operational sites conform to relevant standards and protocols
- manage resources across operational sites
- monitor performance of personnel.

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in an emergency disease or plant pest response simulation or in a response to an outbreak.

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 manage active operational emergency disease or plant pest sites.

The candidate must also have access to a functional control centre established as part of an emergency disease or plant pest response simulation, or in response to an actual outbreak.

To ensure consistency in one's performance, competency should be demonstrated on more than one occasion 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 manage active operational emergency disease or plant pest sites must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include managing the implementation of different control procedures required in different responses or on different sites.
RTE5526A Develop an organic management plan

Unit Descriptor
This unit of competency specifies the outcomes required to develop an organic management plan (OMP) to convert an agricultural or horticultural farm to an organic, biological and ecological system. The plan is developed to guide the conversion of a farming system to the principles of organic agriculture.

The unit involves designing an organic farming system that will be used as the basis of the plan's implementation.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to people managing a farm according to the principles of organic agriculture. Work is likely to be done without formal supervision and according to the requirements of the National Standard for Organic and Biodynamic Produce.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Locate and access assistance in developing the OMP.

1.1 Sources of support and advice including agricultural extension officers and training programs are located and accessed.

1.2 Industry publications and internet sources are assessed for their value in informing decision making.

1.3 Contributions of work colleagues and others are sought and considered during planning process.

2. Design the organic farming system to be described in the OMP.

2.1 Map of property to be covered by OMP is developed or obtained.

2.2 Time scale to be addressed in plan is determined.

2.3 Information on soil fertility and management, and weed, pest, disease and animal health status and their interrelationships is collected to serve as benchmarks for development of management options in plan.

2.4 Regional catchment targets for land, water and biodiversity are obtained and those applicable to property and sub-catchment are identified.

2.5 Components of OMP that need to be developed are identified.

2.6 Suitable format for planning documents is developed.

3. Develop soil fertility subplan.

3.1 A soil fertility assessment of farm production areas is undertaken or commissioned.

3.2 Soil types and topography are mapped on farm plan.

3.3 Soil fertility plan is developed and documented that amends soil chemistry, soil structure and soil biology, based on assessment results, overall budget and intended cropping regime.

3.4 Appropriate inputs are identified according to the National Standard for Organic and Biodynamic Produce.

3.5 Sub-plan is documented according to established format.
4. Develop soil management sub-plan.

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<tbody>
<tr>
<td><strong>4.1</strong></td>
<td>Suitability of land for production is determined based on soil type, slope, aspect and previous use.</td>
</tr>
<tr>
<td><strong>4.2</strong></td>
<td>Soil management plan to <em>enhance soil structure</em> and prevent compaction and water logging is developed.</td>
</tr>
<tr>
<td><strong>4.3</strong></td>
<td>Appropriate inputs are identified according to the National Standard for Organic and Biodynamic Produce.</td>
</tr>
<tr>
<td><strong>4.4</strong></td>
<td>Sub-plan is documented according to established format.</td>
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5. Develop weed management sub-plan.

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<tbody>
<tr>
<td><strong>5.1</strong></td>
<td>Problematic weed species are identified and weeds are observed as an indicator of soil health.</td>
</tr>
<tr>
<td><strong>5.2</strong></td>
<td>Life cycles of weeds species are identified to inform management options.</td>
</tr>
<tr>
<td><strong>5.3</strong></td>
<td>Appropriate inputs are identified according to the National Standard for Organic and Biodynamic Produce.</td>
</tr>
<tr>
<td><strong>5.4</strong></td>
<td>Options for <em>managing weeds</em> are developed.</td>
</tr>
<tr>
<td><strong>5.5</strong></td>
<td>Sub-plan is documented according to established format.</td>
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6. Develop and design an integrated pest and disease management sub-plan.

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<tbody>
<tr>
<td><strong>6.1</strong></td>
<td>Evidence of <em>pest and disease burden</em> in farming system is collected and documented.</td>
</tr>
<tr>
<td><strong>6.2</strong></td>
<td>Pests and diseases and their life cycles are observed and monitored.</td>
</tr>
<tr>
<td><strong>6.3</strong></td>
<td>Evidence of pest and disease burden is evaluated in order to develop strategy for management.</td>
</tr>
<tr>
<td><strong>6.4</strong></td>
<td>Pests and diseases are evaluated as indicators of farming system health.</td>
</tr>
<tr>
<td><strong>6.5</strong></td>
<td>Options for addressing pest and disease issues, including improving soil health, are identified.</td>
</tr>
<tr>
<td><strong>6.6</strong></td>
<td>Appropriate inputs are identified according to the National Standard for Organic and Biodynamic Produce.</td>
</tr>
<tr>
<td><strong>6.7</strong></td>
<td>Sub-plan is documented according to established format.</td>
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</table>

7. Develop animal health sub-plan.

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</thead>
<tbody>
<tr>
<td><strong>7.1</strong></td>
<td>Regional and farm-based <em>animal health</em> issues are identified.</td>
</tr>
<tr>
<td><strong>7.2</strong></td>
<td>Options for preventative actions aimed at establishing and maintaining optimal animal health are identified.</td>
</tr>
<tr>
<td><strong>7.3</strong></td>
<td>Options for <em>treating</em> animal health issues are identified.</td>
</tr>
<tr>
<td><strong>7.4</strong></td>
<td>Sub-plan is documented according to established format.</td>
</tr>
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</table>

8. Integrate and finalise the organic management plan.

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<tbody>
<tr>
<td><strong>8.1</strong></td>
<td>Sub-plans for soil fertility and management, and weed, pest, disease and animal health are integrated.</td>
</tr>
<tr>
<td><strong>8.2</strong></td>
<td>Record-keeping system is developed and implemented to track various components of OMP as they are put into practice and reviewed.</td>
</tr>
<tr>
<td><strong>8.3</strong></td>
<td>OMP is reviewed and updated annually.</td>
</tr>
</tbody>
</table>
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

• documenting plans
• monitoring farming system
• observing cycles, patterns, change and systems dynamics
• record keeping.

Required knowledge:

• principles of organic agriculture, especially fundamental role of soil health
• principles of whole of catchment and river basin management
• requirements and components of an OMP
• systems approach to agriculture and horticulture.

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.

**Property features** on a map may include:

• agricultural chemical transmission such as:
  • drift
  • leaching
  • run-off
• areas impacted by or vulnerable to fire
• areas of human impact
• biodiversity
• contamination
• cultural practices
• erosion
• natural features
• neighbouring land use
• paddocks
• water resources
• weeds
• wildlife.

**Regional catchment targets** set by regional natural resource management groups may include:

• atmosphere and climate
• native vegetation
• pest plant and animal control
• river health
• salinity and sodicity
• soil health
• water quality.
Options in a **soil fertility plan** may include:

- building organic matter and humus
- compost
- green manure crops
- nitrogen fixing
- rotations
- soil biology and biological stimulants
- suitable inputs.

A plan to **enhance soil structure** may include:

- aeration
- biological triggers
- building organic matter and humus
- compost
- deep ripping
- fallowing
- green manure crops
- rotations
- suitable inputs
- timing of cultivation
- traffic factors such as:
  - grazing management
  - vehicle use.

Options for **managing weeds** that may affect growth of desired crop as well as declared noxious weeds may include:

- avoiding overgrazing
- biodynamic peppers
- biological controls
- cultivation and aeration
- grazing
- green manure crops
- heating, burning, steaming or solarising
- improving soil fertility
- increasing sowing density
- inspecting imported hay or grain products
- slashing
- strategic management of weed plant in its life cycle and its physiology.
Strategies used to manage property’s pest and disease burden may include:

- pest issues being addressed by:
  - increasing mineral sugar levels in plants through such things as molasses spray
  - introducing beneficial/predatory insects such as Trichogramma wasp
  - providing beneficial habit for predators
  - rotations
  - timing of planting
  - using pest life cycles
- disease issues being addressed by:
  - air movement
  - drainage
  - hygiene
  - quality of material used for seed and plant propagation
  - rotations
  - timing of planting
  - using break crops such as mustard.

**Animal health** may be maintained by attention to:

- controlling internal parasites
- controlling predators
- culling vulnerable genetics
- good nutrition
- good quality pasture and feed
- paddock or grazing rotations
- providing appropriate supplements where necessary such as kelp and minerals
- quiet handling and good animal husbandry
- removing or minimising stress to animal through such things as provision of shelter
- soil fertility.

Suitable options for treating animals may include:

- appropriate treatments dependant on species of animal, type of health issue and prevailing conditions such as:
  - drenching with cider vinegar, kelp, copper sulphate and dolomite
  - foot baths
  - herbal remedies
  - homeopathic remedies
  - isolation of infected or affected animals
  - tonics.
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.

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:

• identify and develop required components of an OMP for a property
• understand and use interrelationships between soil, plant and animal health and farming system’s resilience when developing plan
• identify options for prevention and treatment of risks
• apply appropriate regional catchment targets.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in an organic farming 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 develop an OMP.

The candidate must also have access to the following resources:

• National Standard for Organic and Biodynamic Produce
• regional catchment strategies and targets for one’s catchment area.

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 develop an OMP must be transferable to a range of work environments and contexts, e.g. developing an OMP for different properties, and include the ability to deal with unplanned events.
RTE5527A Conduct environment and food safety risk assessment of plant nutrition and soil fertility programs

Unit Descriptor
This unit of competency specifies the outcomes required of agricultural advisers to conduct an environment and food safety risk assessment on established or developing plant nutrition and soil fertility programs and, where appropriate, develop a nutrient management plan. The risk assessment involves analysing and prioritising environmental risks associated with the program. This risk assessment is combined with the identification of options to manage risk and establish processes for the ongoing monitoring and improvement of plant nutrition and soil fertility programs.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to agricultural advisers who are providing services to land managers. Conducting the assessment is likely to be undertaken without supervision but includes practical input from the land owner or manager.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Maintain currency of environment and food safety information relating to fertilisers and soil ameliorants.

   1.1 Community, government and agricultural industry concerns and legislative requirements in relation to fertiliser and soil ameliorant environmental stewardship and initiatives to address them are identified by actively and regularly researching industry and other information sources.

   1.2 Local information relating to nutrient management, particularly in catchment or regional context, is identified by active communication with local organisations.

   1.3 National and local information and standards relating to food safety issues associated with fertiliser and soil ameliorant use are identified by actively and regularly researching industry and other information sources.

   1.4 Information and standards relating to transport, handling, storage and application of fertilisers and soil ameliorants are identified by actively and regularly researching industry and other information sources.
2. Evaluate environmental risks and develop a nutrient management plan.

2.1 **Environmentally significant features** of fertiliser, soil ameliorants, soil, landscape and climate that are likely to influence environmental risks associated with plant nutrition and soil fertility program are identified and documented.

2.2 **Agronomic and operational activities** associated with fertiliser and/or soil ameliorant program, and associated **environmental risk categories**, are identified and documented.

2.3 **Environmental risks and impacts** associated with agronomic and operational activities are **evaluated and prioritised**.

2.4 **Management options** to appropriately address environmental risks are identified.

2.5 Appropriate management options to address any identified environmental risks are discussed and agreed with customer.

2.6 **Nutrient management tools** are used in conjunction with land owner/manager to monitor effectiveness of management decisions over time.

2.7 Opportunities to **improve efficiency and effectiveness** of plant nutrition and soil fertility program, including use of fertilisers and soil ameliorants, are identified and operational and agronomic recommendations are modified accordingly.

3. Identify and communicate relevant best practice in transport, handling and storage for environmental stewardship to land owner/manager.

3.1 Key environmental product stewardship issues in **transport, handling and storage** of fertilisers and soil ameliorants that are relevant to plant nutrition and soil fertility program (as contained in codes of practice, legislation and enterprise work procedures) are identified and communicated to land owner/manager.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- calculating areas, ratios, proportions and application rates
- communicating with work team members, supervisors, contractors and suppliers
- estimating treatment and product requirements, material sizes and quantities
- interpreting manufacturer and plant nutrition program specifications
- interpreting specifications
- storing and retrieving information and reports
- understanding labels and symbols
- using paper-based or computer software interpretation system to integrate information and results from multiple sources and producing recommendation reports that are easily implemented
- using pro forma reporting, analysis and work procedure documents.

Required knowledge:

- range of environmental contexts
- assigning probability and severity of identified risks
- environmental implications for environment of soil amendment and fertiliser use, that may include nutrient mining, run-off, nutrient loading of soil and water, toxicity, noise and dust
- food safety issues relating to the use of fertilisers and soil ameliorants
- law of the minimum and importance of nutrient interactions
- methods and pathways of nutrient uptake by plants and loss from soil
- nutrient cycling and its practical relevance to specific plants and soils encountered in local area, including role of soil biology
- nutrients required by plants grown within enterprise and effects of nutrient deficiency and toxicity on individual plant species and varieties
- relationship between soil characteristics and the availability of nutrients, including macro and micro elements, to plants
- single nutrient and complete fertiliser products encountered in local area, including physical attributes, nutrient analysis, solubility, salt index, application rates and costs, and appropriate application techniques and equipment
- soil amendments commonly used to treat local soil problems
- techniques for interpreting laboratory results and making fertiliser and amendment recommendations
- techniques to assess affects of fertiliser and amendment recommendations on soil, plants and water.
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.

**Fertiliser and soil ameliorant environmental stewardship** involves:

- commitment to actions in line with their effect on the overall environmental outcome as distinct from just the effects of individual components
- duty of care for the environmental effects of fertiliser and soil ameliorants that goes beyond a person's direct area of responsibility.

A **nutrient management plan** consists of:

- consideration of environmental risks and their priority (likelihood/consequence)
- management options to address risks
- process for ongoing monitoring and management of plant nutrition and soil fertility program
- strategies to maintain soil fertility and product quantity and quality
- understanding of nutrient requirements of region, farm or paddock.
**Environmentally significant features** may include:

- biological properties of soil such as:
  - beneficial macro and micro-organisms
  - disease potential
- chemical properties of soil such as:
  - acid/alkaline (pH) balance
  - carbonate content
  - cations
  - nutrient content such as nitrogen
  - organic matter
  - phosphorus
  - potassium
  - salinity
  - sulphur
  - trace elements
- physical properties of soil such as:
  - colour
  - depth of root zone and plant available water
  - soil stability
  - structure
  - texture
  - water-holding capacity
- climatic features such as:
  - annual diurnal temperature patterns
  - annual precipitation
  - prevailing winds
  - rainfall intensity
  - seasonal and annual rainfall pattern
  - wind strength
- inorganic or organic solids and fluids applied directly to soil or to plant via foliar sprays such as:
  - liquefied gases
  - solutions
  - suspensions
- location of major water bodies and underground water sources
- native vegetation in vicinity of proposed plant nutrition or soil fertility program
- nitrogen input from leguminous green manure crops or leguminous pastures
- properties of fertilisers and soil ameliorants that are environmentally significant such as:
  - chemical composition
  - impurity concentration
  - nutrient content
  - particle size
  - particle size distribution
  - solubility
- slope and aspect
- soil ameliorants such as:
  - gypsum
  - liming products including:
    - dolomite
    - mixtures of lime and magnesium oxide
• any by-product used to change soil acid/alkaline (pH) balance or soil calcium level
• surface water drainage patterns.

**Agronomic and operational activities** associated with environmental risks may include:

• agronomic activities such as:
  • crop/pasture production at levels that deplete soil nutrients or adversely affect soil health
  • form of nutrient
  • growth of legume species
  • nutrient placement
  • rate of nutrient applied
  • timing of nutrient application

• operational activities such as:
  • clean-up of spills
  • disposal of animal manures
  • fertiliser application activities including:
    • application as solid or fluid products
    • application in irrigation water
    • broadcast or band application
    • direct injection of anhydrous ammonia
  • siting of permanent and temporary fertiliser/amendment storage
  • storage and handling on farm.

**Environmental risk categories** include:

• blow (airborne losses)
• leach (nutrient leaching or change in chemical composition through the soil profile)
• load (nutrient loading in soil, water, air or food)
• mine (mining soil nutrient by non-maintenance rate strategies)
• run-off (nutrient transport in surface water).

An adviser may **evaluate and prioritise environmental risks and impacts** based on:

• environmental consequence
• likelihood of occurrence.

**Management options** appropriate in managing environmental risks may include:

• activities directly related to fertiliser use such as:
  • changing product
  • method of application
  • rate applied
  • timing

• broader range of agricultural management options such as:
  • changing cultivation practices
  • land use planning
  • rotation management.
**Nutrient management tools** used to monitor the effectiveness of decisions may include:

- nutrient budgeting
- paddock record keeping
- soil, plant tissue and water analysis
- yield maps.

Monitoring results consulted to **improve efficiency and effectiveness** of plant nutrition and soil fertility programs may include:

- monitoring results after implementation of recommendations such as:
  - nutrient and water use efficiency data, including:
    - changes to nutrient and water use efficiency after implementation of recommendations
    - changes to production requirements
    - environmental changes.

Aspects of fertiliser **transport, handling and storage** that may raise awareness of environmental issues include:

- issues contained in industry codes of practice such as:
  - Aerial Agriculture Association of Australia
  - Australian Fertiliser Services Association.

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**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.

**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:

- identify environmental parameters at risk
- assess magnitude of risk and establish likelihood
- assess potential impact on environmental parameters and assign severity rating
- develop soil fertility report and fertiliser recommendation with consideration of environmental stewardship principles
- communicate recommendation with customer, including methods of assessing outcomes of recommendation
- develop a nutrient management plan.
Context and specific resources for assessment

appropriately be assessed in the workplace or in a situation that reproduces normal work conditions.

For valid assessment, one must have opportunities to participate in a range of exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge required to conduct environment and food safety risk assessment of plant nutrition and soil fertility programs.

The candidate must also have access to the following resources:

- soil, plant and water interpretation criteria
- analytical results
- fertiliser labels, product cards and material safety data sheets (MSDS)
- *Cracking the Nutrient Code* (Fertiliser Industry Federation of Australia guidelines for developing a nutrient management code of practice for industries, regions or farms)
- information on specific case studies (e.g. farmer's yield goals, landscape information, previous paddock history and soil types)
- *Australian Soil Fertility Manual* (CSIRO Publishing)
- codes of practice for the Australian Fertiliser Services Association, Aerial Agriculture Association of Australia and other relevant industry associations.

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 conduct environment and food safety risk assessment of plant nutrition and soil fertility programs must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work with new crop or pasture species not usually produced in the local area.
RTE5919A Identify and secure raw materials supply for compost production

Unit Descriptor
This unit of competency specifies the outcomes required to identify and secure suitable raw materials to enable profitable and efficient manufacture of specified compost products.

The unit involves applying broad knowledge and skills to a range of situations, management and planning purposes, and taking responsibility for group or enterprise outcomes, for example as a site manager.

Employability Skills
This unit contains employability skills.

Application of the Unit
Composting is used to describe the processing of organic materials; with this unit being relevant for aerobic and anaerobic composting and vermiculture technologies.

This unit of competency applies to an employee of an enterprise engaged in commercial-scale composting operations. Tasks are likely to be performed by a senior member of staff.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Determine characteristics of raw materials required.
   1.1 Relevant corporate documents are reviewed to identify commercial objectives, product range and specifications, compliance requirements and enterprise constraints.
   1.2 Current raw material supplies are reviewed for suitability for production of defined compost products.
   1.3 Compost recipe calculations are conducted as a gap analysis to identify complementary raw material characteristics and quantities required to manufacture defined products.
   1.4 Characteristics and quantities of additional complementary raw materials required are specified and documented.
   1.5 Complementary or substitute raw material types that are consistent with requirements are identified through review of relevant literature and enterprise information/records.

2. Identify and prioritise raw materials required for production.
   2.1 Raw material options are identified and assessed in order to determine relative priority according to product range and specifications.
   2.2 Representative samples of prioritised raw materials are gained from potential sources of supply, and characteristics/risks are evaluated and confirmed.
   2.3 Where required, revisions to raw materials and product specifications are submitted to executive management for incorporation into corporate business plan, marketing plan and marketing strategy.
3. Secure access to raw materials.
   3.1 Executive management approval is gained for securing preferred raw materials.
   3.2 Specifications for raw material characteristics and acceptability criteria for receival are documented for incorporation into supply contract.
   3.3 Preferred suppliers of raw materials are determined.
   3.4 Supply contracts are negotiated and secured on suitable trading terms according to enterprise practice.

4. Prepare for receival and processing of raw materials.
   4.1 Receival, containment, handling and management requirements are documented and incorporated into enterprise procedures and training.
   4.2 Availability of site infrastructure, plant and equipment requirements is confirmed.

5. Maintain supply of raw material.
   5.1 Effective communication is maintained with raw material suppliers to support reliable and secure supply of raw materials of consistent and required quality.

REQUIRED SKILLS AND KNOWLEDGE
This describes the essential skills and knowledge and their level, required for this unit.

Required skills:
- assessing and characterising raw materials
- negotiating
- reading and analysing business plans and other corporate documents
- using a compost recipe calculator.

Required knowledge:
- basic technical and industry literacy to source and interpret test data
- capabilities and limitations of site and plant
- environmental and site licences and associated risks and restrictions
- potential risks and hazards related to various raw materials
- raw material assessment and characterisation
- raw materials used in compost production
- regulations and standards governing raw materials
- standard forms of supply contracts.
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.

**Corporate documents**

may include:

- business plan
- development of consent documentation for site
- enterprise receival, operations and/or sales records
- environment management plan
- management system documentation
- marketing plan and strategies
- material safety data sheets (MSDS)
- policies and procedures
- previous audit reports
- product certification documents
- product specifications and standards
- raw material supply contracts
- raw materials laboratory analysis data
- relevant legislation and regulations
- service and utilities contracts
- site licence
- site plan
- works approval.

**Raw materials** or **compostable organic materials** may include:

- animal mortalities
- biosolids such as sewage sludge
- crop residuals
- dairy waste
- fats and oils
- food organics such as:
  - food waste
  - kitchen waste
  - food processing waste
- forestry residuals
- manures
- organic sludges
- other organic waste or by-product of processing
- paper mill wastes
- paper-based materials
- plant materials such as:
  - garden organics
  - green organics
  - green waste
  - yard waste
- sawdust and wood shavings
- sewage facility grit and screenings
- wood and timber (non-treated).
Raw material characteristics may include:

- carbon to nitrogen (C:N) ratio
- contamination
- electrical conductivity
- moisture content
- nutrient content
- acidity or alkalinity (pH)
- structure and porosity
- total carbon content
- total nitrogen content.

Factors to consider when raw material options are assessed may include:

- accessibility, collection and management challenges
- compost site and plant capabilities
- cost and revenue implications
- environmental management considerations
- occupational health and safety considerations
- operational procedures
- regulatory classification of materials and associated requirements
- reliability and security of supply
- risk of contamination
- site licences and constraints.

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.

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:

- develop criteria and identify raw material requirements from corporate documents
- review processes, plant and site capabilities against requirements for processing raw materials
- assess characteristics of different raw materials as relevant to manufacture of particular products according to compliance requirements
- define raw material specifications and acceptance criteria.
- draft a supply contract.
Assessment for this unit of competency is to be largely practical in nature and must be assessed in a commercial-scale composting facility or in a situation that reproduces and/or simulates an equivalent enterprise context.

For valid assessment, one should have opportunities to participate in exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge specified in this unit.

The candidate should also have access to the following resources:

- corporate marketing plan and marketing strategy or samples
- relevant enterprise or other product standards and specifications or samples
- supply contract documents
- raw material characteristics and laboratory analysis data
- site licence and environment management plans
- copies of relevant regulations
- compost recipe calculators.

To ensure consistency in one's performance, competency should be demonstrated on more than one occasion across a range of compost products and complementary raw material 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 demonstrate competency must allow for application in a broad industry context, and should be transferable to a range of work environments, including the ability to deal with unplanned events. For example, this could include work within composting operations of varying scale; processing a range of different raw materials; producing a range of different composts and value-added products to meet the demands of different markets; located in an urban or rural context with varying environmental constraints; and using various equipment, practices, technologies and management systems.
RTE5923A Prepare the enterprise for organic certification

Unit Descriptor
This unit of competency specifies the outcomes required to prepare an existing enterprise for organic certification. Work is likely to be done with minimal supervision and with the objective of complying with the Australian Quarantine and Inspection Service (AQIS), accredited certification bodies and the National Standard for Organic and Biodynamic Produce.

Employability Skills
This unit contains employability skills.

Prerequisite Unit(s)
RTE5526A Develop an organic management plan

Application of the Unit
This unit of competency applies to people managing a farm according to the principles of organic agriculture. Work is likely to be done without formal supervision.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Investigate and access information sources and support for conversion to organic production.
   1.1 Contact is established with other organic producers and marketers of organic products.
   1.2 Other sources of support and advice, including agricultural extension officers and training programs, are identified and accessed.
   1.3 Literature, industry publications and internet sources of information to support decision-making are assessed for usefulness and reliability.
   1.4 Certification process requirements are obtained from certification bodies.
   1.5 Roles and responsibilities of inspector, certifier and accreditation bodies, including role of AQIS, are investigated.

2. Conduct a risk assessment of the site.
   2.1 Previous land use and chemicals applied on the site are identified and documented.
   2.2 Risk assessment for potential on-farm contaminants is undertaken and documented.
   2.3 Potential contamination risk from off-farm land use and agricultural practices is assessed.
   2.4 Risk management procedures to minimise potential contamination from internal and external sources are incorporated into a certification preparation plan.
3. Develop and implement hazard analysis critical control point (HACCP) based procedures.

3.1 **Production processes and activities**, and those sections of supply chain under one’s control, are identified and documented according to enterprise procedures, certification bodies' requirements and the National Standard for Organic and Biodynamic Produce.

3.2 **Quality, organic and statutory product standards** to be met are identified, documented and compared to actual standards achieved by product and enterprise.

3.3 Corrective actions or improvements to processes and activities are identified and documented.

3.4 Procedures and processes for monitoring and annual review are developed and implemented.

4. Manage customer feedback

4.1 Procedures are developed and implemented to obtain, analyse and respond to customer feedback on quality and integrity of organic product.

4.2 Product recall procedures are developed, communicated to relevant parties and monitored.

**REQUIRED SKILLS AND KNOWLEDGE**

This describes the essential skills and knowledge and their level, required for this unit.

**Required skills:**

- conducting and documenting a risk assessment
- documenting production processes and activities, including developing a flow chart
- negotiating and communicating with other members of the supply chain
- preparing an organic management plan (OMP)
- reading and interpreting the National Standard for Organic and Biodynamic Produce
- researching and evaluating information.

**Required knowledge:**

- certification process
- chain of custody
- HACCP principles and risk management
- health and food safety issues
- labelling requirements for domestic and export markets
- market for organic produce, including the organic movement and organic industry
- National Standard for Organic and Biodynamic Produce
- principles of organic agriculture
- procedures and responsibilities in the case of product recall
- procedures for conducting and documenting a risk assessment
- regulatory requirements and their domestic and international contexts
- requirements of an OMP, including record keeping
- role of quality management systems in organic industry
- working knowledge of the regulated organic industry, including the role of AQIS, certification bodies and inspectors.
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.

**Site** may include:
- land owned or leased by enterprise, including:
  - areas or paddocks used from time to time for agistment of stock
  - areas or paddocks used from time to time for an apiary.

Suitable physical controls for **contamination risk** may include:
- buffer zones
- farm structures
- natural features
- quarantine areas
- tree plantings.

**Production processes and activities** may include:
- growing and harvesting crops
- milking
- post-harvest handling, storage, packaging, labelling and transport
- producing eggs
- raising livestock
- selling to wholesalers, retailers or direct to consumers.

**Quality, organic and statutory product standards** include:
- animal welfare
- environmental management
- food safety
- trade practices and other consumer protection legislation and regulations.

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.
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:

- identify requirements for organic certification and apply them to one's enterprise
- develop a plan for conversion to organic production, if appropriate
- identify critical points in supply chain at which the organic integrity of one's product may be compromised
- implement and monitor effective risk management for those parts of supply chain under one's control.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in the 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 prepare an enterprise for organic certification.

The candidate must also have access to the following resources:

- National Standard for Organic and Biodynamic Produce
- documented requirements of appropriate organic certification body.

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 prepare an enterprise for organic certification must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within one's own organic enterprise or within another organic enterprise.
RTE5924A Research and apply rural industry knowledge

Unit Descriptor
This unit of competency specifies the outcomes required to maintain currency in regard to the broad range of industry knowledge and assess the significance of issues and new developments for the continued growth and wellbeing of one's enterprise and of the industry sector as a whole.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency may apply to all personnel engaged at senior levels in agricultural, horticultural and rural support enterprise activities.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Build and maintain a detailed knowledge of one's own industry sector.

   1.1 Knowledge of one’s own and related industry sectors, products, equipment, supply chain, organisations, people, resource management processes and policies, work practices, legislation and regulations is developed and maintained.

   1.2 Opportunities for participation in relevant organisations are identified and undertaken.

   1.3 Likely sources of credible information are identified and accessed as required.

   1.4 Relevant historical events, sensitivities and positions of people involved are recalled and applied.

   1.5 State, territory, national and international issues are analysed for their relevance to the industry and impact on one’s own enterprise.

2. Assess new developments for impact on one’s own enterprise and industry sector.

   2.1 Industry research and development (R and D) information is sourced and evaluated for relevance to one’s own enterprise and to industry sector.

   2.2 Risks and opportunities of new developments in industry processes, technologies and quality/environmental requirements are considered.

   2.3 Emerging stakeholders and interest groups are identified and assessed for their potential benefit or impact on one's own enterprise and industry sector as a whole.

   2.4 Trends in production, marketing, resource management and research are analysed.

   2.5 Potential impacts of proposed government initiatives are identified and assessed for significance.

   2.6 Success and failure of relevant or related initiatives in other industries or enterprises are assessed for their relevance.

   2.7 Changing community and customer beliefs, attitudes and expectations are monitored.
3. Use information to best effect.

3.1 Evaluated research information is applied in the farm/enterprise/community planning processes.

3.2 Research information is shared with others and opportunities for cooperative approaches are explored and encouraged.

3.3 Implications for use of research information are considered in a wider context with other producers, associates or colleagues.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- evaluating research findings
- communicating information to people and groups inside and outside industry sector
- researching information
- working with others to trial and implement R and D outcomes.

Required knowledge:

- appropriate avenues to disseminate industry sector information to a range of stakeholders
- correct names and terminology relevant to one's industry sector
- credible sources of information
- key industry development and promotion programs relevant to one's industry sector
- roles and responsibilities of stakeholders and organisations relevant to own industry sector
- supply chain for one's industry sector and one's position within it.
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.

Relevant organisations may include:

- animal welfare agencies and groups
- catchment management groups
- conservation and environmental bodies, such as the World Wildlife Fund
- cooperative research centres (CRCs)
- cooperatives, marketing bodies and associations
- employer groups and employee associations
- groups representing other resource users
- natural resource management groups, such as Landcare Australia and the Australian government's Bushcare initiative
- organic certification bodies
- professional or industry bodies, especially those representing growers, producers and consumers
- quality assurance certification bodies
- R and D corporations
- registered training organisations
- schools
- state, territory and federal government agencies.

Industry research and development information may be obtained through such avenues as:

- attendance at industry conferences
- extension and field days
- local research trials
- professional or industry bodies
- research organisations such as R and D corporations and CRCs
- trade or professional journals.

Research and industry information may be shared through:

- best practice groups
- catchment management and Landcare Australia groups
- email and websites
- participation in local community, industry or cooperative marketing arrangements and events
- participation in relevant meetings or events.
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, such as RTE5525A Manage trial and/or research material.

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:

- access and critically evaluate information and research findings of relevance to one's own enterprise and industry sector
- integrate research and development into farm/enterprise planning
- evaluate the potential of research proposals with other producers, associates or colleagues.

Context and specific resources for assessment

Assessment for this unit of competency is to be based on evidence of the ability to evaluate and apply industry knowledge and work with other producers with similar interests.

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 research and apply rural industry knowledge.

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 research and apply rural industry knowledge must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include knowledge in areas of natural resources, finance and marketing, and production techniques.
RTE6401A  Plan and oversee an emergency disease or plant pest control program

Unit Descriptor

This unit of competency specifies the outcomes required to plan and oversee an emergency disease or plant pest control program according to the relevant standards and protocols provided in a national response plan. Work is typically performed in a state disease-control headquarters or a control centre and will involve planning, managing and overseeing an emergency disease or plant pest control program.

Employability Skills

This unit contains employability skills.

Application of the Unit

This unit of competency applies to personnel who have been appointed or engaged to undertake a role within an emergency disease or plant pest incursion response.

Unit Sector

No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Plan emergency disease or plant pest control program.

1.1 Effective strategies to control emergency disease or plant pest are identified to support the emergency disease or plant pest control.

1.2 All components of emergency disease or plant pest control program comply with relevant standards and protocols, jurisdiction's nationally approved response plan, relevant state/territory and commonwealth legislation, and emergency management principles.

1.3 Expert advice is sought and used to identify source of emergency disease or plant pest and gauge its likely spread.

1.4 Declared areas are identified in line with expert advice and available evidence of presence of emergency disease or plant pest.

1.5 Plans are developed to effectively and efficiently control emergency disease or plant pest.

1.6 Plans are submitted to appropriate authorities for approval.

1.7 Likely developments and consequences of emergency disease or plant pest outbreak are identified and appropriate personnel are advised according to established lines of command and control.

2. Oversee emergency disease or plant pest control program.

2.1 Emergency disease or plant pest control plans are implemented and monitored.

2.2 Information recording and dissemination are monitored to ensure compliance with standards and protocols.

2.3 Reports are sent, received and acted upon according to relevant standards and protocols.

2.4 Relevant organisations/agencies and personnel are briefed in relation to management of emergency disease or plant pest.
3. Monitor and review the emergency disease or plant pest control program.

3.1 Emergency disease or plant pest control strategies are monitored continually to ensure that they are achieving the intended outcomes.

3.2 Emergency disease or plant pest control plans are amended as appropriate in line with expert advice, standards and protocols.

3.3 Resource requirements are monitored continually to ensure strategies are achieved.

4. Revise emergency disease or plant pest control program.

4.1 Emergency disease or plant pest control strategies and/or plans are revised as required.

4.2 Changes to emergency disease or plant pest control strategies are communicated to appropriate personnel.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- accessing relevant standards and protocols such as Australian Veterinary Emergency Plan (AUSVETPLAN) or Australian Emergency Plant Pest Response Plan (PLANTPLAN) to determine requirements for a specific emergency disease or plant pest response
- demonstrating flexibility by modifying priorities and procedures in response to new findings
- developing briefing materials for use by others to communicate sensitive and complex information in an appropriate manner
- making effective judgements to achieve a balance of taking authority and delegating appropriately
- managing a team of people under stressful conditions
- managing collection, analysis and dissemination of data to guide the ongoing emergency disease or plant pest response
- operating effectively under stress while performing tasks requiring high-level problem solving and decision making
- preparing or commissioning a detailed plan to manage an emergency disease or plant pest response, including identifying an outbreak of the emergency disease or plant pest, monitoring its presence, investigating its source and pattern of infection, estimating its likely spread and implementing measures and planning procedures for its control or eradication.

Required knowledge:

- detailed knowledge of relevant state, territory and commonwealth Acts of parliament with respect to emergency disease or plant pest control, emergency powers and notification of appropriate authorities
- extensive knowledge of emergency disease or plant pest control strategies for emergency disease or plant pest situations
- extensive knowledge of standards and protocols, such as AUSVETPLAN or PLANTPLAN
- extensive knowledge of where to source technical information and/or expert advice and expertise to effectively manage an emergency disease or plant pest incursion
- knowledge of common reactions and behaviours under stress
- knowledge of relevant public sector policies, practices and constraints in relation to emergency disease or plant pest management
- knowledge of occupational health and safety requirements, particularly when managing personnel in an emergency under stressful conditions
- in-depth knowledge of application of emergency management principles to an emergency disease or plant pest response.
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.

**Strategies to control the emergency disease or plant pest** may include:

- application of plant pesticides
- cleaning and decontamination
- collecting samples
- commonwealth, state, territory and industry response agreements
- destruction
- disinfection
- disposal
- emergency management approach
- epidemiological assessments
- movement control
- quarantine
- tracing and surveillance
- vaccination
- vector control
- whole of government approach
- wild animal control measures.

**Emergency diseases or plant pests** may include:

- diseases that may affect animals, fish and other marine animals including:
  - disease that is exotic to Australia
  - serious infectious disease of unknown or uncertain cause
  - variant of an endemic disease
  - severe outbreak of a known endemic disease that is considered to be of national significance with serious social or trade implications
  - species, biotype or strain of invertebrate pest or pathogen injurious to plants or plant health.

**Relevant standards and protocols** may include:

- directions from state control headquarters
- emergency disease or plant pest response agreements such as:
  - Emergency Animal Disease Response Agreement (EADRA)
  - Emergency Plant Pest Response Deed (EPPRD)
- emergency disease or plant pest specific guidelines and manuals included in the relevant national response plan such as AUSVETPLAN and PLANTPLAN
- emergency management principles
- standard operating procedures
- state and territory legislation defining legal powers in an emergency disease or plant pest incursion
- state response plans.
Declared areas may include:
- areas in which defined conditions apply to the access or egress of specified plants, animals, fish and other marine animals or things
- control areas
- dangerous contact premises and suspect premises
- infected premises
- quarantine premises
- restricted areas
- stand still areas
- any other areas declared.

Information recording and dissemination requirements may include:
- electronic systems
- mapping systems
- message systems, including:
  - records of conversation
  - telephone messages
  - task requests
  - event logs
- record keeping systems.

Relevant organisations may include:
- community organisations
- industry organisations
- local, commonwealth and state or territory government agencies, including emergency service organisations
- whole of government.

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.

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:
- plan for contingencies
- plan, oversee and monitor a response to an emergency disease or plant pest incursion
- build, maintain and motivate a team in response to a sudden need
- prioritise allocation of resources
- implement best options for problem solving based on risk assessment.
### Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in an emergency disease or plant pest response simulation exercise or in responses to an emergency disease or plant pest incursion.

For valid assessment, one must have opportunities to participate in a range of exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge required to plan and oversee an emergency disease or plant pest control program.

The candidate must also have access to a functioning control centre, or a control centre established for an emergency disease or plant pest response simulation exercise.

### 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 plan and oversee an emergency disease or plant pest control program must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within control centres established for other emergency diseases or plant pest incursions.
RTE6402A Develop a plant pest survey strategy

Unit Descriptor
This unit of competency specifies the outcomes required to develop a strategy for plant pest surveys. It specifies elements for determining the presence, distribution and/or prevalence of a plant pest or for confirming that the pest is not detectable. This work may be conducted as part of an emergency response to an incursion or as part of routine surveillance, and will be conducted in line with established standards and protocols.

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to personnel who have been appointed or engaged to undertake a role within a plant pest incursion. This unit may also apply to personnel involved with planning responses to emergency animal diseases and aquatic animal diseases.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Obtain and analyse biological information for survey design.
   1.1 Biological and dispersal characteristics of pest are identified.
   1.2 Impact of climate on reproduction rate and predicted distribution of pest are determined.
   1.3 Geographical distribution of the host(s) is identified.
   1.4 Information is analysed to determine priority areas to be surveyed.

2. Develop survey methodology.
   2.1 Particular type of survey to be designed is determined according to phase of incursion.
   2.2 Appropriate biometric design that will satisfy confidence limits is selected in consultation with technical experts and according to relevant standards and protocols.
   2.3 Field data collection methodology is determined.
   2.4 Quality assurance standards that will apply to survey are identified and incorporated in survey methodology and documentation.
   2.5 Appropriate diagnostic tests are selected for use in confirming pest presence in samples to be collected.
   2.6 Instructions for survey teams are developed.

3. Determine the resources required.
   3.1 Resources required for survey activities are determined in conjunction with technical experts and are documented.

4. Obtain approval for the survey design.
   4.1 Survey design is documented according to protocols and standards.
   4.2 Survey design is submitted to appropriate authorities for approval.

5. Determine post-survey review processes.
   5.1 Review processes are determined to evaluate conduct and effectiveness of survey program.
REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- high level interpretation of information to determine distribution of pests in relation to biology, climate and vegetation
- negotiation
- working with other technical experts
- writing work instructions for survey teams.

Required knowledge:

- detailed knowledge of a range of biological survey methods
- detailed knowledge of application of biometric principles to biological survey design
- detailed knowledge of biology of groups of pests and pathogens relevant to survey
- detailed knowledge of types and distribution of hosts relevant to survey
- knowledge of plant and animal industries and potential impact of incursions
- legislation and regulations defining and affecting management of incursions

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.

**Biological and dispersal characteristics** may include:

- intrinsic characteristics of pest
- active flight
- soil borne
- water borne
- wind borne
- biological (mechanical) vectors that carry the pest such as:
  - fruit, seed and plant material
  - insects, invertebrates and vertebrates
  - non-biological means such as equipment, machinery, vehicles and clothing.

**Types of survey** required may include:

- area free
- delimiting
- distribution
- prevalence.
**Standards and protocols** that may apply include:
- PLANTPLAN
- Australian Veterinary Emergency Plan (AUSVETPLAN)
- commonwealth, state and territory legislation defining legal powers in a disease emergency
- damage minimisation policies
- environmental policies
- occupational health and safety requirements and policies
- pest free area guidelines
- standard operating procedures.

**Diagnostic tests** selected may include:
- biochemical tests
- Enzyme-Linked Immunosorbent Assay (ELISA)
- microscopy
- Polymerase Chain Reaction (PCR).

**Instructions for survey teams** may cover:
- actions to take when suspect material is found
- biosecurity measures for team and property owners
- communication protocols for teams when briefing property owners, including confidentiality requirements
- farm, district and regional requirements
- sampling intensity
- sampling protocols
- specifying survey sites.

**Resources** required may include:
- equipment
- illustrated guides
- information technology and communications equipment
- maps - topographical and aerial
- personnel and their needs, including physical needs such as transport, accommodation and other requirements such as supervision and training
- vehicles appropriate to area, site and terrain, including:
  - four-wheel drive
  - all terrain vehicle (ATV)
  - forklift
  - helicopter.

**Technical experts** to consult may include:
- those with appropriate diagnostic and biometric expertise.

**Appropriate authorities** may include:
- chief plant health manager
- consultative committee on emergency plant pests
- planning manager
- survey manager.
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.

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 develop and document a plant pest survey strategy according to prevailing standards and protocols.

Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will be most appropriately assessed in an actual plant pest incursion or in a situation that simulates an incursion response.

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 develop a plant pest survey strategy.

The candidate must also have access to a functioning control centre, or a control centre established for a plant pest response simulation exercise.

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 develop a plant pest survey strategy must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include surveys in urban, rural, agricultural, forestry, horticultural and natural ecosystems.
RTE6403A Develop a plant pest destruction strategy

Unit Descriptor
This unit of competency specifies the outcomes required to develop a strategy for the destruction of plant pests for the purposes of eradication. The plant pest destruction strategy forms part of the Australian Emergency Plant Pest Response Plan (PLANTPLAN).

Employability Skills
This unit contains employability skills.

Application of the Unit
This unit of competency applies to personnel who have been appointed or engaged to undertake a role within a plant pest incursion. The unit may also apply to personnel involved with planning responses to emergency animal diseases and aquatic animal diseases.

Unit Sector
No sector assigned

ELEMENT PERFORMANCE CRITERIA

1. Obtain and analyse information for inclusion in the plant pest destruction strategy.
   1.1 Characteristics of plant pest that may determine best method of destruction are identified.
   1.2 Characteristics of host plants and/or plant products are identified.
   1.3 Possible destruction treatments are identified and estimated costs are obtained.

2. Determine destruction methodology.
   2.1 Pre-treatments that will limit organism's risk of escape are identified.
   2.2 Affected areas, including buffer areas, are identified.
   2.3 Occupational health and safety and environmental standards that will apply to all phases of destruction strategy are identified, incorporated into destruction methodology and documented.
   2.4 Most cost-effective, safe and effective method of destruction is selected as appropriate for circumstances.
   2.5 Contingencies for prevailing weather conditions are developed.
   2.6 Instructions for destruction teams are developed, including specific checklists on performance of operations.
   2.7 Need for approvals associated with destruction activities is identified and documented.
   2.8 Biosecurity issues are identified and contingency plans are prepared.

3. Determine the required resources.
   3.1 Resources required for implementation of destruction strategy are determined in conjunction with technical experts and are documented.

4. Develop communication procedures.
   4.1 In conjunction with communications manager, procedures and protocols for communicating with contractors, emergency services, property owner/manager, government, media and other stakeholders are developed.
   4.2 Plant pest destruction strategy is communicated to appropriate authorities.

5.1 Review processes to evaluate **effectiveness of plant pest destruction treatments** are determined.

5.2 Surveillance needed to demonstrate pest-free areas is determined.

5.3 Review processes to evaluate **effectiveness of plant pest destruction strategy** are determined.

**REQUIRED SKILLS AND KNOWLEDGE**

This describes the essential skills and knowledge and their level, required for this unit.

**Required skills:**

- communication
- costing alternative destruction treatments
- developing a budget
- negotiation
- planning biological strategies
- researching and analysing information
- supervising others working in a special purpose team
- writing work instructions.

**Required knowledge:**

- approvals required for such things as burning
- communication procedures and protocols
- crop destruction methods
- equipment needed for plant pest destruction
- government processes
- group of organisms relevant to strategy being developed
- legislation and regulations defining and affecting destruction of plant pests
- logistics requirements
- rates and methods of application of selected biocides
- relevant guidelines, including PLANTPLAN.
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.

**Characteristics of plant pest** to be analysed may include:

- likely efficacy of treatment considering the susceptibility of pest and life form of organism, such as resistant spore forms in soil
- means of organism dispersal, escape points and associated risks
- position of pest in/on host organism:
  - on or inside plants:
    - leaves
    - stems
    - fruit
    - seeds
    - roots
    - tuber bulbs
  - in the soil

**Characteristics of host plants and/or plant products** to be analysed may include:

- analysis of morphological characteristics such as:
  - cellulose or lignified
  - perennial or annual
  - size
  - extent of root system
  - presence of fruits or other materials that may be difficult to treat by usual destruction methods
- identity, area, location and other important characteristics of host plants/plant products such as ownership.

**Pre-treatments** may include:

- application of pesticides to close down escape routes of organism, such as:
  - spores
  - winged insects.

**Approvals** may be required for activities such as:

- burial and/or disposal of affected plants and plant products
- chemical use
- destruction of vegetation on public land
- environmental approvals
- excessive noise
- fires.
Resources required for plant pest destruction treatments may include:
- contractors
- destruction teams
- emergency services to control site access
- equipment for affected host organism removal and transportation
- equipment for site clean-up
- equipment for application of treatments and biocides.

Communication strategies with stakeholders may involve a range of methods such as:
- liaison with technical experts
- reporting to appropriate authorities
- reporting to media.

Appropriate authorities may include:
- chief plant health manager
- consultative committee on emergency plant pests
- planning manager
- survey manager.

Review of effectiveness of plant pest destruction treatments may involve:
- checks of biosecurity of routes for off-site disposal of affected material
- integrity of disposal and burial areas
- site inspection for signs of infected material and unacceptable debris.

Review of effectiveness of plant pest destruction strategy may need to consider:
- best timing for review
- checks required on possible points of weakness of destruction program
- detailed analysis of effectiveness
- resources required for review.

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.

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:
- plan pre-treatment, destruction and site clean-up
- communicate plans to destruction teams, contractors and emergency services.
Context and specific resources for assessment

Assessment for this unit of competency is to be largely practical in nature and will most appropriately be assessed in a real or simulated plant pest incursion response.

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 develop a plant pest destruction strategy.

The candidate must also have access to a functioning control centre, or a control centre established for a plant pest response simulation exercise.

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 develop a plant pest destruction strategy must be transferable to a range of work environments and contexts, including the ability to deal with unplanned events. For example, this could include work within urban, farming, forestry and natural environments.
RTE03 Rural Production Training Package
Rural Production Volume 7a - Rural Production units of competency for additional sectors
Volume 7 of 8