CASE STUDY
JOSEPH MAGATELLI

Who
Joseph Magatelli

Location
Jarvisfield, 9km east of Ayr

Catchment
Plantation Creek

Rainfall
1022mm

Property size
75ha

Landuse
Sugarcane production

Family History

Following in his grandfather's footsteps, Joe has been growing sugarcane on his 75ha farm in the Jarvisfield area since 1995.

After completing a cabinet making apprenticeship and working in the trade for five years, Joe returned to work on the family farm with his brother Michael and father Jim.

As the economics of farming sugarcane changed, the family enterprise property size was becoming insufficient to support all the families. This motivated Joe to take the opportunity to expand the business, buying another 73ha farm in Brandon.

Practices

Joe uses GPS guidance on a controlled traffic farming system using minimum tillage, planting via conventional billet planter on single row at 1.55m centres.

Fallow management involves discing the paddock twice, ripping centres and then bedforming. He plants legumes on the bed which are incorporated as a green manure before planting cane. The entire farm is flood irrigated in a furrow system.

From 2009-10 Joe implemented practice changes on his farm through the support of Reef Water Quality Grants. These practices included precision fertiliser and chemical application, and the incorporation of a legume fallow.

Chemical practices

Joe uses a block specific weed management plan based on his experience which targets soil zones and correlates with weed pressures.

Rate and timing of applications are also guided by his experience and he takes into account label rates and agronomist recommendations.

GPS guidance is used on all applications which use hooded and boom spray equipment.

To compensate for no flow rate monitor, Joe calculates by the area for every tank applied to maintain accuracy. He hasn't used PSII herbicides for eight years and uses a contractor for any high clearance work needed.

Nutrient practices

Joe uses a block specific nutrient plan at rates which are guided by regular soil testing on fallow blocks, crop class and agronomist recommendations.

He has EM mapped the entire farm which, combined with the soil testing, is used to calibrate rates of a standard blend fertiliser. This is applied subsurface using a variable rate controlled stool splitter or as side dressing when required.

Joe uses GPS guidance for all applications so he can continuously check calibration of rates applied as well as recalibrate between products.

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Motivators for change

Joe has always been proactive in increasing the proficiency of his farming system. He sees the potential of using enhanced efficiency fertilisers being able to reduce his inputs and maintain, if not increase yield potentials.

Challenge

There is significant cost to using nitrification inhibitors and controlled release formulations and uncertainty around their reliability. Further assessment is needed to determine cost versus benefit. Other major challenges to the trials include soil type, matching nutrient requirement and reducing losses from the farm.

Project involvement

Joe is hosting one of 12 replicated GameChanger Enhanced Efficiency Fertiliser Trials which are looking at breaking down the barriers to the adoption of enhanced efficiency fertiliser in the Burdekin, through environmental, economic and social monitoring.

Treatments

T1- Urea @220N
T2- Urea @180N
T3- Entec @180N
T4- CR25% @180N
T5- CR50% @180N

Monitoring

The Enhanced Efficiency Fertiliser Trials were designed by Farmacist to identify production differences between N formulations and ratios based on different soil types, application rates and application timings throughout the year.

Results

Using these more efficient formulations to target delivery of N to the plant has the potential to not only increase production but also reduce N losses, resulting in improved water quality. Results from the 2015 harvest season indicate no significant difference

in productivity between any of the treatments. No productivity was lost through reducing rates from 220N to 180N. Treatments T2, T3, T4 and T5 all had better nitrogen use efficiencies that T1.

All treatments have been reapplied and will be further investigated in the 2016 harvest season.

Showcasing to community

Joe has shared initial results from his variable rate fertiliser application trial, and is an active member of the NQ Dry Tropics Sugarcane Innovations Programme.

Who are we?

NQ Dry Tropics is an independent, not-for-profit, non-governmental organisation that supports the Burdekin Dry Tropics community to sustainably manage its land and water. As the leading Natural Resource Management body for the 146,000km² Burdekin Dry Tropics region, NQ Dry Tropics views innovation as crucial to the future of the agriculture sector.

NQ DRY TROPICS
SUSTAINABLE AGRICULTURE

The Programme

NQ Dry Tropics Sustainable Agriculture programme offers information, training and support to assist agricultural producers to use best management practices for resilient landscapes and productive enterprises. Within this programme, the Sugarcane Innovations Programme delivers a number of projects that support innovative farmers with opportunities to trial their practice ideas with the assistance of technical experts. Delivery partners are Farmacist, the Queensland Department of Agriculture and Fisheries and the Burdekin-Bowen Integrated Floodplain Management Advisory Committee.

The Projects

The fast-tracking adoption of game-changing sugarcane nutrient and pesticide management practices (GameChanger) project is funded by the Australian Government Reef Programme. GameChanger management practices focus on using precision agriculture technologies and advanced planning to provide opportunities for cane farming to be more economically and environmentally sustainable.

Project Catalyst is a pioneering partnership funded by the Coca-Cola Foundation through the World Wildlife Fund, which reduces the environmental impact that sugar cane production has on the Great Barrier Reef. The project is grower-led and involves a group of innovative farmers that are developing and testing management practices that improve the quality of the water leaving sugarcane crops. Growers recive support for projects through Reef Programme Water Quality Grants.

The Australian Government Reef Programme is reducing the impacts of agriculture on the Great Barrier Reef through implementing a water quality improvement programme to achieve sustainable agricultural practices in the Burdekin Dry Tropics NRM region. The targeted extension and financial incentives programme aims to improve water quality by focusing on reducing sediment, pesticide and nutrient loss from Burdekin properties.

For more information

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