

Project Catalyst Final Report

Ezigrade GPS levelling Trial

Grower Information

Grower Name:	Clint Reynolds
Entity Name:	JK & BM Reynolds
Trial Farm No/Name:	5447
Mill Area:	Mossman
Total Farm Area ha:	611.09
No. Years Farming:	25+
Trial Subdistrict:	Daintree
Area under Cane ha:	336.35

Trial Status

Completed

Background Information

Aim:

The aim of this project is to test the effectiveness of land smoothing using the program Ezigrade. We will find a block with obvious drainage problems and take levels over the entire block. We will leave one section of the block untreated while grading the rest of the block to gain a comparison between the sections.

Background: (Rationale for why this might work)

Drainage is a key issue that needs to be addressed on my farm to improve productivity. We have used Ezigrade in the past to level blocks but have not completed any trial comparisons. Mossman Ag Services offer the hire of a GPS Scoop and provide plans to grade blocks on request from growers. We are continually assessing blocks and doing maintenance on drains and headlands – we would like to see evidence to suggest that these plans do work to improve the drainage of block and subsequently the productivity of the farm.

Potential Water Quality Benefit:

Nitrogen is lost from waterlogged soils through both leaching and denitrification, through improved drainage there should be less nitrogen lost and therefore improved plant uptake of the nutrients.

Expected Outcome of Trial:

We expect to see increased yields in the section of the block that has been levelled while the control section yield should be similar to previous years.

Service provider contact:

Mossman Ag Services

Where did this idea come from:

Mossman Ag Services agronomy staff

Plan - Project Activities	Date : (mth/year to be undertaken)	Activities :(breakdown of each activity for each stage)
Stage 1	June 2015	Choose suitable trial site with grower and MAS staff. Install field equipment (equipment purchases to align with project application). Seek agronomic advice for trial design. Develop workplan for trials. Soil and product testing (if applicable). Set up trial sites.
Stage 2	July 2015	Take GPS levels of block and prepare a Ezigrade plan for the block. Ongoing management of trial site: Monitor trials and keep accurate records of trial results, field operations, chemical and fertiliser inputs, crop yield and quality (as relevant to project), and provide to Terrain.
Stage 3	July 2015	Set out trial with grower. Monitor Trial, facilitate site access for Terrain NRM staff to observe trial results.
Stage 4	July 2016	Harvest Trial, keeping records of strips cut, bin numbers in order to get bin weights and CCS samples from the mill.
Stage 5	July 2017	Harvest Trial, keeping records of strips cut, bin numbers in order to get bin weights and CCS samples from the mill.
Stage 6	July 2018	Harvest Trial, keeping records of strips cut, bin numbers in order to get bin weights and CCS samples from the mill.

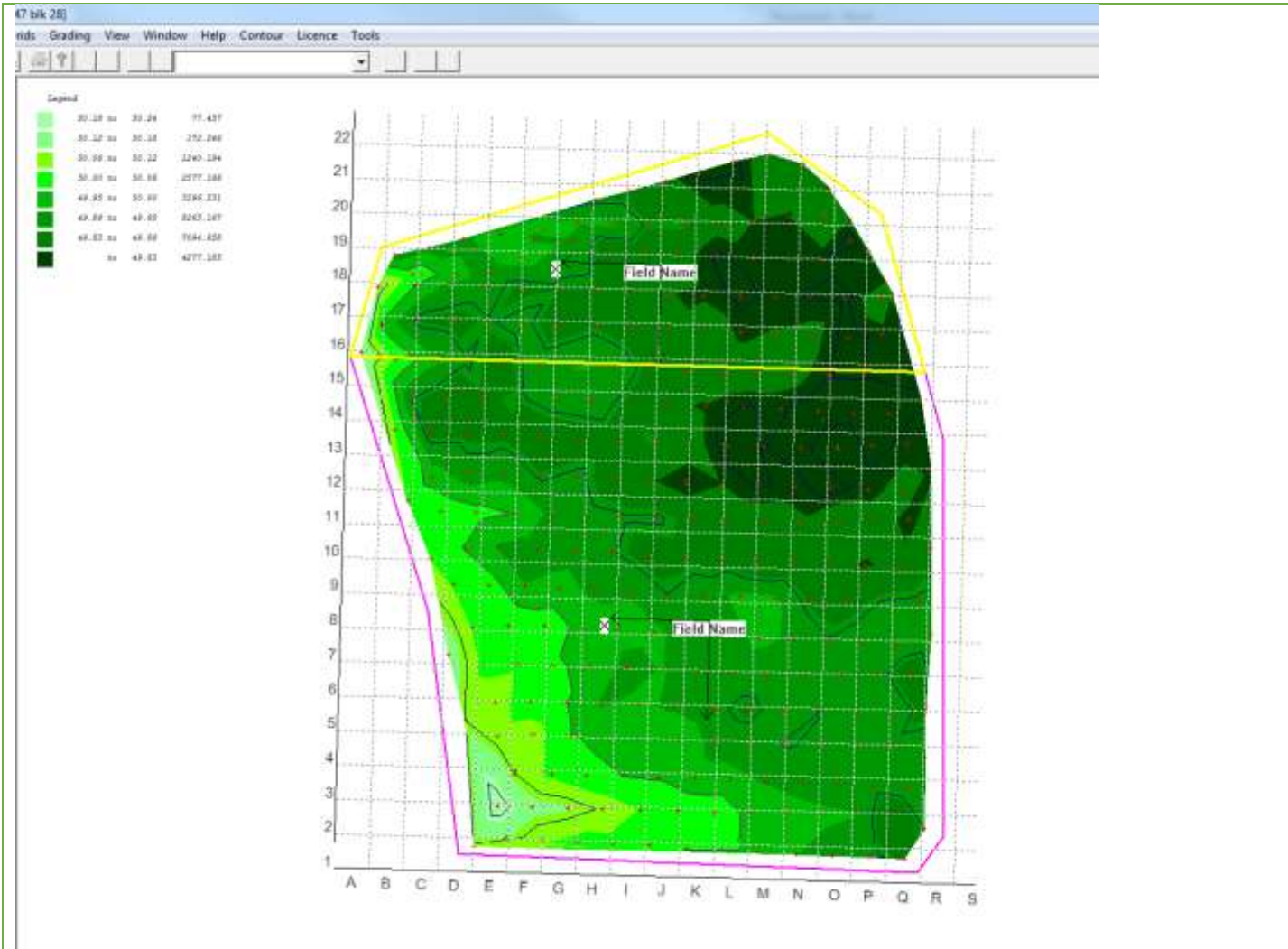
Project Trial site details

Trial Crop:	Cane
Variety: Rat/Plt:	Q250 PL
Trial Block No/Name:	28 (28.1 and 28.2)
Trial Block Size Ha:	2.76ha
Trial Block Position (GPS):	-16.296466288859847 145.3897511959076
Soil Type:	Coom

Block History, Trial Design:

Clint Reynolds Ezigrade trial F5447 Block 28 Southern end of block graded on 28/07/2015. Northern side of Block has been left as control – has not been graded and headlands left as is. Two GPS points were taken either side of the block to mark the two sections.

Treatments:



Results:

Table 1. Results of drainage trial.

2017 trial results

Treatment	Tonnes cane/ha	Tonnes sugar/ha
Graded	119.4	16.8
Not Graded	132.9	18.7

Conclusions and comments

The results show the side that was not graded actually gained better yields than the graded side. Neither section of the block appeared to have any major drainage issues this year, this could have been a result of differing weather patterns this year meaning the block was not considerably waterlogged throughout the growing period and at time of harvest the block was not waterlogged.

No harvest data from 2018, could not obtain mill information, bins were not allocated.

Advantages of this Practice Change:

Although it was difficult to obtain actual data, the growers benefitted from using the gear and being able to see the difference in the sections. Better drainage means higher yields and potentially less nitrogen losses.

Disadvantages of this Practice Change:

Cost/timing of operation.

Will you be using this practice in the future:

Across the whole farm as necessary.

% of farm you would be confident to use this practice :

Whole farm as necessary.