Information and experimentation drive harvest efficiency

SRA has worked with harvesting groups across the industry on 43 demonstration trials in 2017, with 60 more planned to follow in 2018. Tully grower Chris Condon and his group were one participant.

For Tully grower Chris Condon, improving harvesting efficiency is an ongoing evolution.

That evolution requires information and experimentation, which then inform modifications to practices or farm layout, and then the process continues.

This is why he was a keen participant in observation trials in 2017 as part of a project run by SRA to work with harvesting groups to examine their local harvesting conditions and practices, and then work with them to optimise the harvest.

"We had experienced harvesting trials before, but this new project offered the advantage of serious follow-up," Chris explained.

"Sometimes in the past we would receive data from harvesting trials, but we were unsure what to do with that data. In this project, we are receiving the follow-up to help us make changes."

Running a 2017 John Deere CH570, the harvester cuts mostly the family's own cane, which was about 118,000 tonne in 2017, plus approximately 20,000 tonne for another grower. The harvester is driven mostly by Mark Camilleri.

The 2017 trial had four treatments:

TREATMENTS	FAN SPEED (RPM)	GROUND SPEED (KM/HR)	SECONDARY EXTRACTOR FAN
Low	600	3	Off
Recommended	700	4	On
Nominal (Conventional practice)	700	6	On
Aggressive	850	6	On

The trial confirmed what Chris already suspected, although he said it also gave him useful information on some of their assumptions that weren't quite right.

"The trial was in a block where doing things differently could have a big impact on profitability," he said. "It was a beautiful crop of cane and had good presentation, so there was room to either get it right or wrong – which means either being profitable or unprofitable."

This table provides a snapshot of the results:

	CANE YIELD (TONNE/HA)	CCS (%)	SUGAR PRODUCTION (TONNE/HA)	BINS PER HECTARE	GROWER REVENUE PER HECTARE (AFTER MILL DEDUCTIONS)	CONTRACTOR REVENUE PER HECTARE
Low	89.2	15.6	15.2	10.6	$4423	$707
Recommended	90.5	15.3	15	10.3	$4314	$711
Nominal (Conventional practice)	81.1	15	13.3	11.4	$3818	$641
Aggressive	87.1	15.5	14.8	9.6	$4278	$693

The figures are based on the results of the trial and an economic analysis from the Queensland Department of Agriculture and Fisheries. The trial also assessed a range of other data such as extraneous matter, harvester economics, bin weights and value, and billet quality.

SRA Adoption Officer for Harvesting, Mr Phil Patane, said the 2017 results varied from group to group, and region to region, but consistently showed the opportunities for improvement in harvesting practices.

"The information presents huge opportunities for the industry. It also presents data to help us overcome remaining challenges such as ensuring adequate bin supply, fair payment for harvester operators, and striking the right balance between minimising losses and getting the job done," he said.

Chris Condon said the results presented a wealth of information, although he admitted that decisions were still sometimes difficult.

An example of where flexibility is still required comes with pour rate. Chris is looking to base the contract around 90 tonnes per hour pour rate and determining the steps needed to achieve that.

He admits that sometimes it isn't achievable and more cane has to be pushed through to get the job done some days.

"There are a lot of factors to work out, but now we've got hard data in our conditions to base the discussion around."

Even before the trials, Chris had been working to improve harvesting efficiency. The biggest step came with the decision to invest in their own harvesting equipment to provide more control over key harvester settings, especially ground speed.

There has also been changes on the farm. They have laser-levelled and changed layout to create long, straight paddocks for the harvester.

"We're constantly trying to improve the farm to make all our operations easier, including harvesting," he said.

Chris said that they were also having challenges with their 1.9 metre dual row system.

"As the stools became wider, the duals were up to 600mm apart, and by the time that happened we found we were cutting the outside part of the stool with the outside of the basecutter disc, and the stool was actually falling away," he said. "The crew was trying their best, but we were always leaving cane behind. It wasn't their fault, as it was the set-up of the row profile.

"We also observed the dual row cane had thinner stalks, so we had issues getting bin weights as well."

After planting a small area of single row on 1.9 metres, Chris felt that the tonnages were similar to the dual row and has now made the switch to single rows. ■

This work is one element of a much larger project called *Enhancing the sugar industry value chain*, which is funded by the Department of Agriculture and Water Resources and SRA as part of the Rural R&D for Profit Program.

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(Over Page) *Tully grower Chris Condon continues to look for more opportunities to improve harvest efficiency.* ***(Above)*** *Chris Condon and Phil Patane discussing the outcomes of 2017 harvesting demonstration trials.*