



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **FDFWGG3007A Implement an irrigation schedule**

**Release: 2**

## FDFWGG3007A Implement an irrigation schedule

### Modification History

This unit supersedes and is equivalent to FDFWGGISIB Implement an irrigation schedule.  
April 2012: Minor typographical corrections.

### Unit Descriptor

<b>Unit descriptor</b>	This specialist unit has been developed for the wine grape growing stream of the wine sector. This unit covers the skills and knowledge required to monitor soil requirements and implement and evaluate a vineyard irrigation and/or injection schedule, including consultation with the manager.
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### Application of the Unit

<b>Application of the unit</b>	The application of this unit is likely to require supervision of others and assessment of the impact of the irrigation and/or program on surrounding areas.
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### Licensing/Regulatory Information

Not applicable.

### Pre-Requisites

<b>Prerequisite units</b>		
	FDFWGG2014A	Operate the irrigation system

## Employability Skills Information

<b>Employability skills</b>	This unit contains employability skills.
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## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

## Elements and Performance Criteria

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
1. Monitor vineyard for irrigation requirements	1.1 Vineyard is monitored according to workplace procedures 1.2 Results are interpreted correctly 1.3 Appropriate irrigation activities are identified and recommended
2. Implement irrigation requirements	2.1 Resources are coordinated and personnel briefed to deliver requirements 2.2 Agreed irrigation schedule is implemented
3. Evaluate effectiveness of irrigation activities	3.1 Vineyard is monitored to evaluate effectiveness of irrigation activities 3.2 Surrounding areas are monitored to evaluate environmental impact of irrigation activities
4. Record information	4.1 Workplace information is recorded in the appropriate format

## Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

### Required skills include:

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Note: The following required skills should be applied as appropriate to the equipment and processes that are used in the particular winery or workplace.

#### Ability to:

- access workplace information to identify irrigation requirements
- select, fit and use personal protective clothing and/or equipment
- liaise with other work areas
- consult with appropriate senior personnel or consultants
- monitor the vineyard and interpret the results to identify vineyard irrigation and/or injection requirements. Factors to be considered include:
  - soil moisture content
  - watertable level
  - water quality
  - signs of vine nutrient deficiencies
  - climatic conditions
  - frost risk
  - grape variety
  - soil type and depth
  - closeness to harvest
  - yield parameters
  - age of vine
  - grape quality requirements
  - symptoms of vine water stress
  - effective root depth
- calculate chemical application rates for injection requirements
- present and justify recommendations to senior personnel
- implement the irrigation and/or injection schedule. This may include consideration of:
  - resources, including operators with appropriate skills
  - application rates
  - timing and length
  - materials, chemicals and services
  - maintenance programs and supplies
  - interaction between different irrigation valves or shifts
- instruct irrigation system operators as required
- apply sampling techniques
- conduct routine tests

- monitor irrigation and/or injection activities. This may include:
  - measuring nitrogen output
  - measuring chlorine output
  - identifying soil moisture content and depth to which water will reach
  - identifying emitter output consistency
- take corrective action in response to out-of-specification results or non-compliance
- report and/or record problems and/or corrective action taken
- evaluate effectiveness of irrigation activities
- evaluate environmental impact of irrigation activities
- identify, rectify and/or report environmental non-compliance
- maintain workplace records
- maintain work area to meet housekeeping standards
- report and/or record problems according to instructions
- plan and organise
- apply information technology systems according to enterprise procedures
- calculate and present statistical data according to enterprise procedures
- write reports according to enterprise procedures
- facilitate teams according to enterprise procedures
- use oral communication skills/language to fulfil the job role as specified by the organisation, including questioning, active listening, asking for clarification and seeking advice from supervisor
- work cooperatively within a culturally diverse workforce.

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**Required knowledge includes:**

Note: The following required knowledge should be applied as appropriate to the equipment and processes that are used in the particular winery or workplace.

**Knowledge of:**

- effect of irrigation techniques on vine growth, cropping levels and wine quality. This should include partial root zone drying (PRD) and regulated deficit irrigation (RDI)
- effect of a variety of injection methods on vine growth, cropping levels and wine quality
- effect of water and additives on vines during different key phenological stages
- visual symptoms of vine nutrient deficiencies, water stress and frost
- principles of soil moisture monitoring (e.g. volumetric soil moisture content, and percentage compared to soil moisture tension)
- fruit quality and quantity requirements
- monitoring requirements and procedures
- sampling techniques and procedures
- testing techniques and procedures
- interpretation of routine tests
- Occupational health and safety (OHS) hazards and controls
- environmental issues and controls
- procedures and responsibility for reporting problems

- resource requirements and availability
- recording requirements and procedures
- consultation requirements and procedures
- information technology systems where relevant
- calculation and presentation of statistical data where relevant
- report writing techniques and requirements where relevant
- team facilitation techniques where relevant.

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
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 must be carried out in a manner that recognises the cultural and literacy requirements of the assessee and is appropriate to the work performed. Competence in this unit must be achieved in accordance with food safety standards and regulations.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of ability to: <ul style="list-style-type: none"> <li>• ensure use of personal protective clothing and equipment</li> <li>• recommend requirements for irrigation</li> <li>• implement irrigation activities</li> <li>• identify and address problems and anomalies</li> <li>• complete workplace records.</li> </ul>
Context of and specific resources for assessment	Assessment must occur in a real or simulated workplace where the assessee has access to: <ul style="list-style-type: none"> <li>• personal protective clothing and equipment as required</li> <li>• work procedures, including advice on company practices, safe work practices, food safety, quality and environmental requirements</li> <li>• instructions, information, specifications and schedules as required</li> <li>• equipment, services and corresponding information as required</li> <li>• products and materials as required</li> <li>• internal and external customers and suppliers as required</li> <li>• cleaning procedures, materials and equipment as required</li> <li>• documentation and recording requirements and procedures</li> </ul>
Method of assessment	This unit should be assessed together with other units of competency relevant to the function or work role.
Guidance information for assessment	To ensure consistency in one's performance, competence should be demonstrated on more than one occasion over a period of time in order to cover a variety of

**EVIDENCE GUIDE**

	circumstances, cases and responsibilities, and where possible, over a number of assessment activities.
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**Range Statement****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.

**Policies and procedures**

Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements

**Workplace information**

Workplace information can include:

- Standard Operating Procedures (SOPs)
- specifications
- irrigation and/or injection schedules
- routine maintenance schedules
- work notes
- Material Safety Data Sheets (MSDS)
- manufacturer instructions
- verbal directions from manager or supervisor

**Monitoring activities**

Monitoring activities may include:

- drainage
- soil moisture
- watertable levels
- rainfall
- water quality
- vine and soil nutrient deficiencies
- irrigation system cleaning requirements
- air temperature
- frost risk

**Tests**

Tests may be:

- physical appearance or analytical

<b>RANGE STATEMENT</b>	
<b>Information systems</b>	Information systems may be: <ul style="list-style-type: none"> <li>• print or screen based</li> </ul>
<b>Irrigation systems</b>	Irrigation systems may include: <ul style="list-style-type: none"> <li>• flood</li> <li>• dripper</li> <li>• microjet</li> <li>• sprinkler</li> <li>• overhead</li> <li>• water winch using dam, bore or river water</li> </ul> The irrigation system may be used to: <ul style="list-style-type: none"> <li>• supply water, nutrients or other additives to the vines</li> <li>• minimise frost damage</li> </ul>
<b>Work hazards</b>	Work may involve exposure to: <ul style="list-style-type: none"> <li>• chemical, dangerous or hazardous substances</li> </ul>
<b>Area management</b>	Area managed may not be limited to the area under vines. Adjacent or ecologically linked landscapes may require management or consideration, and may include: <ul style="list-style-type: none"> <li>• woodlots</li> <li>• seepage areas</li> <li>• waterways</li> <li>• landcare sites</li> <li>• revegetation sites</li> <li>• windbreaks</li> <li>• neighbouring vineyards and other primary production</li> </ul>
<b>Grapes</b>	Grapes may vary according to: <ul style="list-style-type: none"> <li>• grape variety</li> <li>• crop quality</li> <li>• quantity</li> </ul>

## Unit Sector(s)

<b>Application of the unit</b>	The application of this unit is likely to require supervision of others and assessment of the impact of the irrigation and/or program on surrounding areas.
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