

Ngā Mahi a Wai Māori

Northland Water Storage and Use Project



Water for Horticulture

Irrigation has many benefits including economic and environmental, but from a farmer or orchardists' perspective, is mainly about maintaining soil in a healthy balance and increasing the value that can be obtained from the land.

It does this by providing greater certainty that growers can consistently achieve their production. It makes each season more predictable for existing growers while those contemplating selling, changing land use, or expanding, can enjoy reduced risk and increased return from shifting to a new higher value crop.

Irrigation is more than an insurance policy against droughts. While it will reduce the risk from droughts; to be most effective, irrigation also needs to increase value in normal seasons. It achieves this by, for example, allowing an additional crop rotation within the season, increasing yield from a given crop, or improving the ability to finish a crop in time to meet market expectations.

The environmental benefits of irrigation include maintaining healthy green landscapes and reducing soil erosion during drought, as well as reducing leaching of nutrients during the wet period that follows drought by permitting plants to continue nutrient uptake.

The flow on value from irrigation comes in the form of increased land values and options, more jobs, in processing, logistics and retail, with associated wellbeing from greater employment, and flow-back in terms of increased investment from the land-owner.

A 2016 report showed that the Kerikeri irrigation scheme contributes more than \$100 million per annum to the region's GDP and supports employment of more than 1,300 FTEs.

Certainty of Water Supply

Reliability is the most common beneficial factor stated for irrigation schemes, although it doesn't give any indication as to how certain the delivery of water will be. The following scheme performance factors are all important in terms of scheme design and how it meets user needs.

Reliability

The amount of water received vs the amount ordered.

Irrigation schemes typically aim for a 95% reliability meaning for every 20 units ordered, on average 19 are delivered. Reliability however provides no certainty of supply on any given day, week or season.

Certainty

What is the minimum amount I am likely to receive?



Certainty works alongside reliability to allow the user to calculate how likely they are to get water. For example, 'supply certainty' for a scheme, may be that supply will not fall below 75% for more than 10 days in any season, except in an extreme drought.

Capacity

What is the maximum rate I can receive water?

This is relevant to the type of crop, particularly whether you irrigate little and often, or in higher applications occasionally.

As a "rule of thumb" the amount of water required to provide sufficient confidence for a range of horticulture options in Northland is approximately 4000m³ per hectare, with a maximum daily demand of 4mm.



Balancing Value with Cost

The above performance factors all impact on scheme cost and likely water charges. Increasing or decreasing any factors will directly impact scheme cost but also value. Striking the balance is the goal.

Impact on Cost

- Increasing supply **reliability** has an ever-increasing impact on cost. It can cost as much to go from 95 to 96% reliability as it does to go from 90 to 95%. Reducing reliability too much will make the scheme unusable to many users.
- Similarly, increasing supply **certainty** can result in escalating costs as it often relies on increased storage. It could cost twice as much to increase supply certainty from a minimum of 60% up to 80%. Increasing supply certainty can be balanced against modest reductions in reliability.

- Higher supply **capacity** also has a disproportionate impact on cost. Providing high supply capacity is like having a four-lane motorway that is only used two hours each day, although reducing capacity may rule out some high value crop options.

Water Users' Charges

- The combination of supply, reliability, certainty and capacity also influences water charges. It is common to have both **fixed** (typically \$ per hectare per year or \$ per litre per second), and **variable** (typically \$ per unit of water) charges.
- **Capacity** has a cost whether it is used for 1 or 2000 units in any season. It is likely to need a fixed charge. Providing **certainty** also relies heavily on fixed cost items such as storage dams and hence will incur a largely fixed charge.
- Scheme **reliability** will be a function of fixed and variable costs and as such could be charged to the users as a combination of fixed and variable charges. A scheme may be able to provide some flexibility to users around supply reliability, certainty and capacity, allowing individuals to select their ideal supply and hence associated charges.

Example Schemes

Kerikeri Irrigation Scheme

This scheme was built by the Ministry of Works and started delivering water in the early 1980s. Local horticulturists and farmers formed the cooperative Kerikeri Irrigation Co Ltd and purchased the scheme in 1990. It mainly supplies horticultural land (2,300 hectares) but also agricultural land (350 hectares), lifestyle blocks, commercial users and raw bulk water for town supply. Scheme charges depend on user type (commercial or non-commercial) and include fixed property (to cover metering costs) and fixed per hectare and variable water use charges.

More information [here](#).

Maungatapere Irrigation Scheme

Completed in 1990 to supply at least 1,500 hectares, this scheme currently supplies just over 700 hectares of horticulture. It is owned and operated by a co-operative company. Scheme charges to shareholders consist of an annual fixed charge of approximately \$800, which includes the first 387 cubic metres per hectare. Additional water is charged at \$0.49 per cubic metre. The scheme is estimated to contribute \$17 million per annum to the region's GDP and supports employment for more than 360 people.

More information [here](#).

Southern Valley Irrigation (SVIS)

The SVIS near Blenheim provides irrigation water to approximately 4,500 ha of horticultural, farming and rural residential land. Water is sourced from the Wairau River flowing into a settlement pond and then via a water race and pumps. Each property is entitled to 18m³/ha/day during the summer. The scheme charges include a fixed charge of approximately \$300 per hectare per year to cover loan costs, and a variable charge of \$0.25 per cubic metre for operational costs.

More information [here](#).

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