

**Modification history**

Release	Comments
Release 2	This version released with AHC Agriculture, Horticulture, Conservation and Land Management Training Package Version 4.0.
Release 1	This version released with AHC Agriculture, Horticulture, Conservation and Land Management Training Package Version 1.0.

AHCIRG426	Evaluate water supply for irrigation
<b>Application</b>	<p>This unit of competency describes the skills and knowledge required to determine irrigation water needs, assess water quality of water source, determine cost and availability of alternative water sources and complete water sourcing or acquisition arrangements.</p> <p>The unit applies to individuals who apply specialised skills and knowledge to evaluate water supply for irrigation. This includes applying and communicating non-routine technical solutions to predictable and unpredictable problems.</p> <p>No occupational licensing, legislative or certification requirements apply to this unit at the time of publication.</p>
<b>Prerequisite Unit</b>	Nil
<b>Unit Sector</b>	Irrigation (IRG)

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. Determine water needs for irrigation	1.1 Determine the water needs of plants to be irrigated 1.2 Calculate the permeability of the soil and deep drainage losses 1.3 Calculate evapotranspiration rates through the growing season 1.4 Calculate soil water deficits throughout the season based on expected rainfall 1.5 Calculate the amount of irrigation water required through the growing season
2. Assess a water source for water quality	2.1 Test and record water source for electrical conductivity and analyse results 2.2 Test and record water source for ionic composition and analyse results 2.3 Test and record water source for biological composition and analyse results
3. Determine cost and availability of alternative water sources	3.1 Evaluate water availability and access requirements for water sources 3.2 Cost capital expenditure requirements 3.3 Cost operating expenditure requirements 3.4 Investigate regulatory requirements for purchasing irrigation water and incorporate into business planning
4. Complete water sourcing or acquisition arrangements	4.1 Make contractual arrangements for purchase or sourcing of water 4.2 Plan for short term purchasing or selling of water depending on seasonal conditions if necessary

<b>Foundation Skills</b>	
<i>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.</i>	
<b>Skill</b>	<b>Description</b>
Reading	<ul style="list-style-type: none"> <li>Identify and interpret information regarding water supply for irrigation</li> </ul>
Writing	<ul style="list-style-type: none"> <li>Record scheduling system information for each irrigation, significant rainfall events and other appropriate parameters</li> </ul>
Numeracy	<ul style="list-style-type: none"> <li>Calculate, soil permeability, drainage losses, evapotranspiration rates, soil water deficits and amount of irrigation water required</li> <li>Record and analyse water source electrical conductivity, ionic composition, and biological composition data</li> <li>Calculate capital and operating expenditure</li> </ul>
Navigate the world of work	<ul style="list-style-type: none"> <li>Identify and describe own workplace requirements, including safety requirements, associated with own role and area of responsibility</li> </ul>

<b>Unit Mapping Information</b>			
<b>Code and title current version</b>	<b>Code and title previous version</b>	<b>Comments</b>	<b>Equivalence status</b>
AHCIRG426 Evaluate water supply for irrigation Release 2	AHCIRG426 Evaluate water supply for irrigation Release 1	Minor changes to performance criteria and foundation skills	Equivalent unit

<b>Links</b>	Companion Volumes, including Implementation Guides, are available at VETNet: <a href="https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72">https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72</a>
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<b>TITLE</b>	<b>Assessment requirements for AHCIRG426 Evaluate water supply for irrigation</b>
<b>Performance Evidence</b>	
<p>An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.</p> <p>There must be evidence that the individual has evaluated water supply for irrigation on at least one occasion and has:</p> <ul style="list-style-type: none"> <li>• analysed results for electrical conductivity and ionic composition of irrigation water</li> <li>• applied principles of hydraulics to the selection of irrigation systems, legal access and structures</li> <li>• calculated capital and operating expenditure for a water supply system</li> <li>• calculated water losses in an irrigation system</li> <li>• compared costs for different water sources</li> <li>• estimated the irrigation requirements of plants</li> <li>• taken water samples.</li> </ul>	
<b>Knowledge Evidence</b>	
<p>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:</p> <ul style="list-style-type: none"> <li>• capital and operating expenditure calculations to source water</li> <li>• climatic factors in irrigation development, rainfall, evaporation, evapotranspiration and hydrology</li> <li>• conveyance and disposal of drained effluent</li> <li>• cost benefit analysis</li> <li>• efficiency of irrigation systems and long-term viability</li> <li>• environmental and energy-use implications of resource utilisation and development</li> <li>• irrigation drainage, seepage, surface and subsurface drainage systems</li> <li>• irrigation scheduling, soil moisture measurement</li> <li>• management planning and operation of water allocations</li> <li>• operations and maintenance requirements</li> <li>• plant physiology and plant water use, transpiration crop water requirements in terms of water quality and quantity</li> <li>• plant water requirements in terms of water quality and frequency of supply</li> <li>• re-use systems, management of irrigation systems</li> <li>• salinity and ionic composition impacts on soil structure and plant growth</li> <li>• selection of irrigation systems</li> <li>• soils and water, soil moisture retention and movement, plant root zones and development, infiltration and leaching</li> <li>• types of irrigation systems</li> <li>• legislation relevant to the supply of water for irrigation</li> <li>• water supply potential for the development of irrigation systems.</li> </ul>	
<b>Assessment Conditions</b>	
<p>Assessment of skills must take place under the following conditions:</p> <ul style="list-style-type: none"> <li>• physical conditions: <ul style="list-style-type: none"> <li>• a workplace setting or an environment that accurately represents workplace conditions</li> </ul> </li> <li>• resources, equipment and materials: <ul style="list-style-type: none"> <li>• water source sampling and testing equipment and procedures</li> <li>• legislation relevant to the supply of water for irrigation</li> </ul> </li> <li>• timeframes: <ul style="list-style-type: none"> <li>• according to the job requirements.</li> </ul> </li> </ul> <p>Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.</p>	
<b>Links</b>	Companion Volumes, including Implementation Guides, are available at VETNet:

	<a href="https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72">https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72</a>
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