2021

Case Study

Reducing Nitrogen (N) Rates on Late Harvested Blocks with Lower Yield Potential

LANDHOLDER	John and Jill Fox
LOCATION	Wagoora
CATCHMENT	Black Rock Creek
RAINFALL	1460mm
PROPERTY SIZE	296ha
ON-GROUND PROVIDER	Farmacist Pty Ltd Author: Che Trendell

Project Catalyst is a grower led, sugar cane innovation and adoption project that explores, develops and validates farm management practice change to improve the enduring water quality of the Great Barrier Reef.

BROADER ADOPTION VALIDATION & GROWER SUPPORT

Founded in 2009, the project operates in the Mackay Whitsunday, Burdekin and Wet Tropic regions to deliver valued practice change outcomes and develop methods for industry adoption. Under the Broader Adoption and Grower Support program, professional on-ground service providers assist selected growers to adopt and validate appropriate change practices. Service providers continue to monitor implementation bene its and derived environmental performance improvements. Through targeted extension activities, the program seeks to accelerate the uptake and broader adoption of improved farming practices at local, regional and industry levels.

Fig.1 Fertilising with granular N fertiliser

Fig.2 The Fox's fertiliser box which allows for variable rate N application

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Goal

To better match N application rates to crop yield potential resulting in an increased N use efficiency that reduces risk of loss to local catchments and increases farm profitability.

Fig.3 Irrigating to ensure soil moisture is optimal for N plant uptake

Overview

Blocks cut late in the year (aprox. Nov-Dec) potentially have reduced yield the following season because the growing season is shortened by the previous late harvest.

John and Jill Fox generally cut their fallow blocks mid-way through the harvest to prepare for their soybean. Blocks cut late in the season will generally continue as sugarcane blocks and therefore yield could potentially be compromised.

John and Jill Fox investigated the possibility of reducing fertiliser rates to better match N application to the crop yield potential. Previous Project Catalyst trials indicated that this practice does not have a negative impact on crop yield.

Fig.4 Flexibility to respond to seasonal conditions is fundamental at the Wagoora farm

Action

With the support of Farmacist, late cut blocks were identified and specific nutrient plans developed with reduced N rates, informed by results of preceding local trials.

In 2020, due to El Nina weather forecasts and concerns regarding mill performance, late cut blocks were altered based on the risk of having stand-over cane. These were those considered better performing blocks that would withstand being "stood over". They were, therefore, applied with typical rates of N fertiliser once harvested.

"Our harvest schedule constantly changes due to wet weather forecasts, performance of the mill and block yield performance," provides John. "What we planned to cut late, and reduce fertiliser rates on, may be harvested earlier. In this case, the block ratooned well so we applied typical rates of N as potential yield performance had increased."

Outcome

There are many external influences that need to be managed when determining nutrient plans. While the plan may be to reduce nutrients on late cut blocks, this can be made more difficult by factors such as weather, mill performance and changes to harvest timing.
"We are always re-evaluating our fertiliser plan and harvesting schedule. The best thing we have found is to always consider reducing fertiliser rates if it is possible to do so without impacting on sugarcane yield. But this final decision really needs to be made at the time of fertilising," says John.
Farmacist continues to support John and Jill to stay informed about their options, allowing them to respond appropriately to seasonal conditions. This support gives them confidence to implement a plan but be flexible for improved business and environmental outcomes.
For further information contact Che, Farmacist Mb.0439 588 627

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