Variable rate irrigation (VRI) has given Wainono Dairies the ability to apply water where it is most needed, when it is most needed with precision of application.

Based on part owner of Wainono Dairies John Wright’s calculations, and those of the experts involved, the new VRI technology coupled with infrastructural changes on the farm should be bringing in an extra $155,400 in profit every year for an investment of $335,000.

The entire project included the use of several new technologies including a new sprinkler system able to apply small depths accurately, GPS and electromagnetic (EM) soil mapping, a soil moisture sensor network and Growsmart® by Lindsay Precision VRI.

At the beginning of the project the Wainono Dairy property in Fairlie had 495 ha’s effective area with three centre-pivots irrigating 284 ha and Rotorainers irrigating a further 152 ha. The irrigated pastures produce on average 14 tonnes of dry matter per hectare (estimated 16 tonnes DM/ha under the centre-pivots and 11 tonnes DM/ha under the Rotorainers).

The major limiting factor to the irrigation system is water availability. Wainono have a consented take of 155 litres/second (41 gallons/second) but the water supply is not altogether reliable and the allocation amount falls short of the farms requirements.

An EM (electromagnetic) survey of the property carried out by Precision Irrigation revealed four predominant soil zones on the Wainono property.

The irrigation enhancement project has been a great success on the property with massive expected return on investment of 46% per year.

The large variation in soil available water holding capacity provided the opportunity to improve irrigation efficiency by better allocating the limited water supplies to the soils that require water by employing Precision VRI technology rather than the standard blanket irrigation approach of typical spray irrigation systems.

Landcare Research characterised these zones by soil differences, including available water holding capacities to

FAST FACTS:
WAINONO DAIRIES

- Wainono Dairies new variable rate irrigation (VRI) technology should be bringing in an extra $155,400 profit every year for an investment of $335,000
- That makes the ROI a massive 46% per year
- 1790 cows were milked in 2011/2012, and 1900 in 2012/2013 with an additional 20 ha on the platform
- Wainono milk production for 2012/2013 as 807,651 kgMS
- Three centre-pivots irrigate 284 ha while Rotorainers further irrigate 152 ha
- The irrigated pastures produce an average of 14 tonnes of dry matter per hectare
- Wainono is one of three trial farms which have been part of a MAF Sustainable Farming Fund project, headed by Carolyn Hedley of Landcare Research NZ, and is co-funded by DairyNZ and FAR

“Every day we’re not irrigating or pumping into the lake that’s a saving of $500-$700 per day.”
- John Wright
Wainono Dairies part owner
VRI technology has allowed 50 litres per second of irrigation water to be saved without any negative impact on pasture production (pasture readings were recorded daily).

John uses the soil moisture readings to schedule irrigation events to maintain the moisture within these limits as much as possible.

With Precision VRI, irrigation can be delayed to soil zones with larger available water-holding capacity (AWC), utilising the natural ability of these soil types to hold and supply more water to plants.

Significant savings on the property came from avoiding watering 33ha of ineffective area (tracks, creeks, troughs and swamps) and the differential watering of the four soil zones.

The savings and the ability to store and redirect water allowed Wainono to expand their irrigated area. For the 2012/2013 season, an additional 20ha was also added to the platform while 1900 cows were milked, producing 807,650kgMS.

The irrigation optimisation project contribution an additional 4320kgDM/day production and, when extended over the year, equated to 518,400kgDM. For the 2012/2013 New Zealand dairy season, this resulted in $239,0001 of additional revenue with a total payout of $6.18/kgMS from Fonterra.

1Assuming 15% DM wastage and 11.4kgDM eaten to produce 1kgMS

For more information about Zimmatic® and Lindsay irrigation solutions, visit www.zimmatic.com or talk to your local Zimmatic by Lindsay dealer.