

Best Practice and Benchmarking

In Canterbury, irrigation complements variable rainfall. Careful water application boosts productivity while minimising drainage and water abstracted from aquifers. Minimising drainage helps to minimise nutrient losses as required by regional planning rules across Canterbury. Investment by farmers in modern overhead spray systems has displaced less efficient surface methods. Region wide benchmarks for water use, based on water metering data, are now beginning to inform policy rather than volumes historically allocated or consented. Improvements in application methods and irrigation systems are being driven by Irrigation schemes, Irrigation New Zealand, Industry sector organisations using industry led applied research, practical field programmes and irrigation efficiency testing on-farm.

Targets

From 2010:

No decline in the efficiency of water use.

Initiate the development of models/ benchmarks of reasonable and efficient use of water in irrigation.

By 2015:

Sixty percent of water used for irrigation is operating according to best practice water use.

Established and reported against a benchmark of current water use efficiency for irrigation, community (potable, industrial and commercial) and stock water.

By 2020:

Eighty percent of water used for irrigation and stockwater is operating according to best practice water use.

By 2040:

Implemented best practice water use on all irrigation, stockwater and industrial/commercial use in Canterbury. Increased the benefits gained per unit of water so that the volume of water beneficially used (used in production of crops, electricity, or commercial uses) in each zone as a proportion of the volume of water taken is, on average, 25% greater than that achieved in 2010.

Reduced water used for community water supply by 20% (measured in litres per person per day) compared to that used in 2010.

Progress to 2020

Not started

Started

Progress

Good progress

Achieving

- Detailed irrigated area reporting, shows an accurate 'snapshot' of actual irrigated area and irrigation types for 2014/15. Irrigated area in 2015 was estimated at 507,000 ha. Of this area only 5% is surface irrigation which was once the dominant irrigation type in Canterbury, see fig 15.
- During the summer of 2016/17 Environment Canterbury supported an irrigation efficiency pilot programme in Ashburton District. This summer student programme tested over 130 on-farm irrigation systems using new tools developed through Irrigation NZ. Service providers reported an increased uptake of system improvement services as farmers acted on the results of their participation in the programme.
- By late 2016 Canterbury farmers had invested an estimated \$50 million to achieve compliance with Water Measuring National Regulations. It is estimated that 99% of allocated water volume is metered with approximately 83% of these takes on telemetered systems.
- LWRP includes region-wide limits that apply across most of Canterbury. These limits require farming activities to be at industry-agreed Good Management Practice (GMP) and include nutrient and water management. See page 32 for more details.
- Stock-water race closure processes are underway in the Selwyn and Ashburton Districts. Alternative stock-water supply options are being considered via piped irrigation scheme distribution.
- Irrigation NZ has established Irrigation Design Code of Practice and Standards which outline the required level of design to enable irrigators to achieve industry and wider community expectations. A National Certificate in Irrigation Design is now available covering this Code of Practice.
- The 'Blue Tick' programme has been introduced and promoted by Irrigation NZ to give irrigators confidence that irrigation system design and installation complies with the Guidelines for the Measurement and Reporting of Water Takes 2014
- An MBIE supported programme, Justified Irrigation, (AgResearch, NIWA, INZ, ESR) is using a co-innovation approach to cross-reference information on irrigated land area, soil type, weather (e.g. forecasting) and climate, to enable farmers to improve water use efficiency and provide information for benchmarking.
- Christchurch city water consumption has been benchmarked against figures for major Australian cities. All territorial authorities collect information on urban water usage by population to enable year on year comparisons.

Fig 15: Irrigated Land Area and Estimated Water Use Efficiency

Estimated Efficiency

Across the 507,000 hectares of mapped irrigation in Canterbury, there has been a move towards irrigation systems that operate at higher efficiency.

Region-wide estimates of ‘best practice’ water use or efficiency are not available from existing data sets. However, reasonable estimates of water use efficiency can be based on irrigation type.

Irrigation types have been grouped into high, medium and low estimated efficiency;

- High (80-90% efficient) is comprised of; drip/micro, lateral, pivot and solid set
- Medium (50-85% efficient) includes; gun, k-line/long lateral, linear boom, rotorainer, side roll
- Low (20-60% efficient) contains; borderdyke and wild flooding.

The map shows that 51% of the irrigated land area in Canterbury is estimated to be operating at high efficiency, 44% at medium efficiency and 5% at low efficiency.

