

Catalyst Project Report

Grower Information

Grower Name:	Neil Walpole
Entity Name:	NF & MG Walpole Pty Ltd
Trial Farm No/Name:	PCK-00743A
Mill Area:	Plane Creek
Total Farm Area ha:	179
No. Years Farming:	
Trial Subdistrict:	Koumala
Area under Cane ha:	161

Background Information

Aim: Assess the benefit of adding Serenade product to the soil by different methods

Background:

Serenade is a liquid bacteria formulation which has been trialled and tested by Bayer. Results are showing improved root growth and increased plant stimulation. Application of this product may lead to higher plant growth rates and utilisation of nitrogen earlier in the growing season.

Application methods include:

- Apply sub-surface with a Confidor applicator
- Incorporate with dunder and apply on the surface

Different application methods could be more suited to different growers depending on circumstances and resources, which in turn can also influence the effectiveness of the product.

Potential Water Quality Benefit:

Increased use of nitrogen and increased nitrogen use efficiency

Expected Outcome of Trial:

Improved growth of sugarcane where the Serenade is applied, resulting in increased yield.

Service provider contact: Farmacist

Where did this idea come from: Farmacist/Grower/Bayer

Plan - Project Activities	Date: (mth/year to be undertaken)	Activities :(breakdown of each activity for each stage)
Stage 1	November 2016	Apply fertiliser and Serenade product to ratoon crop Three treatments – no Serenade, Sub-surface application, surface application
Stage 2	December 2016	Shoot counts
Stage 3	August 2017	Harvest trial
Stage 4	October 2017	Crop assessment – shoot counts, visual, photos
Stage 5	December 2017	Crop assessment – shoot counts, visual, photos
Stage 6	February-April 2018	Leaf samples
Stage 7	September 2018	Harvest trial
Stage 8	October 2018	Crop assessment – shoot counts, visual, photos
Stage 9	December 2018	Crop assessment – shoot counts, visual, photos
Stage 10	February-April 2019	Leaf samples
Stage 11	September 2019	Harvest trial

Project Trial site details

Trial Crop:	Sugar cane
Variety: Rat/Plt:	1R Q208
Trial Block No/Name:	5
Trial Block Size Ha:	4
Trial Block Position (GPS):	149.244811, -21.588407
Soil Type:	Clay

Block History, Trial Design:

Trial Layout:	Plot	Replicate	Treatment	Row numbers	
Power pole	Plot 1	Rep 1	Treatment 2	1 to 6	Power pole in Row 2 Road end.
	Plot 2	Rep 1	Treatment 1	7 to 12	
	Plot 3	Rep 1	Treatment 3	13 to 18	
Road	Plot 4	Rep 2	Treatment 1	19 to 24	Marker on southern side of plots
	Plot 5	Rep 2	Treatment 3	25 to 30	
	Plot 6	Rep 2	Treatment 2	31 to 36	
Water Furrow				Row 37 buffer	
Water Furrow				Row 38 buffer	
N →	Plot 7	Rep 3	Treatment 3	39 to 44	Rail Line
	Plot 8	Rep 3	Treatment 2	45 to 50	
	Plot 9	Rep 3	Treatment 1	51 to 56	
	Plot 10	Rep 4	Treatment 2	57 to 62	
	Plot 11	Rep 4	Treatment 3	63 to 68	
	Plot 12	Rep 4	Treatment 1	69 to 74	

Figure 1 - Trial layout of treatment and repetitions

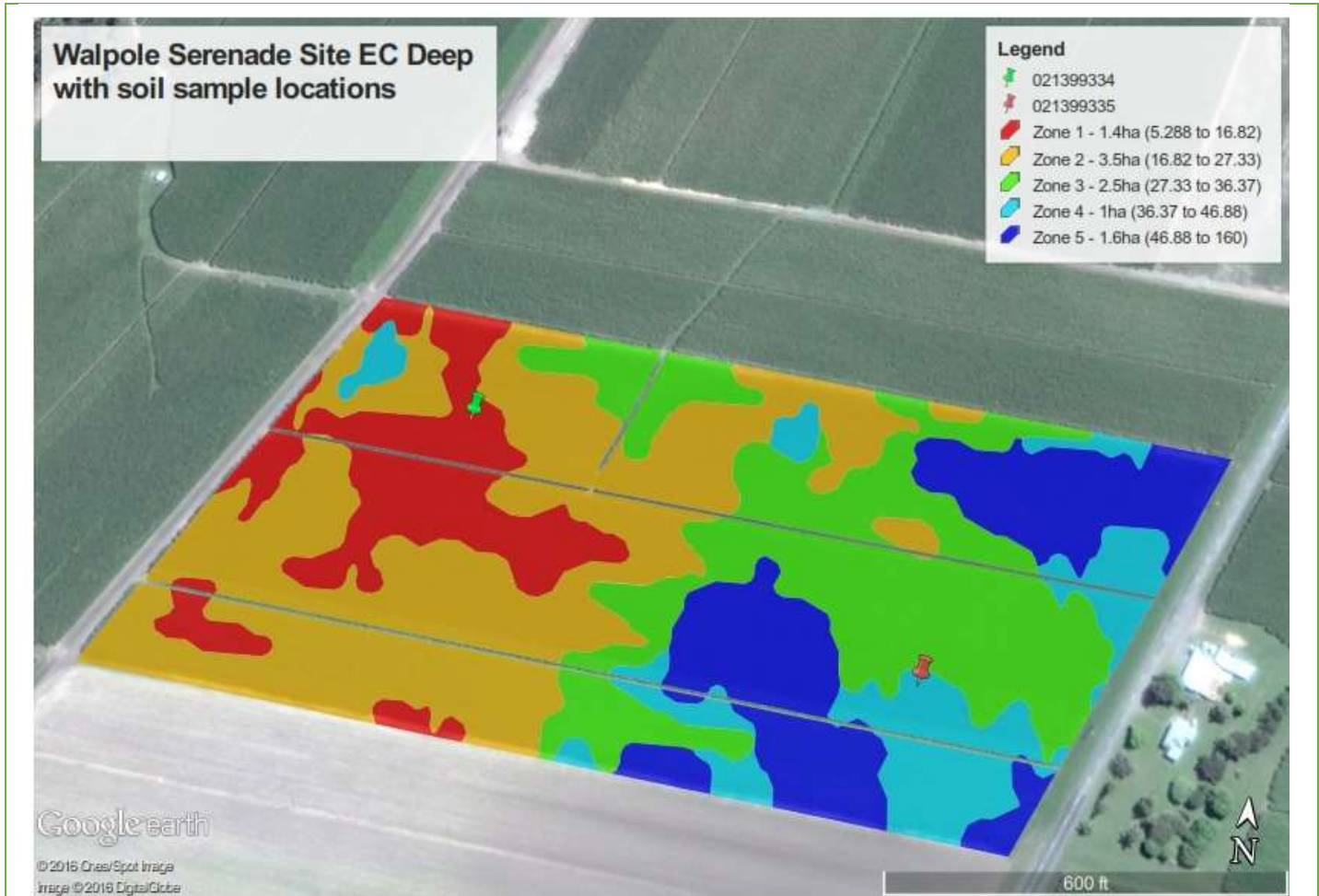


Figure 2 - EC map of trial paddock

As shown from Figures 1 and 2 above, the trial spans across different soil zones within the paddock, however these soil differences are consistent across all treatments.

Treatments:

1. Serenade Prime 105mL/100m Row sub-surface application
2. Serenade Prime 105mL/100m Row surface application
3. Nil application

Results:

Results from 2017 harvest

No differences were found in the cane yield, sugar content or sugar yield in the 2017 harvest as shown in Figure 3.

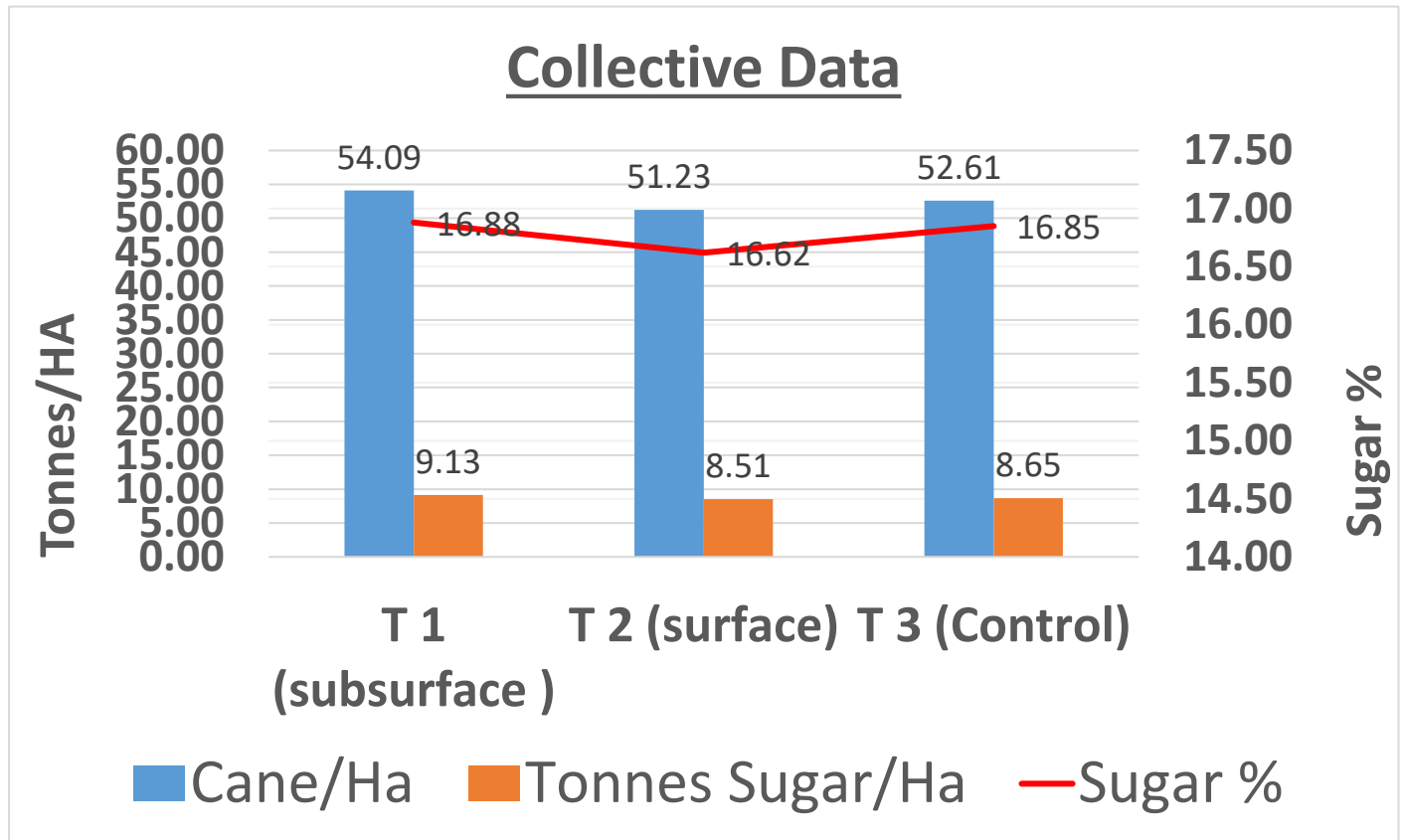


Figure 3 - Yield from 2017 harvest

Plant population 2016-18

Initially, in 2016 the plant population of the subsurface serenade treatment was slightly lower than the other treatments, however by March 2018 all treatments were the same in regards to plant population (Figure 4).

Walpole Serenade Site Plant population/ha

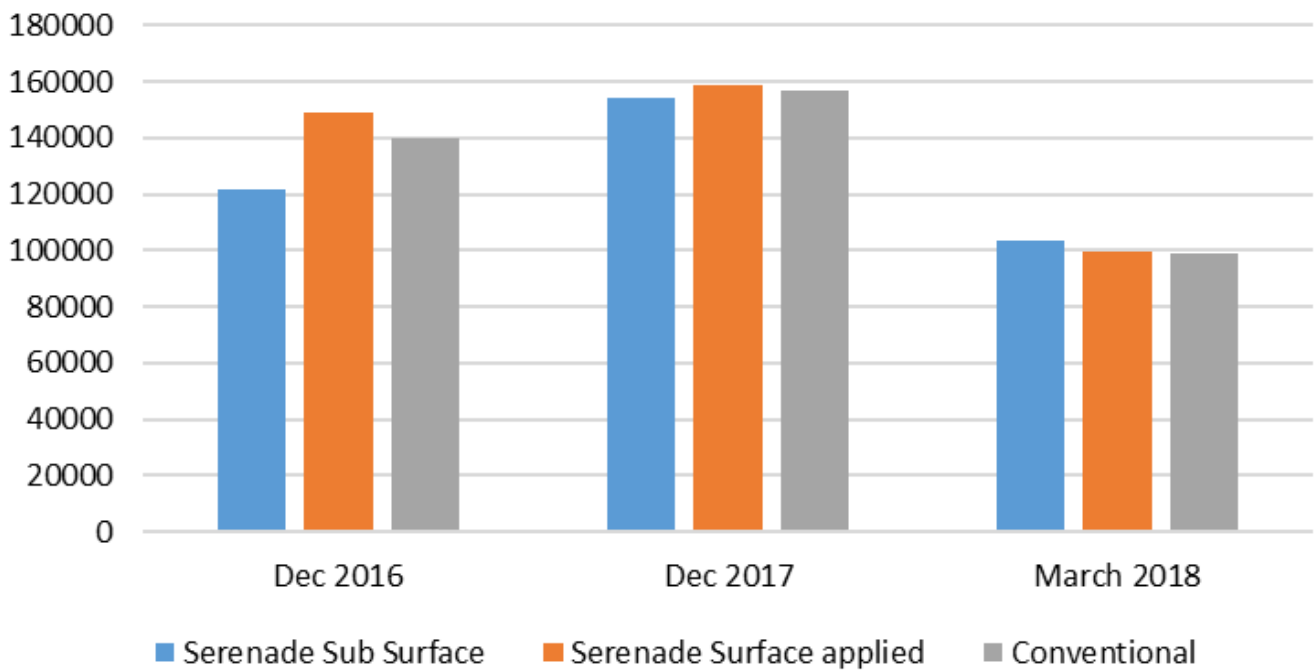


Figure 4 - Plant populations over time

Leaf tissue results March 2018

Leaf tissue test were taken in March 2018 and as shown in Figure 5 below, no differences between the treatments were noted for any of the nutrients tested.

Walpole Serenade site March 2018 leaf results

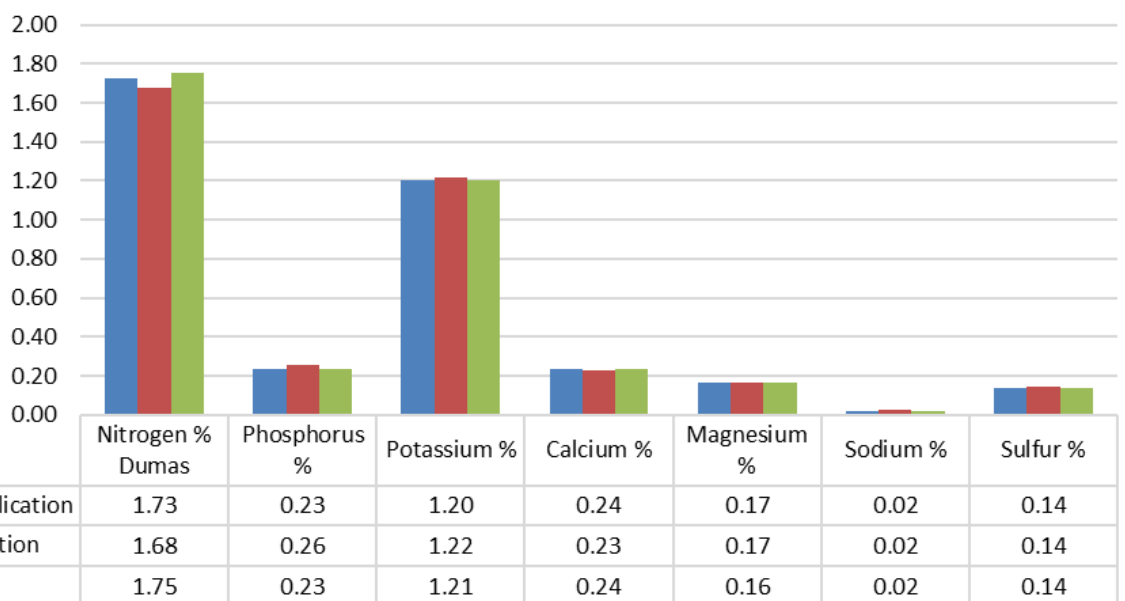


Figure 5 - Leaf tissue results from March 2018

	Serenade Subsurface	Serenade Surface applied	Control
December 2017 ratoon crop			
December 2017 roots following extended waterlogging	 		

Figure 6 - Images of plant and root health

Root health was assessed for visual differences between treatments (Figure 6). All root systems were healthy, however the Serenade applied treatments appeared slightly more vigorous than the control.

2018 Harvest results

Following the trend of the previous years and other assessments, no significant differences between the treatments were observed in regard to cane yield or sugar yield as shown in Figures 7 and 8.

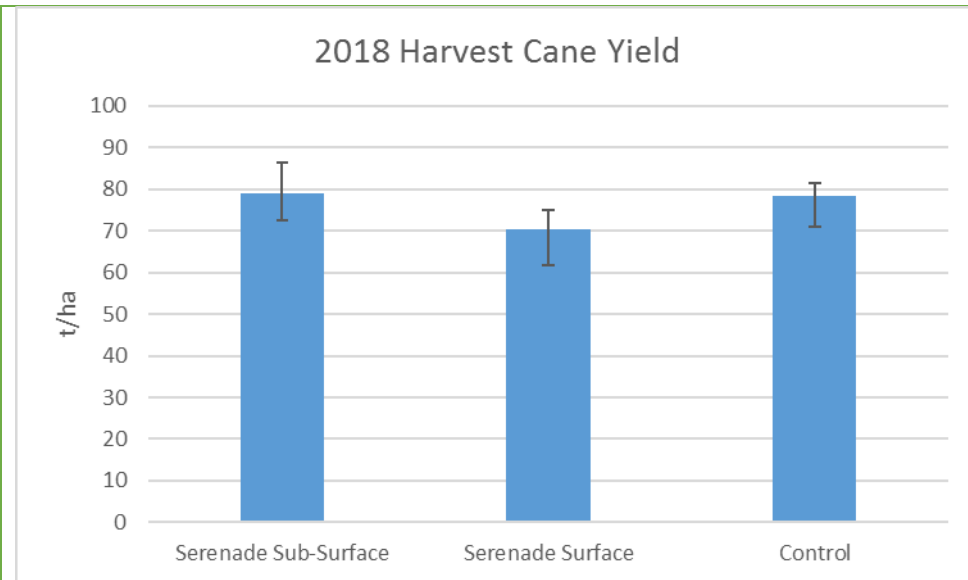


Figure 7 - Cane Yield at harvest in 2018

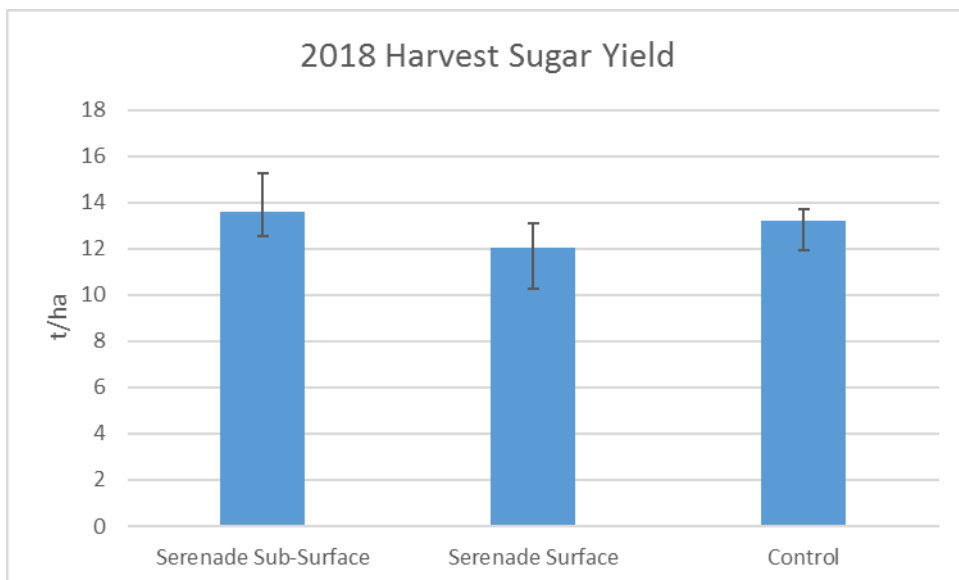


Figure 8 - Sugar yield at harvest in 2018

Leaf tissue results April 2019

Leaf tissue test were taken in April 2019 and as shown in Figure 9 below, no large differences between the treatments were noted for any of the nutrients tested.

Walpole Serenade Site 2019 Leaf Results

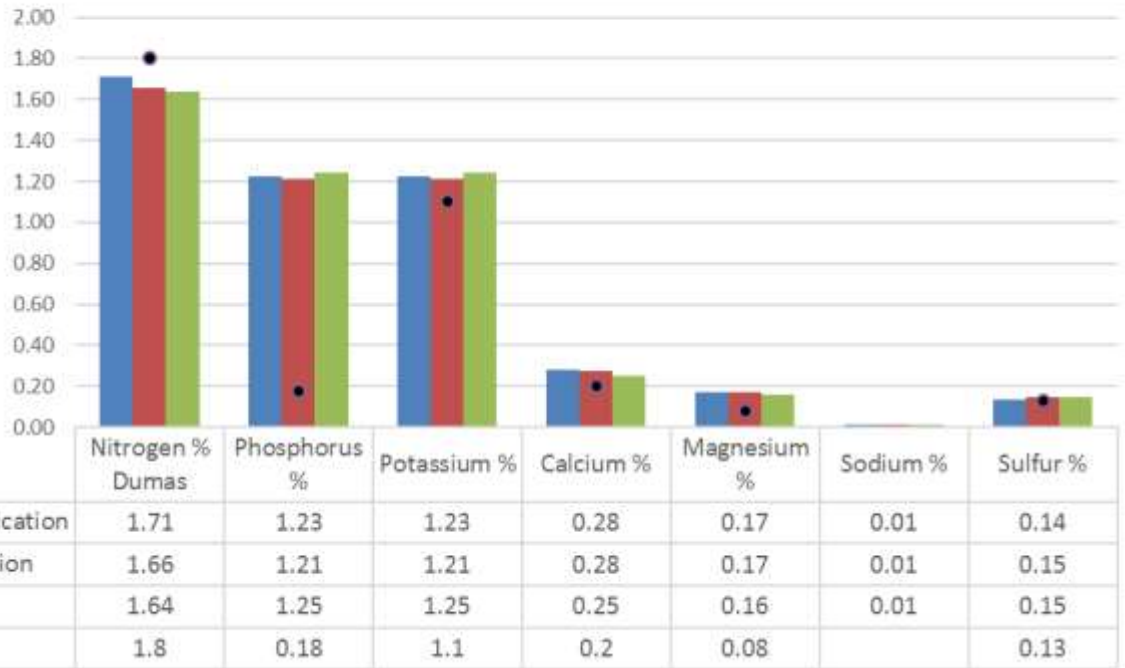


Figure 9 - Leaf tissue results from March 2019

Conclusions and comments

The results show a slightly increased sugar yield from the subsurface application of serenade compared to surface application in both years of harvest data however this difference is minimal. There was no difference between treatments from the plant population counts, leaf results or visually in the crop and roots. The yields were low across the site in 2017 due to the late harvest the previous year. The site was also flooded then waterlogged for an extended period of time due to cyclone Debbie. Yields in 2018 were considerably higher than 2017 due to more favourable seasonal conditions.

This trial will need to be monitored over a longer time before firm conclusions can be made from the results. The site was reapplied in July 2018 and will be harvested in 2019.

Advantages of this Practice Change:

Disadvantages of this Practice Change:

Will you be using this practice in the future:

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

Site is continuing 2019