

CASE STUDY

Practice change leads to a bright future for productivity and water quality.



Bryce Jackson, Carmila West

QUICK FACTS

Landholder:	Bryce Jackson
Project:	LAND – Local Area Nutrient Datahub
Program:	Mackay Whitsunday Water Quality Program
Location:	Carmila West, Plane Creek Sugar Mill Area
Area:	258 hectares of sugarcane

Carmila West grower Bryce Jackson is confident that improved nutrient management practices supported by precision agriculture and advancements in data management are contributing to an increase in productivity and providing a path to a more sustainable farming enterprise.

On his journey toward improved sustainability Bryce has been supported by LiquaForce using their LANDhub project. LANDhub is a new digital recording and reporting platform developed by LiquaForce and funded via the Mackay Whitsunday Water Quality Program (MWWQP).

“I have learnt a lot through the program, the accessibility to important data that LANDhub provides empowers my decision-making around nutrient management. Transitioning to sub-subsurface fertiliser application in combination with nutrient management plans have seen better yields and has been a win for the environment.” - Bryce Jackson

BACKGROUND

Bryce, a fourth generation sugarcane farmer, has set out on a journey toward farm sustainability. He initially made extensive farm layout changes to improve operational efficiency. Seeing the added benefit of long-term crop monitoring to help improve decision-making around nutrient application, Bryce joined the MWWQP.

Since January 2022 and in partnership with LiquaForce, Bryce has been working towards improving farm operations under LANDhub. The project objectives are to maintain productivity and minimise the losses of fertiliser through improved Nitrogen Use Efficiency (NUE).

Historical and current farm data (soil samples and farm layout) was securely uploaded to LANDhub. Electromagnetic Mapping (EM.) drone survey data was compiled to address variability across the farm and also uploaded to LANDhub. These tools and datasets are now easily accessible via LANDhub as a resource for future decision making and record keeping.

IMPROVED NITROGEN USE EFFICIENCY

Historically, surface application of liquid BioDunder blends were used in a uniform application across the paddock to fertilise ratoons. Due to the location of Bryce’s farm, the supply and shipment of multiple products was proving to be impractical and expensive. While surface application presented a risk of nutrient losses through runoff with seasonal rainfall.

Under the farm nutrient management plan developed by LiquaForce through the LAND project, Bryce was able to shift from surface application to a sub-surface stool-split application with variable rate control. By varying application rates Bryce was able to tailor nutrient inputs based on soil requirements, resulting in a single product adequately being used to fertilise his ratoons.

This change in management practice has resulted in an increase in the yield of sugar per hectare and reduced the cost associated with multiple blends of nutrient application. Environmental benefits of sub-surface fertiliser application include a modelled reduction in DIN losses compared to surface application of 279 kg/year.

“The program has allowed me to identify constraints of both the crop and soils and develop a method to effectively manage those constraints appropriately. Having a data management platform such as LAND allows me to track that progress over time. It allowed me to see my nutrient savings and the increases in my farm’s productivity.” - Bryce Jackson

LOOKING INTO THE FUTURE

The data management provided by the LANDhub will assist in meeting nutrient management and record keeping requirements, which Bryce will use to achieve Smartcane BMP accreditation. Not content with stopping here, Bryce is continuously looking towards the future. He is now working to understand his pesticide usage and limitations of products based on his farm characteristics such as slope and water courses. Bryce also has plans to further improve farm layout and NUE with improvements in supplemental irrigation and water storage.

“The support from the LANDhub platform and its record keeping capabilities are allowing me to track my on-farm progress and work towards BMP accreditation.” - Bryce Jackson

The Mackay Whitsunday Water Quality Program began in 2020 and is now in its final year with many projects being completed or in their final stages. While the program is no longer accepting new growers, there is much to be learned from the wealth of experienced and data gained along the way.

The Mackay Whitsunday regional water quality improvement program is funded by the partnership between the Australian Government’s Reef Trust and the Great Barrier Reef Foundation.

