

Burdekin farmer Cy Kovacich has taken part in fallow cropping trials as part of an SRA project.

## Long-term assessment of fallow crops shows potential for cash legumes

*A long-term research project has improved the understanding of fallow cash crops in the sugarcane farming system in the Burdekin.*

### Project details

#### Key Focus Area

**Farming systems and production management**

#### Project name

Cropping solutions for sugarcane farming systems of the Burdekin

#### Project number

2015/077

#### Project end date

Concluded

The benefits of breaking the sugarcane monoculture are well understood.

But the decision around introducing cash crops into the sugarcane farming system is far more complex and involves a range of questions and considerations.

What to plant? When? How do I maximise potential for the next crop cycle? What investment is required? What are the risks?

To answer some of these questions, a long-term research project was established in 2011 to assess a range of fallow crop options and follow these through a sugarcane crop cycle.

The most recent aspect of the project was a collaboration between SRA and the Queensland Department of Agriculture and Fisheries, with SRA conducting the trial and DAF conducting an economic analysis.

Because of its irrigation availability and its scale, the work occurred in the Burdekin.

The water and scale in the Burdekin had already seen the investigation of numerous break crops at various times over the years.

The research project aimed to investigate the potential for these crops to add value to the sugarcane industry, which continues to be the primary economic foundation of the region.

The project was overseen by Dr Barry Salter and assessed a range of fallow lengths and combinations of different crops, which also resulted in different sugarcane planting times, depending on the length of the fallow and the crop or crops grown.

This included short fallows with mung beans and soybeans, and longer fallows that also included these pulse crops as well as other crops such as maize and cotton.

“Cash crops with a short growth cycle, which allow the cash crop to be harvested, time for residue management or decomposition and planting back to sugarcane prior to winter are potentially the optimum way of incorporating a cash crop into the sugarcane farming system,” Dr Salter said.

“Mung bean and soybean are probably best suited to this system, and efforts to improve the management of these crops within a cane farming system should be considered.”

He said that the economic analyses indicated that grower gross margins could potentially be improved with a summer legume (mung bean, soybean) cash crop, which allows sugarcane planting during autumn, and therefore ensures sugarcane productivity is maintained.

Longer fallow periods that delayed planting until spring, or missed an entire year of sugarcane, did not produce sufficient higher yields across the subsequent sugarcane crop cycle to offset the sugar production that was lost through the delay.

While the extended fallow treatments (17 months) resulted in higher yields in plant cane, this boost to yields did not carry through over the ratoon crops.

The DAF economic analysis showed the mean gross margin over the crop cycle for the farming system that included mungbean was \$2702/ha/year whereas for soybean it was \$2852/ha/year. There was no statistically significant difference between these systems and the farming systems that included a 17 month fallow with sequences of cash crops (eg. soybean, maize, mungbean) during the fallow period.

Farming systems with an extended fallow and multiple crop sequences are complex, and growers need to consider the challenges of accessing agronomic and extension support, and ensuring suitable supply chain infrastructure, processing facilities, and marketing organisations.

The trials were conducted on the Mona Park property of Cy Kovacich.

Cy said he had been experimenting with break crops since 2005 with both successes and failures. Because of that, he was keen to participate and learn more, particularly as he knew there was a learning curve around returning the ground back to cane and maximising production.

“One of the lessons we learnt through the work with Barry was to not have the mindset of harvesting the fallow crop and trying to go straight into planting cane,” Cy said.

“There was one point last year where I had 24 hectares of mung beans and I’d plant cane into them the day after harvest. We did not allow time for that crop to break down before going in with cane.

“It came away okay, but it was set back to the point where I considered destroying that paddock and starting again.” The crop ended up yielding 182 tonne/ha.

Cy said that the trial work built on the understanding of the Sugar Yield Decline Joint Venture.

“I have no doubt that break cropping leads to higher sugarcane yields per hectare,” he said. “That is a proven point and so unremarkable that we don’t even talk about it here anymore.”

#### For more information

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The research has investigated the potential for fallow crops to add value to the sugarcane industry.

