



Case Study

IRRIGATION SYSTEM AUDIT

Even in the most efficient irrigation systems, there is often an opportunity for further improvements through up-to-date knowledge, skills and the provision of tools and planning processes.

A passionfruit farm with a drip irrigation system and bore pump was recently assessed in Lakeland as part of the Rural Water Use Efficiency Irrigation Futures initiative. The outcomes are summarised below.

The irrigation system was found to be within the optimal operating range for the pressure compensated drip line in use. Trials were conducted to assess how uniform the irrigation system applies water to the crop and the application rate.

The drip system in use in the passionfruit crop was shown to have a Distribution Uniformity (DU) and Coefficient of Uniformity (CU) of more than 95 per cent which exceeds the minimum target performance standards for horticultural crops.

The measured flow rate at the pump site matched the target flow rate which is calculated based on all drippers operating at 1 L/hr. This would suggest there are few blocked drippers in the system and it is operating to design specifications.

Pump efficiency was evaluated during irrigation of the passionfruit block. When assessing the energy efficiency of an irrigation system the kWh/ML/m head is calculated. The industry target is 5 kWh/ML/m, however in an effort to improve efficiency other factors must be considered including irrigation system capacity and crop requirements. It was estimated that the bore pump in use currently operates with a high efficiency (75.5 per cent) and within the industry target at 4.4 kWh/ML/m. The pump currently operates at a flow rate of 91 L/min and 100 m of head. This operating point falls within the recommended operating range for this pump.

DU is calculated as the ratio of the average value and the driest 25 per cent of the irrigated area in a catch can trial. The CU represents the range of deviation both above and below the average catch can value. Both are represented as a percentage.

Based on the efficient pump and irrigation system operation measured during this assessment, the opportunity for improved efficiency lies in ensuring the pump is using the best available electricity tariff. Growcom has developed a tariff comparison calculator that can help to assess the various tariffs and select the most economical one for a business.

The tariff comparison calculator, along with other helpful factsheets, can be found on the Growcom website (www.growcom.com.au).

The grower was pleased with the outcomes, given that both the pump and irrigation system perform at a high level of efficiency. Following the assessments, the grower has undertaken to explore the available electricity tariffs to ensure the most economical option has been selected for the business.

For more information, contact the Growcom Land and Water Field Officer on 07 3620 3844.



Disclaimer: This information is provided as a reference tool only. Please seek professional advice.

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