Catalyst Project Report – Final Report

Reduced N rates with crop age and potential

Grower Information	
Grower Name:	Ron Randell
Entity Name:	Randell Farming Company
Trial Farm No/Name:	PCK-0967B
Mill Area:	Plane Creek
Total Farm Area ha:	409
No. Years Farming:	
Trial Subdistrict:	Carmilla
Area under Cane ha:	357

Background Information

Aim:
To evaluate the application of reduced nutrients on old ratoons, with a low yield potential, that will be ploughed out.

Background:
Older cane ratoons have lower expected yields compared to younger ratoons. Each time the crop is harvested, crop vigour is lost due to age and harvester damage. Having a lower yield potential provides the opportunity to lower the amount of nutrients applied.

This trial will determine whether applying lower nutrient rates will result in improved nutrient use efficiency, reduced risk of nutrient run off, while still maintaining yields.

The successful application of lower N in locations with lower yield potential was the catalyst for the application

Potential Water Quality Benefit:
Lower levels of nutrient in runoff

Expected Outcome of Trial:
Consistent yields across the paddock, where full and reduced fertiliser rates are applied.

Service provider contact: Farmacist

Where did this idea come from: Grower/Farmacist

Plan - Project Activities	Date : (mth/year to be undertaken)	Activities :(breakdown of each activity for each stage)
Stage 1	**October/November 2017**	Harvest second last crop
Stage 2	**November 2017**	Apply fertiliser according to trial plan
Stage 3	**October 2018**	Harvest last crop

Project Trial site details	
Trial Crop:	Sugarcane
Variety: Rat/Plt:	Q183 4R
Trial Block No/Name:	5-4
Trial Block Size Ha:	13.5
Trial Block Position (GPS):	149.381199, -21.869253
Soil Type:	Illbilbie - light grey, duplex soil

Block History, Trial Design:

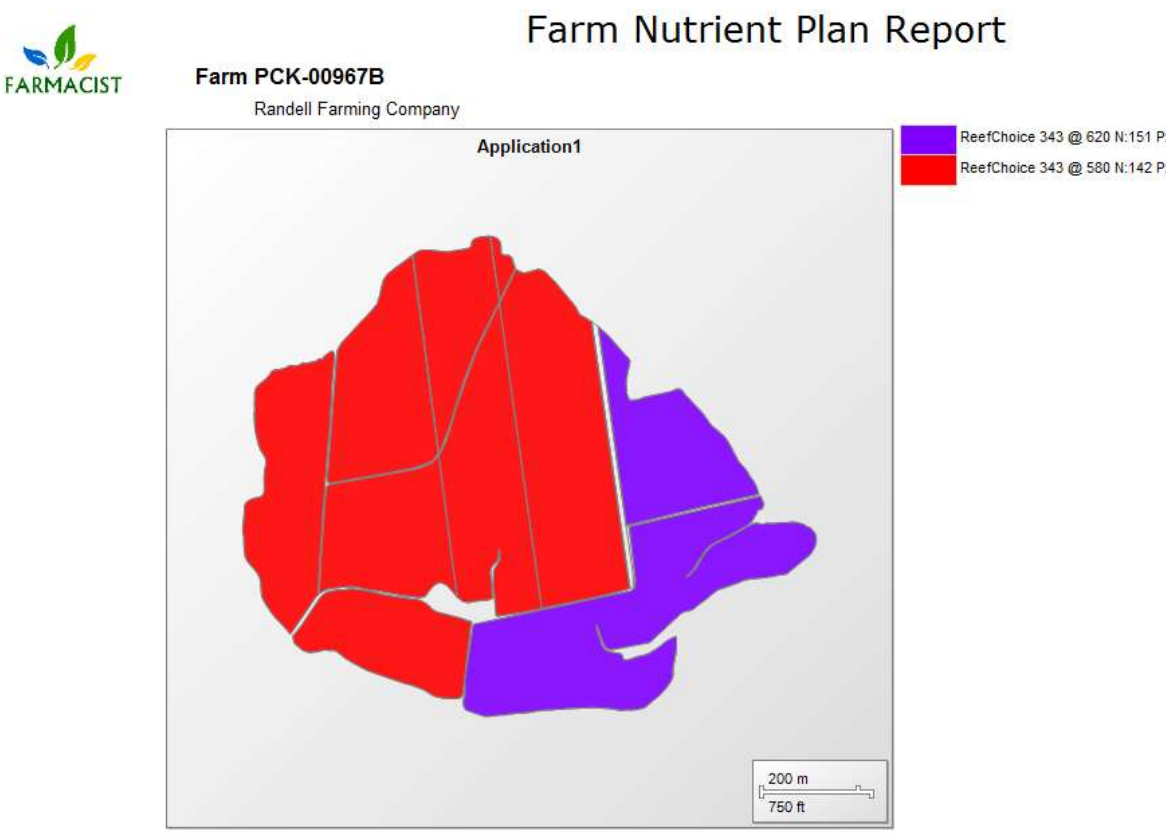


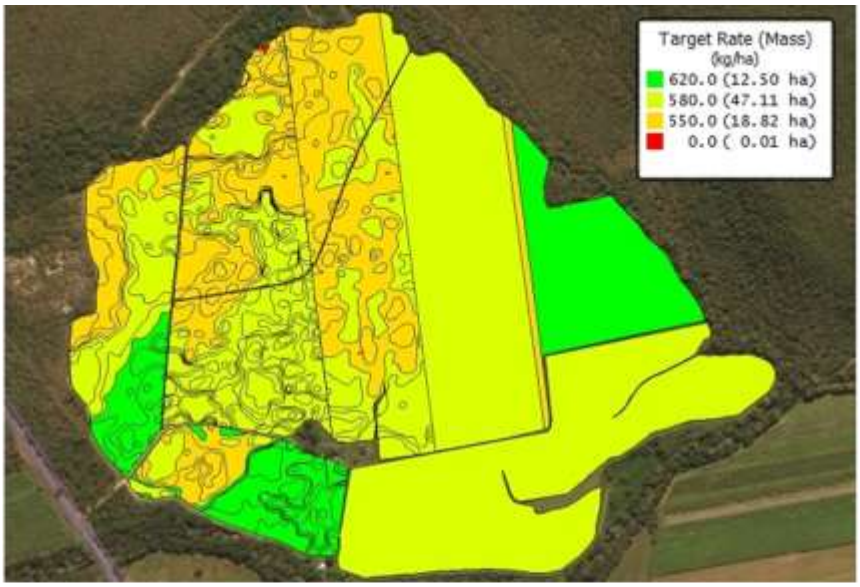
Figure 1 - Farm map indicating blocks that received reduced fertiliser rates

As seen in Figure 8, a number of paddocks were applied at reduced rates and a number were left at standard fertiliser rates as a comparison.

Treatments:
Reef Choice 343 @ 580 kg/ha (N: 142, P: 13, K: 107 S: 18)

Results:

Due to the confidence gained from the initial year of this trial, which successfully demonstrated no yield loss from applying lower nitrogen rates, this grower has started applying fertiliser variable rate.



Product	Rate (kg/ha)	N (kg/ha)	P (kg/ha)	K (kg/ha)	S (kg/ha)
RC 343	620	151	14.3	114	19
	580	141	13	107	18
	550	134	12.7	101	17

Figure 2 - Map showing variable rate fertiliser zones

The figure above (Figure 9) shows the varying rates of fertiliser that were applied to the farm in 2018. Green indicates higher rates in each paddock whist red indicates the lowest. Fertiliser was varied according to historic yields and soil types across the paddock.

By applying variable rate fertiliser to the paddock, a saving of approximately 3350 kg of product was made across the farm. This equates to 40 kg of product per hectare or 10 kg of nitrogen per hectare.

Conclusions and comments

Applying lower rates of fertiliser with no yield penalties gave the grower the confidence to apply variable rate fertiliser across the farm. This allowed the reduction of fertiliser product without inducing any yield penalties both on whole block scale or variable rate.

Advantages of this Practice Change:

Reduced fertiliser use, lowering environmental risk Increased profitability

Disadvantages of this Practice Change:
High cost of equipment required for the application of product.

Will you be using this practice in the future:
Yes

% of farm you would be confident to use this practice:
Site selection will be based on a year by year basis

Site is complete