

Water for Profit

BENCHMARK – IRRIGATING OLIVES



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 your irrigation performance.

Crop specifics

Mature olive trees have broad root systems that extend to 0.7 m. Young trees have much smaller root systems and require different irrigation strategies. Under-watering of olive trees will lead to crop stress and reduced crop yields and quality. Over-watering will lead to leaching of water and nutrients past the active root zone and increased risk of root diseases.

Olives have two main growth phases – an intensive stage in spring and a less vigorous stage in early autumn. Late winter watering will create new growth which is important for the next two seasons of flower settings. The critical stages for irrigation during a season are flowering and fruit cell division.

Inadequate water during flowering will lead to sterile flowers as well as flower and fruit drop and will reduce yield potential. Accurate watering during the flowering and fruit cell division stages can increase yields by as much as 100 percent.

Olives are moderately tolerant to salt and can handle electrical conductivities (EC_{se}) of 8.0 dS/cm but prefers less than 4.5 dS/m. Table olives require more water to produce a fleshier fruit than olives used for oil.

Crop benchmarks

The total crop water requirement for mature trees is 6 - 8 ML/ha per season with the irrigation requirement of approximately 3 - 5 ML/ha for yields of approximately 45.5 kg/tree.

Based on a 5 m x 8 m layout (250 trees/ha), this yield is equivalent to 11.3 t/ha. Irrigate with a seasonal average of 500 - 800 L/tree every week. For newly planted trees, apply 10 L of water per week.

Best practice guidelines

- Ensure the irrigation system has the capacity to meet the seasonal and peak water requirements. Regular maintenance and performance evaluations should be conducted.
- A monitoring program should be used to schedule both the timing of irrigations and the volume of water to be applied.
- Adequate water supply is needed in the previous summer to ensure the formation of large numbers of flowers. Crop stress in the winter during the pre-emergent flower development can also seriously reduce crop yield.
- 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.

Yields of olives compared to irrigated water applied (based on trials undertaken in California, USA)

	Total Water Applied (ML/ha)	Marketable Yield (t/ha)
Range	2.3 - 10.2	10.5 - 22.1
Average	6.4	16.3

Data and information reported was collected from farm surveys, the Australian Olive Grower magazine and the University of California and is gratefully acknowledged.

For more details contact Growcom on 07 3620 3844.

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

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