

Joe Tama

Low Cost Alternative Irrigation

REGION: Burdekin Dry Tropics | lyah

Annual average rainfall: 876.4 mm
Property size: 228 haa
Farming since: Since 1971

Family History

A second generation farmer, Joe immigrated from Sicily as a child with his family in 1961. Joe's Father started working cutting sugar cane and his Mother grew small crops on 6 acres of leased land. In 1967 the family purchased their first small cane farm. The family venture has since expanded to include sugar cane, horticulture farms and a variety of off farm investments giving Joe a sound background in farming and business.

Maintaining diversity within his income streams, Joe bought his own 228 ha sugarcane farm in 2006 and has since purchased the Inkerman Gypsum and Lime Company. Joe has recently harvested the first of his agroforestry crops, which is a long term investment in marginal soils which were unsuitable for regular crop cycles e.g. horticulture and sugarcane.

Practices

Joe utilises a range of crops as part of his rotational fallow system including horticulture, legumes and is now trialing rice. A 1.52m single row zonal tillage system with GPS guidance is used on the farm.

The majority of the 228 ha farm is irrigated by flood, with 25 ha under trickle irrigation. Joe is currently designing a recycle system with the view of capturing 100% of the his and neighbouring farm's irrigation tail-water.

Chemical practices

An Irvin boom and high clearance tricycle spray rig is used for herbicide and pesticide program applications and technology is being sought to apply herbicide at a variable rate to coincide with specific weed pressures on the farm.

Nutrient practices

Joe has recently purchased zonal tillage equipment to address compaction issues and has built a variable rate stool splitter which will be guided by EM mapping and regular soil testing data.

Motivators to change

Joe acknowledges a need to progress and is very aware of

the environmental impact of his farming practices. Issues of marginal soil types, water salinity and declining yields have been addressed since purchasing the farm. This has influenced the direction of farming practice changes, especially in regards to water usage.

Challenge

Salinity in underground irrigation water affecting soil health and causing marginal yields has led to investigation of alternative irrigation methods for more precision within nutrient application, irrigation and reduce total water usage. While drip irrigation has proven to be a viable option with favourable yield results, the costs of installing the standard drip systems was prohibitive, this has led to the trial of low cost alternative systems.

Variety: Q183

Class: 1R

Treatments:

T1: Drip Irrigation

T2: Furrow Irrigation.

Monitoring

Total irrigation water usage, chemical and nutrient application rates will be the main factors in addressing the water quality benefit for the use of the low cost drip irrigation. As run-off within this system is negligible, all irrigation water inputs will be metered and nutrient application amounts logged.

Economics for management of the the system will be monitored and taken into account to validate the cost of implementing the low cost alternative irrigation system.

Economic analysis

The economic analysis will examine the economic implications of Joe shifting to drip irrigation. This requires a thorough investigation of crop growing expenses such as:

- Energy costs – consuming more electricity per mega litre due to a higher pressure requirement, but irrigating with less water
- Irrigation labour requirements
- Irrigation repairs and maintenance costs
- Crop nutrition expenses – fertigation impacts the cost of fertiliser and requires no machinery operations to apply

Grower Case Studies

Economic analysis (continued)

Under furrow irrigation, the trial block yielded poorly in ratoons, prompting Joe to plough-out after the first ratoon. Improvements in ratoon performance may prove to be the key for Joe to recover his initial investment.

Expected results

Immediate improvement in water quality runoff will be expected in comparison to furrow irrigation through a significant reduction in water applied and available runoff, and a reduction in nutrient and herbicide rates applied through the closed system.

The low cost drip system is expected to perform comparably to a more expensive drip irrigation systems within water quality gains and only need minor increases in management. This is expected to provide an overall economic gain in reduction of installation costs.

Showcasing to broader community

Joe is an active advocate of the burdekin sugar industry and always willing to trial new practices and share results to farmers (Local and other regions) and industry representatives. Joe has been involved with project catalyst for several years and also a member of the NQ Dry Tropics Sugar Innovations Program.

Joe is a proud advocate of the accomplishments of Project Catalyst. "We need to be proactive, but still address economics of keeping agriculture viable,."

Right (from top):

Joe presenting his trial to recent field tour

Middle: Joe on his trial site with plant on drip.

Bottom: Putting in drip tape.

