

Project Catalyst

Case study



PROJECT
CATALYST

Adrian Darveniza trials if minimum tillage would allow early plant with reduced erosion

Grower Name: Adrian Darveniza
Entity Name: South Johnstone Farming
Mill Area: South Johnstone
Total Farm Area: 266ha
Area under Cane: 231ha
No. Years Farming: 10
Trial Subdistrict: South Johnstone

BACKGROUND

In the wet tropics disturbed soil represents a great risk for soil erosion in our paddocks and as a result not many farmers will early plant due to the higher risk of erosion after preplant cultivation. We feel that this is limiting our yields as late plant only allows for a 12month crop at best.

Adrian wanted to see if minimum tillage using a wavy disc cultivator (supplied by MSF Sugar) or zero tillage would allow early plant with a reduced risk of erosion while comparing the yields for the different treatments. Most trial work has been done comparing fallow versus replant but not so much on the timing of planting and this would show the benefits on productivity and water quality from early plant.

THE TRIAL

The Trial was established following a soybean fallow which was direct drilled into the old cane row. The soybeans were terminated in March 2018, with the early plant cane planted on the 15th-16th of May 2018 and the late plant cane planted on the 29th of August 2018.

Following a drier than average year the trial was harvested on the 27th of September 2019.



Adrian Darveniza

TREATMENTS

- T1- Zero Till Early Plant
- T2- Minimum Zonal Till Early Plant
- T3- Minimum Zonal Till Early Plant (2 passes)
- T4- Minimum Till Late Plant

A single replicate of 2 passes using the wavy disc cultivator was included at plant to assess if more tilth was required than that created with one pass.

tc/ha	R1	R2
Zero Till Early plant	79.65	74.24
Minimum Till Early Plant	88.16	73.25
2 Passes Early Plant	86.05	
Minimum Till Late Plant	66.14	57.41

Table 1- Tonnes of Cane/ha (see Graph 1)



What it's about

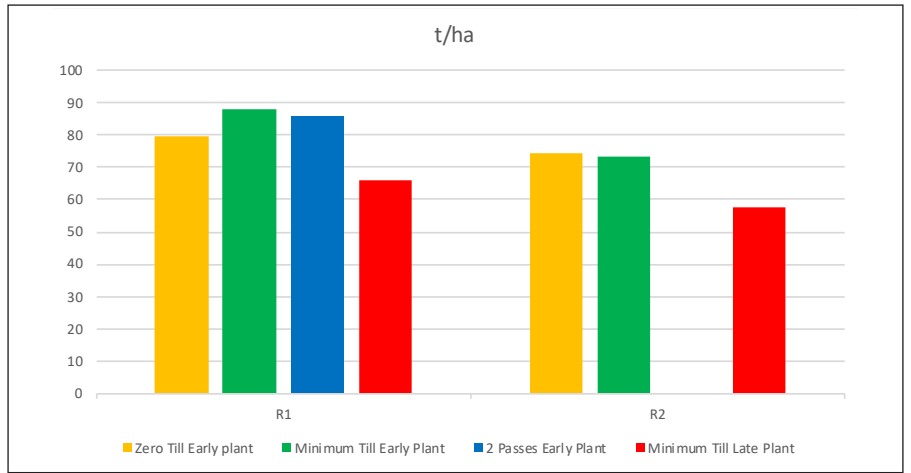
Project Catalyst is a grower-led innovation project in sugar cane that was formed to explore and validate farm management practice change leading to improved water quality for the Great Barrier Reef. For more information on Project Catalyst please visit our website <https://www.projectcatalyst.net.au/> or phone Catchment Solutions on 07 4968 4216.

RESULTS

There was no statistically significant difference between yields of the different treatments in the plant cane harvest and will be monitored through first ratoon to look for any longer-term benefits.

Based on the results of the trial and advice from the MSF agronomist in South Johnstone, Adrian has changed from zonal rotary hoe to wavy disc cultivation prior to planting and planting Early when possible.

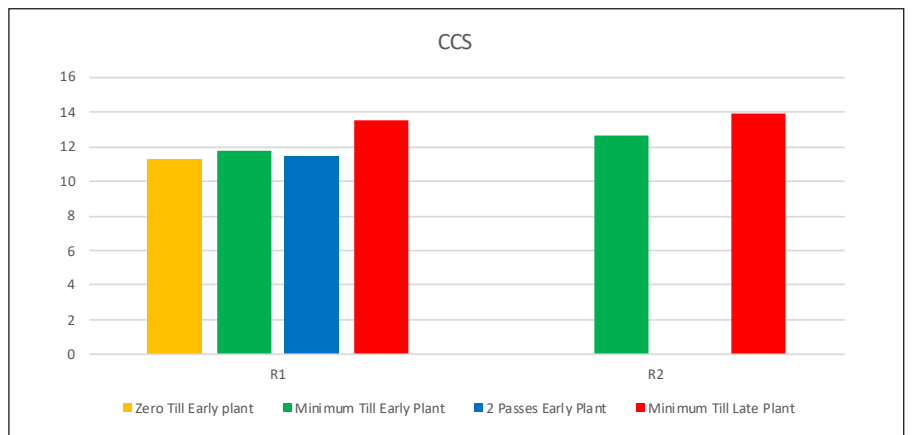
A special thanks to Michael Porta from the MSF Sugar agronomy team for his support and advice during this trial and for organising the MSF Sugar wavy disc cultivator.



Graph 1- Tonnes of Cane/ha

CCS	R1	R2
Zero Till Early plant	11.25	
Minimum Till Early Plant	11.8	12.7
2 Passes Early Plant	11.5	
Minimum Till Late Plant	13.5	13.9

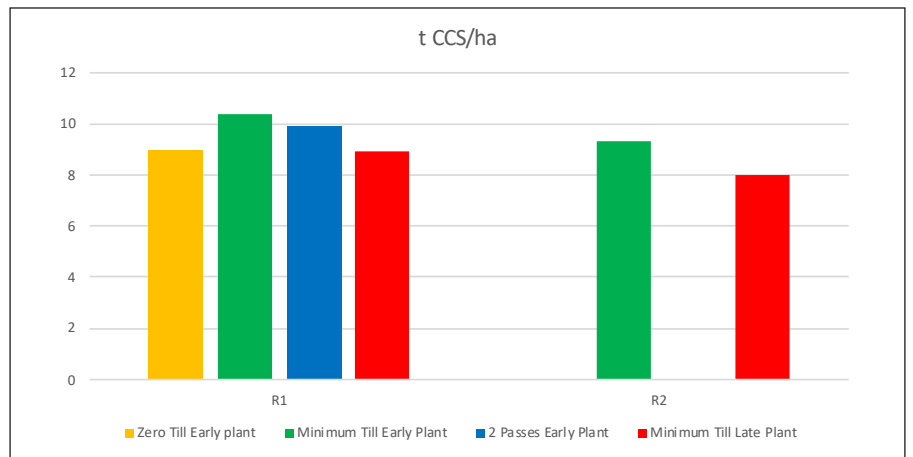
Table 2- CCS Achieved (see Graph 2)



Graph 2- CCS Achieved

t CCS/ha	R1	R2
Zero Till Early plant	8.96	
Minimum Till Early Plant	10.40	9.30
2 Passes Early Plant	9.90	
Minimum Till Late Plant	8.93	7.98

Table 3- Tonnes CCS/ha (see Graph 3)



Graph 3- Tonnes CCS/ha



Zero Till Planting 16-5-18



Late-Early comparison 29-8-18



Min-till preplant MSF Wavy Disc 16-5-18



MSF Wavy Disc Cultivator



Looking Across Late Plant to Early Plant 29-8-18