

PRACTISING CHANGE

BOOSTING PRODUCTIVITY WHILE IMPROVING SOIL HEALTH

By Wayne Griffin

It's been a good few years for Tully grower Ray Zamora. In 2016 he averaged 118 tonnes of cane per hectare at his Euramo farm, one of his best growing seasons to date. The previous year he topped the district's dollar per hectare productivity chart.

But what's most impressive about Ray's success is not his tonnage, but that he's achieved it while reducing commercial nitrogen inputs by more than 20%.

Since taking over the family's 110 ha farm about a decade ago, Ray has been doing things a little differently - from brewing his own compost tea to moving the entire farm to zonal tillage.

"We try to do different things, change and improve our practices where we can," Ray said when *Australian Canegrower* visited the Zamora family farm recently

"The ultimate aim is always to lower growing costs, while maintaining or improving productivity," he said.

"But if we can improve environmental outcomes along the way, that's great."

Ray's father Ron bought the farm near the upper reaches of the Murray River in 1964.



He took an interest in practice change, moving to a controlled traffic system in 2003.

When Ron died in 2007, Ray took over the business and immediately ramped up the innovation process.

"We went to 1.9m dual rows in around 2007 and moved to GPS controlled traffic in 2008," Ray said.

"A few years later, around 2012, we moved to zonal tillage."

In recent years that Ray has discovered his true passion - improving soil health.

"It kind of dawned on me one day when I was out in the paddock spraying or something, I realised I didn't know anything about the soil," he said.

"I followed it up on Google and I didn't see anything that said synthetic fertilisers make the soil better in any way.

"So I started researching ways to improve soil health and it just grew from there."

In 2014, Ray undertook a course with the agricultural education and training consultancy RegenAG.





"We still a long way down the track from not using conventional fertilisers. But I'm lowering rates all the time. I'm only using 100 units of nitrogen now and getting 118 tonnes per hectare, so that's a good figure."

He learned how to brew up a range of carbon-fixing biological and mineral fertilisers from weird and wonderful ingredients such as cow paunch, fish frames, milk and molasses.

"The soil had been depleted over decades and decades of farming but I knew adding more synthetic fertilisers wasn't going to fix the problem," Ray said. "So I decided to do this course on brewing up your own bio-fertilisers."

While the recipes are something of a trade secret, with RegenAG asking growers to complete a course or have a tailored on-farm consultancy to ensure they receive the proper training and information, Ray is adamant most growers could make their own bio-fert.

"It's a pretty simple process, it's just a recipe – you add a bit of this and a bit of that. It's just like home-brew beer, it's a fermentation process, it bubbles away, then in a month to six weeks you have a batch ready to go.

"You can make what they call a mother brew and you can just keep tapping off that, taking out a little bit of biology to start another brew.

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Pictured: (above) Ray Zamora installed his own bio-fertiliser brewing and storage system; (left) Ray is also undertaking mixed species fallow trials.



"I have five different species in the mixed fallow – a grass, a legume, a brassica, a cereal and a chenopod. It just puts more diversity into the soil and helps build up the carbon levels."

Pictured: The Zamora family farm butts up against the croc-infested upper reaches of the Murray River, which drains into the Great Barrier Reef.

"I'd definitely encourage people to think about it, maybe do a course with RegenAG and try it for themselves."

Surprised with the positive results from his brew, Ray accessed an innovation grant to build his own, almost industrial scale, brewing and storage system.

Overall, he says, it's proved to be a rewarding experience, both financially and environmentally.

"Last year we had some of the biggest crops I've ever cut, we were averaging over 118 tonnes per ha," Ray said.

"The year before that I topped the productivity for dollars returned per hectare and this year I'm hoping I'll be right up there again.

"I'm not saying that's all a direct result of using the bio-fertilisers, but it definitely doesn't hurt.

"We're still a long way down the track from not using conventional fertilisers. We've been wrecking the soil for years, so we can't just fix it overnight.

"But I'm lowering rates all the time. I'm only using 100 units of nitrogen now and getting 118 tonnes per hectare, so that's a good figure.

"Prior to using this mix I would have been using 120-130 units of N, which is what's recommended on my soil test.

"I've also cut my K inputs to 120 units and I try to always use minimal herbicides."

As well as "putting out a few bugs", Ray has been planting mixed species cover crops as part of a Terrain-Project Catalyst trial.

"I have five different species in the mixed fallow - a grass, a legume, a brassica, a cereal and a chenopod," he said.

"It just puts more diversity into the soil and helps build up the carbon levels.

"You've got to pump the sugars down into the soil. The liquid carbon goes down in there and feeds the bugs and then the bugs feed the roots.

"The more mixes (of cover crops) you've got the more diversity there is in the soil and the better the outcome for soil health and crop production.

"I'm very proud to be a Catalyst grower and proud of what the project has achieved. I'd also like to thank Terrain for all the assistance they've provided over the years," Ray said.

With such an innovative and positive approach to farming, it's hardly surprising that Ray is on the cusp of achieving accreditation in the industry's Smartcane BMP program.

"We've got a number of fantastic growers in the region and Ray is up there among the best," local Smartcane BMP facilitator Nick Stipis said.

"He's a real innovator, which is great to see and his dad was like that as well. He was in my harvest group years ago and he was always the first to try things.

"The farm is on a flood plain on the Murray River, so it's very fertile, but it's a double-edged sword, because if you get an early wet or you're late finishing the harvest, you can be in big trouble.

"You have to be a real good farmer to farm that area and that's what Ray is." ■