



This sort of real monitoring – as opposed to modelling – is being accepted by growers. Monitoring can't just be done in a small snapshot of time. It has to be done over a series of years so that we can develop numbers that apply to each and every one of our differing wet seasons, and then we can relate that to what happened in the harvesting season prior to that, then through the growing season, and then the wet season. We can then get a set of figures that relates to that practice over that period.

PAUL GREGORY



Farmers always want to know what's coming off our own farms and whether we can change any of our practices or reduce our costs. So by getting a trial done and trying out different practices you can find out exactly what's coming off your farm. Farmers learn more on their own farm. It reinforces what we've learnt in the workshops, seen in the training, and read in the magazines. That way we are reducing our nitrogen and learning a bit more about our own soils.

GLEN ANDERSON

It's interesting to learn the real facts of what is actually coming out of our fields. As we get more data, we can continue to modify our practices, and then we can know that we're stopping run-off of nutrients into the waterways. The only way we're going to do that is to do this work with Cane to Creek, getting some real data, sitting down, having a look at it. SRA is doing a good job of doing that by implementing this project, and from here we can educate everybody where we're going with it because we are in a pretty sensitive area. We want to save the reef as well, like everybody else.

LEN PARISI



Looking at the big picture with water quality

A GROUP OF WET TROPICS SUGARCANE GROWERS IS WORKING WITH SRA AND THE LOCAL COMMUNITY TO EXAMINE THE LINKS BETWEEN SUGARCANE FARMING AND WATER QUALITY. THEY ARE LOOKING CLOSELY AT WHAT IS HAPPENING IN THEIR PADDOCKS AND LOCAL WATERWAYS TO IMPROVE OUR UNDERSTANDING OF THE SITUATION.

Sugarcane growers in the Russell and Mulgrave catchments of Far North Queensland are shedding light on the complex relationship between sugarcane farming and water quality, via a project called Cane to Creek.

This project first began as a pilot in the Fig Tree Creek catchment in 2016 when growers there identified that they wanted to better understand the link between farm practices, activity in the catchment, and water quality.

Today, the project has expanded through investment from the Queensland Government Department of Environment and Science, and is working with about 12 core growers and a further 30 who regularly attend events related to the project.

"The Cane to Creek Project is about refining nutrient management and also helping to break down some of the barriers between growers and water quality science," explained SRA Adoption Officer Gavin Rodman, who is working on the project with SRA Principal Researcher for Water Quality, Belinda Billing, and Technician Chris Sterling.

"Within the project we have 10 demonstration sites looking at nutrient management practices. These include placement of nutrients, such as sub-surface versus surface application, as well as looking at things like mill mud and mill ash applications, and our plant cane crops after a legume fallow.

"When we started talking to growers who were very interested to become involved, we began with a nutrient management plan to identify whether there were any opportunities to refine their nutrient management.

"We found that in plant cane, accounting for nutrients from other sources was a really big factor. Seven of our demonstrations are looking at accounting for legume crops or accounting for nitrogen from mill by-products."

The 'creek' aspect of Cane to Creek sees the team focussed on regular water quality monitoring at multiple sites, and is proving to be vital in giving everyone a clear understanding of what is happening in the catchment.

This includes sampling upstream of the cane.

"One of the first questions in the project was 'what's coming out of the rainforest?'," Gavin explained. "An important part of the project is to be higher in the catchment to see what is coming out of that natural system so that when we get to the bottom of the catchment we can see what differences have occurred and what impact some of the farming may have had on that as well."

Across the catchment, the sampling occurs at regular intervals to pinpoint different activities that might be having an impact.

Weekly grab samples taken by the research team plot water quality trends over a long period of time. In addition, the project also has a real-time water quality monitoring trailer, sampling every hour. Despite the challenges of operating complex equipment next to a flood-prone creek, and with solar power in a high-rainfall (and cloud-cover) region, Gavin said the trailer was a vital component of the project.

"If we see a spike in our grab samples we can look at the trailer and see what might have been driving that," he said. "Was

there a change in the stream height? Was rainfall involved? This is important context that we can't get from taking our weekly routine grab samples, and which we couldn't do without the help of the trailer."

When CaneConnection visited and these photos were taken, simple water quality monitoring equipment called KP Samplers were being installed on Glen Anderson's farm at Mount Sophia.

As the wet season sets in, these samplers will be crucial in learning more about the mill mud / ash mixture that was applied on Glen's plant cane, and also the contribution of nitrogen from the legume fallow. The site has also seen a transition to wider rows, with the beans planted on the previous narrower row spacing and the cane now at 1.8 metres.

The trial is looking at a range of different nitrogen rates accounting for the mud / ash and the legume fallow.

Glen Anderson said that the project had already helped inform practice change such as widening rows, zonal tillage, and modifying herbicide application.

"Cane to Creek is helping us see the results of our work and have confidence that we are reducing our expenses and our environmental footprint," Glen said.

"The family has owned this farm for 75 years and we've always swam in these creeks and caught fish here. I have five kids and they've lived in the creeks all their life, too, so we want that to continue to happen in the future. To do that, we want to reduce our environmental footprint and be profitable in doing so."

Gavin said a crucial part of the project was discussion among the group.

"The whole idea around us collecting this water quality information is certainly not around pointing fingers at growers. It is about having a conversation and our growers are actually now discussing this without us being involved. Together, we are identifying opportunities for improvement, and practices that can help with continued improvement, looking at the whole catchment." ■

"Together, we are identifying opportunities for improvement, and practices that can help with continued improvement, looking at the whole catchment." GAVIN RODMAN