

Water for Profit

BENCHMARK – IRRIGATING APPLES



Benchmarking can be an effective way to identify opportunities for improved management. While benchmarking can be conducted on any area of your farming operations, this sheet provides a basis for benchmarking your irrigation performance.

Crop specifics

Apples are deep rooted trees that can extract water down to 1.0 m. Irrigation has a significant effect on yield, fruit size and fruit colour intensity. Under-irrigated trees produce low yields and fruit of poor size and colour. Irrigation starts at green tip (10 days prior to full bloom) and continues until after harvest. Adequate soil moisture during the first two months (first month even more so) is critical for the retention of fruitlets until harvest and the differentiation of fruit buds for the production of the following years' crops.

Under-irrigation during this early period can reduce the marketable yield due to small fruit or poor colour. Increased irrigations later in the season do not improve yield or fruit quality. Apples are sensitive to salt with yield reductions occurring if the electrical conductivity (EC_{se}) of the soil water exceeds 1.0 dS/m.

Crop benchmarks

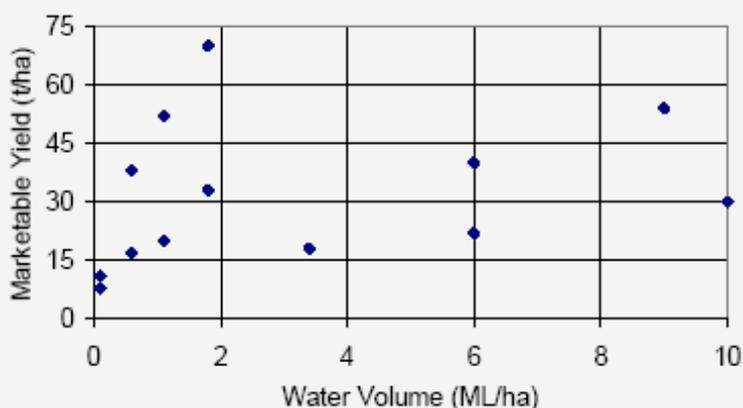
The total crop water requirement is 7 - 8 ML/ha. Current research suggests that four-year-old apple trees can produce good quality fruit yields of 25 t/ha with an irrigation requirement of 100 L/tree per week or approximately 2 - 3 ML/ha per season (using 2 m x 3 m tree spacing and assuming the water is applied over that entire tree space).

Best practice guidelines

- Ensure the irrigation system has the capacity to meet the seasonal and peak water requirements. Conduct regular maintenance and performance evaluations.
- A monitoring program should be used to schedule both the timing of irrigations and the volume of water to be applied.
- Uniformity of application systems is critical in gaining high yields from all trees.

- Adequate soil moisture should be maintained from green tip to four week after full bloom to ensure good fruit size and quality.
- Efficient crop water use and high yield potentials can only be achieved if other agronomic factors such as nutrition, disease and pest management are also optimised.
- Short irrigation cycles are preferable on the sandy soils of the Granite Belt to minimise irrigation drainage beyond the root zone.
- Mulching with 10 cm of sawdust has been used by some growers to reduce the irrigation requirement to 30 - 40 litres/tree/week on four-year-old trees.
- Water requirements have been reduced by up to 30 percent when protecting the trees with hail netting.

Yields of apples compared to total water applied



Best practice information obtained from on-farm trials and Applethorpe Research Station is gratefully acknowledged.

For more details contact the Growcom members access line on 07 3620 3844.

Disclaimer: This information is provided as a reference tool only. Seek professional advice for irrigation specifics.

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