

41290**Carry out irrigation system operations**

Kaupae Level	3
Whiwhinga Credit	25
Whāinga Purpose	This skill standard is intended for people working with irrigation systems in, or supporting, a primary industry operation. They will be able to plan an irrigation round, interpret soil moisture data, protect irrigation equipment from environmental factors, carry out irrigation activities safely, and maintain irrigation records, under limited supervision. This skill standard aligns with the New Zealand Certificate in Arable Farming (Level 3) [Ref: 5679] and the Irrigation System Maintenance and Management (Micro-credential) (Level 3) [Ref: 5636-1]

Hua o te ako me Paearu aromatawai | Learning outcomes and assessment criteria

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
1. Plan an irrigation round.	a. Describe the irrigation system and its application capacity and rate in relation to irrigation planning.
	b. Use crop growth stage, soil type and weather information to plan an irrigation round.
	c. Adjust irrigation planning in response to changing conditions.
2. Interpret soil moisture data.	a. Describe how soil moisture data is used to determine effectiveness of an irrigation round.
	b. Use information about soil texture, water holding capacity, and infiltration rate to interpret irrigation requirements.
	c. Identify key features on a soil moisture trace and interpret what they indicate in relation to field capacity, stress point, and managed allowable deficit.

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
3. Protect irrigation equipment from environmental factors.	a. Protect equipment from extreme weather events.
	b. Determine requirements for winter shutdown or seasonal non-use of the irrigation system.
4. Conduct irrigation management activities.	a. Set up irrigation system for operation safely in desired position.
	b. Run an irrigation event safely within a designated area.
5. Maintain irrigation records.	a. Record irrigation information to capture performance data.
	b. Record irrigation scheduling information.

Pārongo aromatawai me te taumata paearu | Assessment information and grade criteria

Assessment specifications:

All activities must be carried out in accordance with workplace health and safety requirements, workplace procedures, and manufacturer's specifications.

Providers must give due consideration to embedding ngā kaupapa (principles) o Te Tiriti o Waitangi when designing delivery activities relevant to this standard. These principles are outlined in [Guidelines for Providers: Embedding Tirohanga Māori](#).

Providers must give due consideration to the needs and values of Pacific peoples and other cultural groups when designing delivery activities relevant to this standard, ensuring practices are inclusive and equitable.

Ākonga/learners should be assessed against this standard in a real-life context using naturally occurring evidence, or from a realistic workplace-based scenario. A verifier's checklist with appropriate comments confirming competency is acceptable if accompanied by evidence that includes examples from the learner's performance.

Definition

Primary industry organisation refers to a workplace, business, or entity in the agriculture, horticulture, or wider primary sector that uses, manages, supplies, installs, services, or supports irrigation systems for primary industry operations.

Ngā momo whiwhinga | Grades available

Achieved

Ihirangi waitohu | Indicative content**Irrigation planning**

- order of start-up
- well water daily limits, instantaneous take, irrigation scheme requirements
- soil type, water holding capacity, available water holding capacity
- instantaneous application rates, infiltration rates, evapotranspiration
- target areas for irrigation
- weather forecasts
- crop growth stage
- adjusting irrigation planning in response to changing conditions.

Soil moisture data

- sources of data e.g. soil moisture graphs, soil moisture probes, soil moisture sensors
- use of soil moisture data to determine effectiveness of an irrigation round
- soil texture, water holding capacity, and infiltration rate in relation to irrigation requirements
- key features of a soil moisture trace
- field capacity
- stress point
- managed allowable deficit.

Environmental factors

- environmental factors and their effects e.g. frost, high winds
- responses to factors e.g. draining the system, securing equipment
- requirements for winter shutdown or seasonal non-use of the irrigation system, e.g. draining, isolating, flushing, securing, storing components.

Safety

- hazards, e.g. overhead wires, vehicles, water storage (e.g. dams, reservoirs, tanks, ponds, canals)
- boundaries e.g. roads and risk to traffic, irrigation blocks and riparian strips
- safe moving, positioning and securing of irrigation equipment
- operation with a designated area.

Maintaining irrigation records

- types of records and their purpose
- irrigation performance data
- irrigation scheduling information.

Rauemi | Resources

- [Health and Safety at Work Act 2015](#).
- [Scheduling](#) (IrrigationNZ).
- [Book 11: Soil Moisture Monitoring](#) (IrrigationNZ).
- [Soil Moisture Measurement System Selection Guide](#) (IrrigationNZ).
- Workplace-specific Standard Operating Procedures.

Pārongo Whakaū Kouna | Quality assurance information

Ngā rōpū whakatau-paerewa Standard Setting Body	Food and Fibre Industry Skills Board
Whakaritenga Rārangi Paetae Aromatawai DASS classification	Agriculture, Forestry and Fisheries > Primary Sector > Primary Sector Core Skills
Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga CMR	0052

Hātepe Process	Putanga Version	Rā whakaputa Review Date	Rā whakamutunga mō te aromatawai Last date for assessment
Rēhītatanga Registration	1	30 July 2026	N/A
Kōrero whakakapinga Replacement information	N/A		
Rā arotake Planned review date	31 December 2031		

Please contact the Food and Fibre Industry Skills Board at info@foodandfibreisb.nz to suggest changes to the content of this skill standard.