Project Catalyst Report

Soakage Remediation Maps

Grower Information	
Grower Name:	Con Christofides
Entity Name:	Christofides Brothers
Trial Farm No/Name:	BKN-09082A
Mill Area:	Kalamia
Total Farm Area ha:	266
No. Years Farming:	
Trial Subdistrict:	Jarvisfield
Area under Cane ha:	50+

Trial Status

- Continuing

Background Information

Aim: To remediate areas that have poor soakage.

Background: (Rationale for why this might work)

The purpose of this investigation is to look at the potential for mapping soakage problems throughout Sugarcane and exploring potential remediation options to enhance soakage throughout the paddock. Due to many factors including pure water sources, the Burdekin Delta soils have limited soakage potential which can often cause yield restrictions. Water is unable to infiltrate into the hill and root zone and often leaves the plant unable to access fertiliser and the roots expending a large amount of energy to access water for growth. A paddock that has water penetration issues will often water very quickly and application volumes when calculated are low. Cane that is affected can be identified by poor growth and lack of stool, as well as being slow to ratoon (Sugar Research Australia, Irrigation of Sugarcane Manual). It has been found that there are many ways to remediate soils that have limited water penetration. These include amending irrigation techniques, such as the height, width and shape of the hills along with reducing the inflow rates of the water applied. Where possible, reduce the amount of slope on the paddock to ensure that where issues are occurring the slope is less the 0.125%. Adding organic materials such as mill mud, rice hulls, or trash from cane harvest into the soil can also be a short term solution. Adding a calcium product will greatly improve the water penetration issues by providing a salt to the soil which will enable it to open up and act as a more friable soil that will allow infiltration. The product used will be dependent upon the pH of the soil but both lime and Gypsum will have an effect. Lastly the quality of the irrigation water can be improved by adding salt to the water, or mixing it with a more salty source of water (Sugar Research Australia, Irrigation of Sugarcane Manual).

Potential Water Quality Benefit:

The potential water quality benefit will include boosting the yield of the paddock and allowing for a high NUE potential across the paddock.

Expected Outcome of Trial:

The expected outcome of the trial would be that applying gypsum would increase the conductivity of the bed allowing for higher infiltration.

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Where did this idea come from: Grower

Plan - Project Activities	**Date : (mth/year to be undertaken)**	**Activities :(breakdown of each activity for each stage)**
Stage 1	Jan 2018	• Map cane to identify soakage issues within the paddock
Stage 2	July 2018	• Harvest site and collect yield samples • Generate prescription map and apply gypsum
Stage 3	August 2019	• Re map paddock
Stage 4	July 2019	• Harvest site and collect yield samples

Project Trial site details

Trial Crop:	Sugarcane
Variety: **Rat/Plt:**	KQ228 PLT
Trial Block No/Name:	BKN-09082A-14-01
Trial Block Size Ha:	40
Trial Block Position (GPS):	- 19.596610° 147.484273°
Soil Type:	RUgb/BUfc

Block History, Trial Design:

Treatments:

The whole paddock had gypsum applied at varying rates including 6t/ha and 2t/ha

Results:

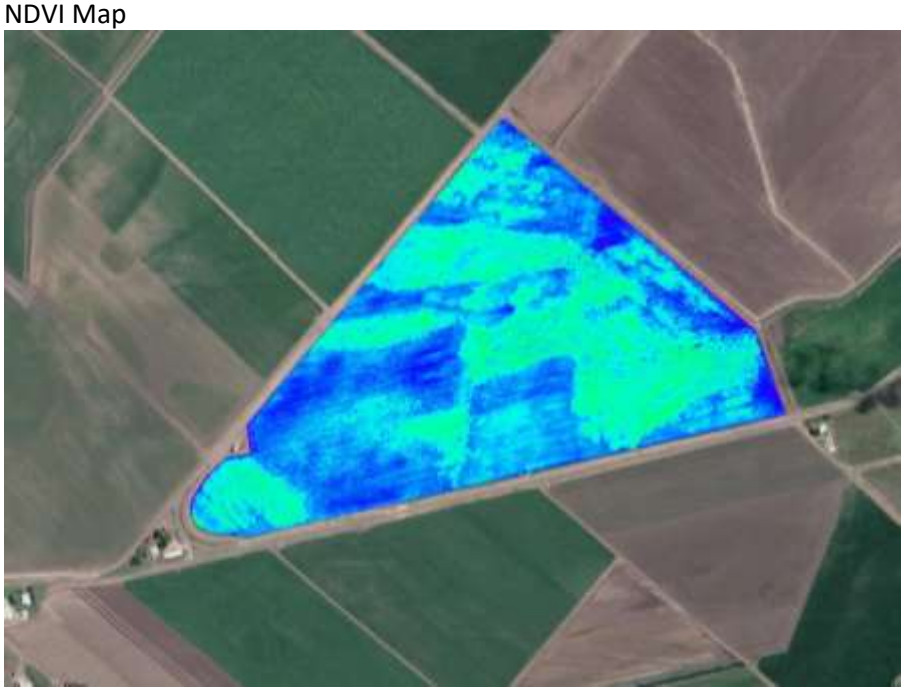
Before levelling job:

During Levelling

After levelling

In crop variability

NDVI Map



The remainder of the results wont be available until after harvest in 2019.

Conclusions and comments
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 :