Case Study

O'Connell and Surrounds Improved Systems

Improving the accuracy and efficiency of fertiliser applications

Case Study developed by Che Trendell, Project Officer - Farmacist. June 2023

Background

Brad and Christie Penhallurick farm 215 hectares of non-irrigated sugarcane at Palm Grove and lease an additional 110 hectares of sugarcane at Preston located in the north-eastern region of the Proserpine Mill area. Together they also run a construction company, so their time is split between the farming operations as well as working off-farm.

In 2021, the couple signed up to the Reef Trust VII OASIS project and have utilised the services being provided by Farmacist to fine-tune their fertiliser applications across their farms.

The OASIS project engages with landholders within the O'Connell and Proserpine basins to provide pesticide and nutrient advice, planning support and practice change extension that results in beneficial water quality outcomes.

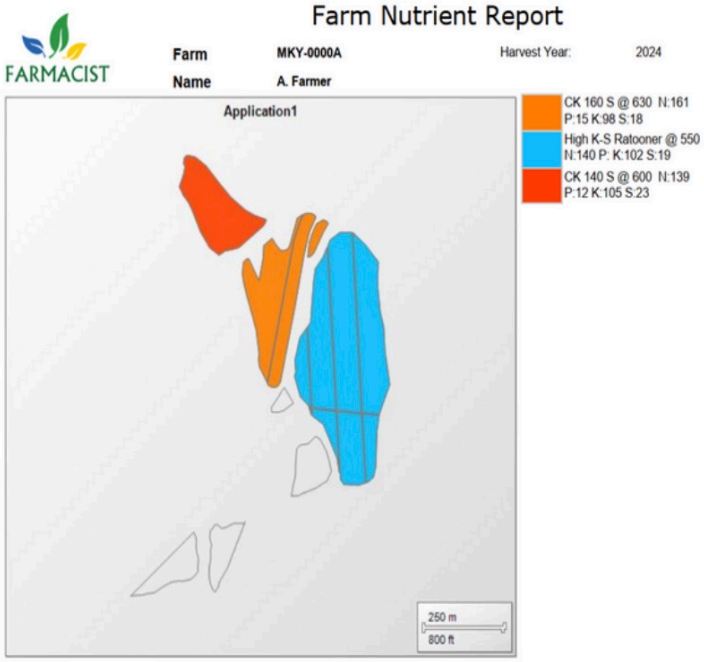

Figure 1: Farm nutrient plan report created by Farmacist showing products and rate to be applied.

QUICK FACTS

Grower: Brad and Christie Penhallurick

Location: Palm Grove and Preston

Area: 325ha total

Project Focus: Nutrient Management

The Reef Trust VII - O'Connell and Proserpine Basins Water Quality Project is funded by the Australian Governments Reef Trust and administered through Reef Catchments Pty Ltd. The project aims to improve water quality entering the Great Barrier Reef from broad-scale land use, to increase resilience and health of the Great Barrier Reef and to increase awareness and adoption of land management practices that improve and protect the conditions of soil, biodiversity and vegetation.

"We found using the maps, with the different colours made it much easier to see which fertiliser blend and rate to apply to each block."

~ Brad Penhallurick

Nutrient plans

As part of their involvement in the OASIS project, the Penhallurick's received a full nutrient plan produced by Farmacist for their farms. The plans, based off the whole farm Nitrogen and Phosphorus budget, provided a visual application map highlighting recommended products and application rates.

The Nutrient plans are based on current Queensland Government's Environmental Protection Act (Reef Regulations 1994) and SIX EASY STEPS® guidelines.

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Cane grants

The OASIS project included a Cane Grants component aimed at accelerating practice adoption by providing financial assistance to growers receiving agronomic advice through the project.

The grants provide up to 50% of project costs to a maximum of $20,000 for purchasing new equipment or undertaking upgrades to current equipment that will produce a reduction in Dissolved Inorganic Nitrogen or pesticide loads.

To further improve fertiliser application, Brad purchased a Hodge 3-row stool splitter fitted with a John Deere rate controller. The rate controller ensures a consistent rate and flow of fertiliser is applied regardless of tractor speed.

The controller also connects to the GreenStar GPS system in the tractor so all nutrient applications can be accurately recorded.

"Buying the stool splitter with the rate controller was one of the best things we have done on the farm. Our fertiliser application is accurate, calibration is fast and we know we are doing a better job."

Figure 2: The stool splitter and rate controller purchased with OASIS project funding. Photo by Che Trendell, Farmacist.

Additional benefits:

Brad highlighted extra benefits of using the new stool splitter including improvements in consistency of fertiliser rates applied within paddocks.

"Calibrating the new fertiliser box is a lot more accurate and changing the application rates between blocks is much faster."

~ Brad Penhallurick

Figure 3: Brad has discovered numerous benefits to his farm management from purchasing the equipment through OASIS funding. Photo by Che Trendell, Farmacist.

"When we were using the old fertiliser box with cogs, we noticed the flow of fertiliser changed during the season as the temperature and humidity changed. With the new fertiliser box, we know we are applying the rate we need and I can already see a difference in the cane."

Brad has also noticed an improvement in cane yield from applying granulated lime. The pH levels on the farms are usually below 5.5 (1:5 water). While ag lime is typically recommended to increase calcium levels and pH in the soil due to its relative cost-effectiveness, Brad prefers granulated lime because it is easy to apply using the stool splitter and he doesn't have to wait for contractors, who can also introduce weeds and diseases.

"We use the stool splitter to apply 500 kg/ ha of granulated lime in plant cane and 250 kg/ ha on first ratoons. Moving forward, we are now assessing the ability to change fertiliser rates within blocks which opens up the possibility of variable rate fertiliser application."