



Case Study

Deep Zonal Ripping



LANDHOLDER	Wayne Gattera
LOCATION	Nerada
CATCHMENT	Johnstone
RAINFALL	3283mm
PROPERTY SIZE	750ha
ON-GROUND PROVIDER	CANEGROWERS Innisfail

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 benefits 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.



Wayne's Zonal Rotary Hoe



2020 Plant Cane



Great Barrier Reef Foundation



●●●● Goal

To reduce compaction at depth prior to planting which should increase the depth of the root zone and hopefully improve crop nutrient uptake.



Modified Zonal Ripper

●●●● Overview

Previously Wayne has prepared land for planting through both full and zonal cultivation. In both systems, Wayne was not able to get either his conventional ripper or two tyne zonal ripper as deep as he wanted.

After hearing about some other local zonal deep ripper trials Wayne decided to modify his zonal ripper to a single tyne with a wide shoe. With this single ripper tyne Wayne hopes to be able to rip deeper alleviating compaction at depth increasing the crop root zone and in turn increasing yield.



Ripper tine and wide point

●●●● Action

Assessed compaction levels using a penetrometer in older ratoon crops to determine extent of compaction.

Hard pans were found between 100mm and 250mm deep across the farm.

Following the compaction testing, Wayne made the decision to modify an existing ripper to create a single tine ripper with a wide point. This would allow Wayne to deep zonal rip with the aim of alleviating compaction in the row where cane is to be planted.

Modifications to the ripper were completed late in the planting season and the ripper was used to prepare 10 hectares of land for planting.

Pre-plant cultivation consisted of a single pass with the zonal ripper and then a single pass with a zonal rotary hoe.

Cane was planted late September 2020.

●●●● Outcome

Post planting compaction testing was carried out using a penetrometer three months after planting, where a hard pan approximately 150mm thick was found at 300mm deep. Once through this hard pan the soil remained loose to the full depth of the penetrometer (700mm). The hard pan is suspected to be caused by the rotary hoe.

Wayne is planning on using the zonal ripper to prepare as much land as possible next season and trialling wavy discs or a bed renovator in place of the rotary hoe with the aim of increasing work rate and reducing compaction.