CASE STUDY CHARLIE CACCIOLA

Who Charlie Cacciola

Location Airville, 14 km north of Ayr

Catchment Sheep Station and Barratta Creeks

Rainfall 720mm

Property size 304ha

Landuse Sugarcane production

Family history

Charlie has been farming for 46 years. After finishing high school he attended Gatton Agricultural College before returning to the Burdekin in 1969 where he ran his own cane harvesting business.

After three successful years, he sold the harvesting business and purchased his first cane farm in Airdmillan. With five years of farming his own land under his belt, Charlie sold the farm and returned to the family farm as manager. In 1983 Charlie bought out the family's 304ha farm in Airville.

Practices

Charlie's farm is planted under GPS guidance using minimum tillage and a controlled traffic system. Fallow blocks are sprayed out with knockdown herbicides and left bare, with a view of starting to move to an extended 18 month fallow with rotational crops.

The entire farm is furrow irrigated using underground water and Charlie captures 90 per cent of runoff in a recycle pit system which he re-uses on 45.6ha of the farm.

In 2014, Charlie purchased a furrow renovator with support from a Reef Programme Water Quality Improvement Grant which has helped reduce pesticide and nutrients leaving his farm and reaching the Great Barrier Reef Iagoon.

Charlie credits this to a custom built implement which has increased irrigation efficiency. It delivers four drills a pass and incorporates two hay rakes per drill on a toolbar to throw residual trash on the 900mm wide hill.

Charlie said: "I was able to work with the supplier to get the implement to exactly the way I wanted it. It works perfectly and does everything I need it to do. I am very happy with the results."

By shifting the biomass from the furrow onto the hill, irrigation times and volumes have decreased. The resulting weed suppression has reduced chemical applications.

An added benefit Charlie has noticed is less deep drainage on the farm due to the reduction in dams being created by the residual trash.

The grant has enabled him to implement these practices more efficiently, accurately and in much less time.

Chemical practices

Charlie uses a block specific weed management plan which is guided by label rates and local agronomist recommendations. The farm's standard herbicide program uses knockdowns and residuals to control problematic weed pressure, in particular vines.

The majority of herbicide applications are done with a high clearance tractor equipped with GPS guidance and flow rate monitor.

BDRY TROPICS



Charlie has reduced his reliance on PSII after purchasing a shielded herbicide sprayer for knockdown applications. All spray equipment is calibrated and continually monitored with every tank.

Nutrient practices

Charlie uses local agronomists to complete soil testing on the farm to calculate nutrient requirements and rates to apply standard blends.

His nutrient plan is block specific, generally a granular mix and applied subsurface using a stool splitter.

Through the Reef Programme Charlie has changed practice, raking trash onto the stool after harvest for moisture retention and weed suppression. This change has caused issues with stool splitting and has prompted Charlie to try a liquid fertliser dunder as an alternative measure.

"I'm quite happy with the use of dunder, the crop has come up nicely," said Charlie. "I'm considering increasing dunder application across the farm."

According to Charlie, he calibrates the fertiliser equipment annually and when it comes to the dunder application, "the contractor monitors everything."

Motivators for change

Charlie loves a challenge and likes to share or take on new ideas that can help reduce inputs and running costs. He's always been interested in trialling practices that can make positive changes to farming.

Charlie certainly appreciates the environmental aspect of farming and wants to leave a better farm for his family and future generations.

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

Charlie is hosting one of 12 replicated Enhanced Efficiency Fertiliser Trials that 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 to identify production differences between N formulations and ratios based on different soil types, application rates and application timings throughout the year.

Expected results

Using these more efficient formulations 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. Treatments T2, T3, T4 and T5 (180N) all had better nitrogen use efficiencies that T1 (control). No productivity was lost through reducing rates from 220N to 180N.

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

Showcasing to broader community

Charlie brings a long history of experience in the Burdekin sugarcane industry to the Sugar Innovations Programme. He's willing to share his ideas within the group and also the broader community, while being receptive to any new concepts that he can potentially apply on farm.

PRECISION...

GPS guidance is used in a controlled traffic system.

Who are we?

NQ Dry Tropics is an independent, not-for-profit, nongovernmental 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.

SUSTAINABLE AGRICULTURE

The Program

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 receive 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

NQ DRY TROPICS | TEL 07 4724 3544 | 12 WILLS STREET TOWNSVILLE CITY | WWW.NQDRYTROPICS.COM.AU











Australian Government

Queensland Government