



## Cauliflower

# Water Use Study Bullsbrook, Western Australia



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This project is supported by Perth Region NRM, through funding from the Australian Government's Caring for our Country.

**Irrigation System:** Fixed Overhead Impact Sprinklers

**Application Rate:** 8.5mm/hour

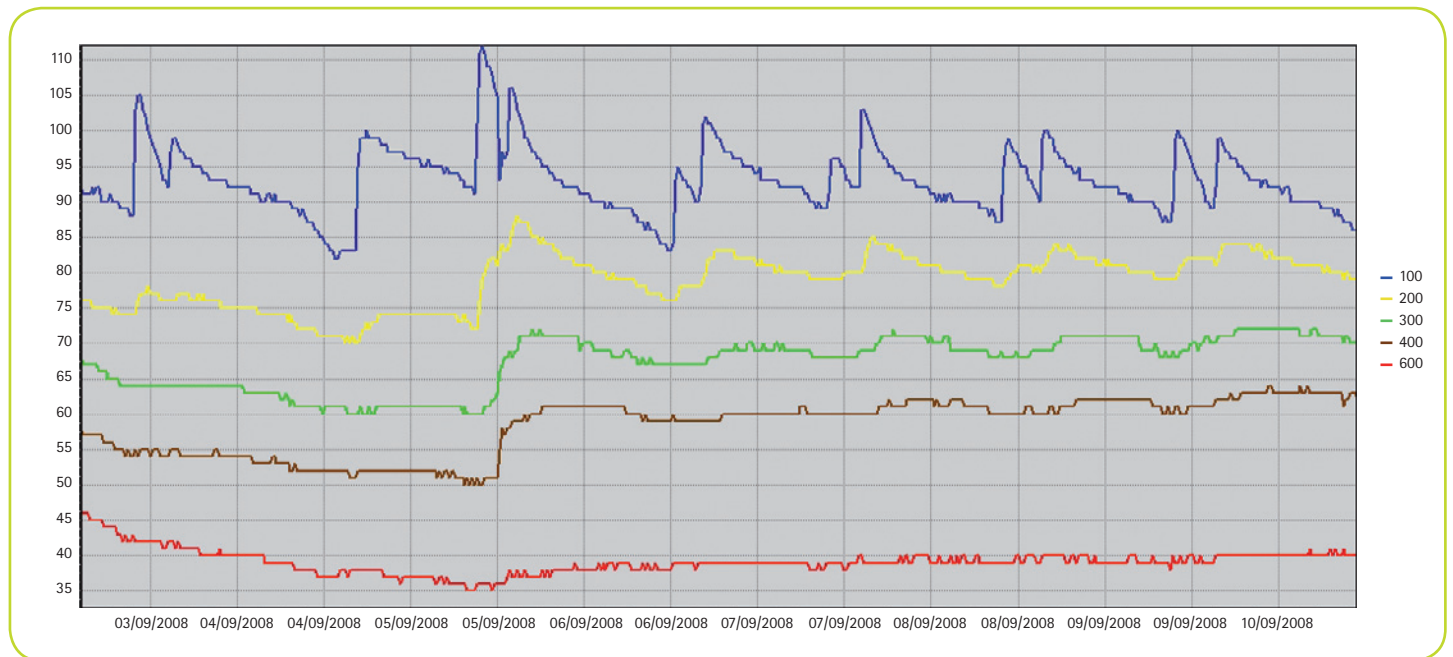
The cauliflower crop was planted on 2nd September 2008 and reached maturity after 78 days of growth.

Local evaporation at the site during the month of September ranged between 23-33mm/week and significant rainfall showers were recorded during September. Irrigation was scheduled to replace 100% (1.0 crop factor) of the water lost through evaporation which was approx 3-4mm/day, which was broken up into 2 x 15min shifts/day at 9am and 2pm. Soil moisture monitoring showed that the irrigations were remaining within the top 20-30cm of soil (see soil moisture graph below). Soil moisture monitoring confirmed that water movement past 30cm can be minimized if there was approx 5 hours between irrigations. During the first 5 weeks of growth, the combined total of irrigation and rainfall was slightly greater

than the recommended water requirement for the cauliflower but water movement through to 600mm only occurred with rainfall events.

During October, evaporation averaged 5-6mm/day with a maximum of 9.6mm. At this stage the Cauliflower was 5 weeks old and the irrigation schedule was altered to deliver 120% (1.2 crop factor) of evaporation. The schedule was again altered to 140% (1.4 crop factor) for the last two weeks of growth as the crop reached maturity. As a general trend, irrigation applied was slightly lower than the recommended amount.

During the growing period, there were several rainfall events which were recorded on the property. Rainfall needs to be included when scheduling irrigations and in the total water requirement for the crop. An example of this is when 11.7mm of rain fell on the crop over the period of a week. The crop water requirement for the week was 46.1mm, so only 34mm of irrigation was scheduled for that week. Reducing irrigation after significant rainfall events will ensure that irrigation water is not wasted and crops grow in optimum conditions.



Cauliflower crop with overhead irrigation system (Naan 5022, 4 mm x 2.5 mm nozzles @ 12m x 12m spacing) with soil moisture monitoring probe in background

Due to the low water holding capacity of sandy soils at the site and the shallow rooting depth of the cauliflower (~40cm), not all of the rainfall will be available to the plant. Some will be lost to deep drainage and interception by the leaves. It may be necessary to schedule irrigations shortly after rainfall events, depending on soil moisture status and crop water demand.

### Water Use Results

Rain: 139.4 mm

Crop Water Demand: 460.6 mm

Irrigation Applied: 355.6 mm

Total Water Applied: 495 mm



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