

# Project Catalyst

## Grower story

### Neil Walpole - Challenging traditions through innovation

**Mill region:** Plane Creek

**Property size:** 180ha

**Trial area:** 4.65ha

**Catchment:** Rocky Dam Creek

The Mackay-Whitsunday region covers an enviable area of the Queensland coast, where tropical islands rise in azure waters adjacent to mountainous ranges. Neil Walpole has been growing cane in Koumala, South of Mackay, since he took over the family farm in 1983, following a successful career as a primary school teacher.

Neil soon began to diversify his thinking on farm in order to cut costs.

An early adopter of change, Neil was among the first to green cane harvest in 1987. This meant no burning and leaving a trash blanket on the ground.

Trials began on his farm when chemicals were introduced to counter green harvest issues and he continues to try innovating practices to this day. Neil has trialled mung beans, sugar beet, linseed and chickpea, along with a two-year fallow trial.

Mound planting and minimum tillage have been successfully implemented across his farm. With an average annual rainfall of 1484mm, the latest trial aims to assess the benefit of adding a liquid bacteria formulation to the soil by different methods to increase the use of nitrogen and nitrogen use efficiency.

For Neil, joining Project Catalyst was a natural progression from the Sustainable Farming Group, which was formed in Plane Creek by local growers to share ideas like widening of the rows for controlled traffic and to develop equipment like the dual row disk opener. Neil explained that this then facilitated more innovation: "The widening of the



rows created a problem for the harvesters and that necessitated some mechanism to get the cane into the side of the bin, so the group developed a roller pattern which changed and evolved and is now a standard 400 width that suits the base cutters."

Plane Creek was the first milling region to introduce green cane harvest with 97% adoption – four years after Neil took over the farm.

"Dad was not happy about leaving the trash blanket and not working the ground, but I believed green cane cutting a necessity."

In 2016, the latest trial was established on Neil's property, involving a novel product from Bayer – Serenade Prime. The trial requires three different applications in replicated and random strips. "I still have an interest in microbes and will trial inputs if supplied. We've looked at microbes, we've looked at nitrogen, we've looked at all sorts of things, the next part and the one that's new at present of course

is things in the soil, it's not entirely new to too many people, so when a product arrives it's our idea that you test it." Neil said.

So what role does a product like Serenade Prime play in improving water quality?

Ben Schofield, Bayer Customer Sales Representative explains. "As growers adopt practices that improve soil health and nutrient efficiency, both production and sustainability improve. Biological products can deliver results in both of these areas of innovation in a number of ways."

Serenade Prime is a product based on the soil ameliorating beneficial bacteria *Bacillus subtilis* strain QST713, specifically selected for its superior performance in cropping systems. The bacteria live on plant root surfaces and in the soil around the plant root system in a zone called the rhizosphere. In the rhizosphere, plants and bacteria can develop a mutually beneficial relationship under suitable conditions.



#### 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.

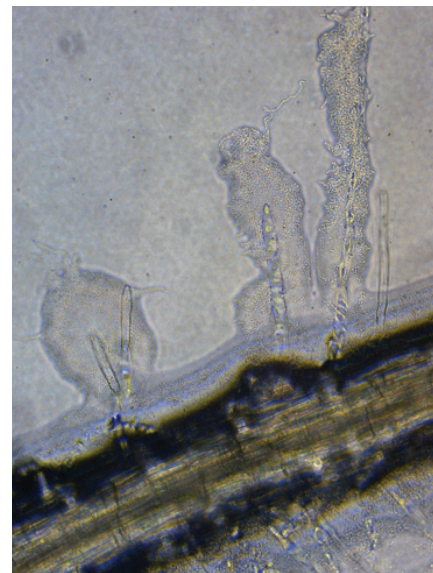
When plants and beneficial bacteria are functioning in harmony in the rhizosphere, resources required for growth such as nutrients and water become more available through the mutually beneficial plant/bacteria relationship. Ben added, “It is important to understand that it is only as a result of these interactions within the rhizosphere that the benefit to plants becomes available. Serenade Prime does not directly provide improved plant growth – it is only when there is an active interface between the plant roots and *Bacillus subtilis* bacteria that the benefits of higher functioning plants/crops become accessible.”

Ben hopes to scientifically assess the impact of applying the product to a Ratoon Crop on Neil’s farm. He said: “Previous trials have shown consistently, a positive impact on plant cane. “I’m now working on achieving consistent

benefits in ratoon cane.”

Despite receiving the full impact of Cyclone Debbie in March, the trial was carried through and harvested in late 2017. The good news is that the trial at Neil’s has been continued, with the application to a third ratoon crop. The continuation of this trial will assist in the assessment of the long-term impact Serenade Prime has on crop growth.

Neil is proud to be involved with Project Catalyst and the innovations being adopted. “They (Project Catalyst) gave us the confidence to talk to like-minded people, often when you’re doing any sort of innovation it’s hard to get over the criticism but when you get into that forum you find we’re all doing the same thing, but some people are a little bit further ahead in their thinking. It’s nice to mix with people who say to you, ‘well that’s a chance, I’d like to see what the results are.’”



Above: bacteria colonising the root surface, below: the rhizospheres of two plants where Serenade Prime has been applied to the surface and sub-surface (bottom) reveal little visual difference where the ground had been waterlogged for some time following heavy rain from Cyclone Debbie



Neil stands proudly by proven innovations trialed on his farm

*“There’s a lot of time involved, I’m interested in improving outcomes for the Great Barrier Reef and I think so many of the farmers are never given the credit for the amount of concern they have for what they do.”* –Neil Walpole



**Trial methodology: three separate applications in random and replicated strips**

1. Control – standard grower biodunder fertiliser practice
2. Serenade applied subsurface followed by surface applied Biodunder fertiliser
3. Serenade mixed in Biodunder fertiliser and surface applied to centre of stool.

\*The trial is irrigated to incorporate the product within 48 hours.

**Key findings:**

Slightly increased sugar yield from the subsurface application of Serenade compared to surface application and no application  
 Yields were low across the site due to the late harvest the previous year  
 Site was also flooded then waterlogged for an extended period of time due to cyclone Debbie in 2017 trial will be monitored over a longer period of time before firm conclusions are made.

