



Australian Government

AHCWAT503 Manage water systems

Release: 1

AHCWAT503 Manage water systems

Modification History

Release	Comments
Release 1	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 4.0.

Application

This unit of competency describes the skills and knowledge required to determine the feasibility of using or up-grading an irrigation system, install or maintain an irrigation or drainage system, monitor and assess water inputs, irrigation system and plant response and evaluate irrigation system performance.

The unit applies to individuals who apply specialised skills and knowledge to the management of water systems, and take personal responsibility and exercise autonomy in undertaking complex work. They analyse and synthesise information and analyse, design and communicate solutions to sometimes complex problems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Unit Sector

Water (WAT)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Assess soil and water resources for crop and plant type	1.1 Identify suitability of soil and water resources for irrigation 1.2 Determine range of crops and plant types that could be grown in soil utilising available water resources 1.3 Select crop and/or plant type based on assessment

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
2. Determine the feasibility of using or up-grading irrigation system	2.1 Assess water resources and drainage implications to determine suitability for irrigation 2.2 Determine water quality and treatment requirements 2.3 Determine water requirements and most suitable application systems for each crop and plant type and area, and for each soil type 2.4 Determine other water requirements, such as climate control 2.5 Determine drainage requirements in relation to each soil and crop and plant type and type of irrigation system 2.6 Assess performance data, audit reports, environmental and workplace health and safety data for existing systems 2.7 Obtain information from irrigation specialists on all relevant aspects of irrigation design 2.8 Assess and cost available irrigation system types and components and make a decision on the particular system to be used or upgrades to existing system
3. Install or maintain an irrigation or drainage system	3.1 Determine and acquire materials and equipment making up the system 3.2 Install irrigation system using advice, as necessary, from irrigation specialists 3.3 Check that irrigation and drainage systems are supervised to ensure there are no leaks or blockages 3.4 Confirm that the water is being evenly distributed and that the drainage is effective and the system is in good working order
4. Assess the need for water inputs	4.1 Assess the need for water inputs at critical growth stages 4.2 Consider crop value and induce appropriate water regimes including frost protection where appropriate 4.3 Utilise soil moisture monitoring data 4.4 Consider weather forecast, seasonal weather outlook, water allocations and water quality 4.5 Consider energy costs in water application timing
5. Monitor irrigation system and plant response	5.1 Identify volume and quality of water flow 5.2 Plan scheduled irrigation system maintenance work to ensure minimised disruption to watering activities

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	5.3 Monitor plant response to irrigation 5.4 Modify irrigation scheduling to minimise water wastage and maximise outcomes 5.5 Record irrigation system water usage according to workplace procedures
6. Evaluate irrigation system performance	6.1 Determine and value plant growth, crop quality and yield from irrigation 6.2 Calculate the cost of irrigation 6.3 Identify and minimise poor water usage practices 6.4 Determine the cost benefit of irrigation and compare with alternative systems and approaches

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Reading	- Identify and interpret information regarding irrigation system design - Identify and interpret workplace procedures regarding irrigation system use
Oral communication	Initiate discussions with suppliers, using clear language to communicate irrigation requirements
Numeracy	- Access and analyse performance data, audit reports, environmental and workplace health and safety data for existing irrigation systems - Calculate the cost of irrigation and determine the cost benefit of irrigation and alternative systems and approaches
Navigate the world of work	Identify and describe own workplace requirements associated with own role and area of responsibility

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AHCWAT503 Manage water systems	AHCWAT502 Manage water systems	Performance criteria clarified Foundation skills added Assessment requirements updated	Equivalent unit

Links

Companion Volumes, including Implementation Guides, are available at VETNet: -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCWAT503 Manage water systems

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Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit. There must be evidence that the individual has managed water systems on at least one occasion and has:

- assessed soil and water resources
- analysed performance and audit data
- assessed environmental and workplace health and safety data
- monitored and assessed water inputs
- monitored and evaluated irrigation system performance
- strategically managed irrigated production systems, including:
 - considered energy costs
 - minimised water wastage
 - prevented poor water usage practices.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- principles and practices of water systems management, including:
 - cost or benefit analysis
 - workplace policies and procedures
 - environmental impacts of irrigation, using water from any ground or underground source
 - plant requirements
 - natural water system retention and storage
 - soil moisture storage
 - use of yeomans keyline or swales
 - assessing water inputs
 - strategies for reducing water evaporation and transpiration

- water quality maintenance.

Assessment Conditions

Assessment of skills must take place under the following conditions:

- physical conditions:
 - a workplace setting or an environment that accurately represent workplace conditions
- resources, equipment and materials:
 - performance data, audit reports, environmental and workplace health and safety data for existing systems
 - alternative system information
- specifications:
 - irrigation system design information
- timeframes:
 - according to the job requirements.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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