

Bio-fertiliser trial shows promise

Faced with depleted soils, escalating fertiliser costs and increasing pressure to reduce nitrogen runoff for the Great Barrier Reef, cane farmer **Mario Raccanello** has begun trialling bio-fertiliser on his 370 ha farm near Tully.



So far Mario reports the results of his bio-fertiliser trial have been promising. The first crop was harvested in November 2015 and showed no loss in production despite a 50% reduction in the application of commercial fertiliser.

Mario said the huge cost of fertilisers for his farm was becoming unsustainable.

"Many years ago my father used to grow bananas on straight cow effluent and a bit of urea, which produced massive trees and big bunches," he said.

"In those days the soil was almost edible but now I can see that our soils are depleted after years of using artificial fertilisers."

He began searching for other options and became interested in the potential of bio-fertilisers.

A conversation with **Gavin Kay** from Terrain NRM, convinced him that it was possible to restore the soil health on his farm by making bio-fertiliser.

However, his challenge was how to achieve it on a large scale and maintain production.

Mario was determined to conduct a trial so he could test how much he could reduce his fertiliser and secured assistance from Terrain's Innovation Funding under the Australian Government Reef Programme, which enabled him to purchase equipment and employ RegenAG's **Kym Kruse** to teach bio-fertiliser principles to himself and a group of other growers.

"I knew I had to find a solution to rising fertiliser costs but I couldn't do it on my own," he said.

"I needed help with the costs of trialling plus expert help from other people who had been through it before and understood the



(Above); Growers at a field day look at the bio-fertiliser fermentation tanks. (Top); Mario with a sample of his bio-fertiliser. (Opposite page); The spray rig used to apply the bio-fertiliser.



complexities of making bio-fertiliser recipes from scratch.

"Gavin and Kym really helped me nut out a lot of the early difficulties."

Mario said that the changes he is testing on his farm require a lot of trial and error and that it is an ongoing process to ensure they are workable long term solutions.

In particular, he had to find a way of making large quantities of bio-fertiliser without it taking up too much of his time.

Obtaining larger tanks and mixing equipment and working out ways to filter and apply large quantities onto the paddocks has made the process quicker and easier.

"So far it's showing promising results with no loss of sugar production per hectare and a build-up of biology in the soil."

There are many recipes for brewing bio-fertiliser but Mario says he has found it easiest to obtain cow rumen or use manure to which a number of ingredients are mixed.

It is then fermented in sealed tanks for a minimum of 30 days.

Mario has up to a dozen 1,000 litre shuttles (plastic pods in steel cages) going at any one time.

"There have been a lot of sleepless nights trying to work out how to use bio-fertiliser simply and cost effectively," he said.

"It is an ongoing learning process as we keep looking for ways to improve the way we're doing things but there's a great satisfaction in knowing we are rejuvenating our soils for the future."

When it's ready, the bio-fertiliser is stored in 26,000 litre rainwater tanks.

"Because it's stable and doesn't deteriorate, we could store it for 100 years," Mario said.

"It's a learning process but we've been applying it to the blocks straight after harvest and then up to two more times until the cane gets too high.

"There are people with irrigation looking at putting it through their systems – flood irrigation and centre pivot."

Mario is planning to continue with his trial for at least three years.

"We are hoping over a period of time to rejuvenate our soils, using a minimum of chemically-made fertilisers whilst achieving the same production results," he said.

"Our goal is still to be a viable farming operation so if the trial doesn't perform to our standards we will have to re-evaluate but so far it's showing promising results with no loss of sugar production per hectare and a build-up of biology in the soil.

"The knock-on effect will also be a reduction of any fertiliser runoff into the waterways."

Mario was one of more than 70 farmers who recently attending the Project Catalyst Forum in Cairns.

He said being a part of a network of farmers who are involved in innovation and conducting many different trials was invaluable.

For further information about Project Catalyst in the Wet Tropics go to www.terrain.org.au ■



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