

Water for Profit

BENCHMARK – IRRIGATING POTATOES



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

Potatoes are very sensitive to water stress with substantial decline in tuber yields and quality when subjected to under- or over-watering. The plant has a shallow, fibrous root system, with most roots in the top 30 - 40 cm. Approximately 85 percent of the plant's water requirements are extracted from the top 25 cm of soil.

The profitability of potato production is heavily influenced by irrigation management. Correct irrigation applications during tuber initiation is vital. If water stress occurs during initiation there will be fewer tubers set per plant thus reducing total yield. Although tuber initiation falls over a short period, irrigation is most important at this early growth stage.

Water stress during potato bulking will reduce tuber size and result in misshapen potatoes. Dry matter and specific gravity can be reduced whilst other aspects such as common scab and hollow heart can be attributed to poor water management during potato sizing. The sugar content in the stem-end may also be increased, affecting processing quality.

Crop benchmarks

The total crop water requirement for crisping potatoes is 3.5 - 4 ML/ha per season. The total irrigation requirement for crisping potatoes in the Lockyer Valley and Burnett regions are 2 - 3.5 ML/ha allowing for inefficiencies and drainage losses. Yields for crisping potatoes of over 50 t/ha have been achieved using 2 - 3 ML/ha with drip irrigation.

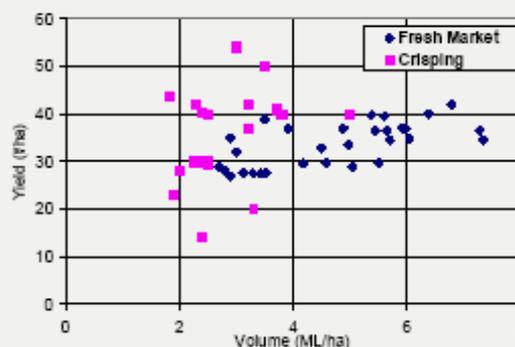
The total crop water requirement for fresh potatoes on the Atherton Tablelands is 4.5-5.5 ML/ha.

The total irrigation requirement for fresh potatoes in this region is 3 - 5 ML/ha allowing for inefficiencies and drainage losses. Fresh potato yields of 35 - 40 t/ha have been achieved using solid set systems applying 3 - 5 ML/ha.

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.
- Uniformity of application systems is critical, especially if fertigation is used.
- A soil moisture monitoring program should be used to schedule the timing of irrigations and the volume of water to be applied.
- If used, tensiometers should be installed at depths of 20 and 40 cm. For sprinkler systems, irrigations should be applied when the shallow tensiometer reads 40 - 50 kPa. Drip systems require a lower value (30 - 40 kPa).
- Avoid soil surface cracking as this enables intrusion of pests and diseases.
- Keep soil moist during tuber initiation.
- 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 potato compared to total water applied



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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