



Enhancing the sugar industry value chain

Project details

Key Focus Area:

Multiple

Project name:

Enhancing the sugar industry value chain by addressing mechanical harvest losses through research, technology, and adoption

Project number:

2016/901

Project end date:

2019

A major collaborative and comprehensive research and adoption program is underway to optimise the efficiency of the sugarcane harvest and deliver positive outcomes across the value chain.

How much sugar is not making its way through the mill and earning income for the industry? And how do we re-capture that lost value for the benefit of the value chain?

These are two of the major questions that are being answered as part of an extensive research and adoption project being driven by SRA along with a wide range of collaborators.

The project is called *Enhancing the sugar industry value chain by addressing mechanical harvest losses through research, technology, and adoption* and it is funded by the Australian Government, SRA, and QUT, with very significant in-kind contributions from other organisations.

There is good evidence that, since mechanical harvesting began, significant losses of cane have been occurring and that the level of loss has increased over the years. The extent of these losses is variable and can be excessive.

The key issue is that incremental losses at successive stations in the harvester add up to significant impacts on overall profitability. These mainly occur through extractor losses, chopper losses and pick-up losses.

Adoption project

The Adoption Project will recruit volunteer harvester groups (a harvester operator and the farmers contracted) to participate in collaborative trials and workshops. Approximately 10 percent of harvesting groups will be recruited to the project in 2017 and another 10 percent in 2018.

A comprehensive, day-long demonstration trial on the impact of harvester operation on losses will be organised for each group. These will be conducted using the in-field sucrose loss trailers by SRA, Wilmar or MAPS (with SRA participation in all trials) as well as mass balance trials.

The trials will look at a holistic approach to the entire harvesting operation. The groups will participate in and review the results of the trials and discuss possible responses at facilitated workshops led by SRA Adoption Project team members.

Outcomes will be tailored to each group and could include changed payment arrangements, installation of sensors for harvester monitoring and so on. The trials will also be used for further validation of the online harvest optimisation tool, SCHLOT.

In each area, regional coordinating groups are being set up to provide a link between the Adoption Project and the industry in the field. These will be small groups comprising local industry representatives including millers and growers and other stakeholders as appropriate.



These groups will assist in recruiting volunteer harvesting groups for the project, assist in the logistics of the trials and promote activities on a local level to encourage adoption, with support from the adoption project.

Basecutter project

The impact of mismatched basecutter and harvester forward speeds was evaluated in a trial using a JD 3520 harvester at Isis in November.

During December an early ratoon tillering assessment was carried out, looking at the number, size, distribution and weight of shoots that had emerged after approximately one month.

The assessment involved counting and measuring the number of tillers present and their respective heights in each 0.5 metre sub-plot in each of the trial plots. A sample of shoots from near (but not in) each trial plot were cut, measured and weighed to create a relationship between measured tiller lengths within each plot and the actual amount of biomass present.

Counting the shoots present in each 0.5 metre sub plot allows the team to compare the number of shoots emerging with the number of stalks present at the last harvest. This is intended to allow an assessment of whether the number of 'holes' in a row changed with different harvesting treatments as well as how the plant's tillering behaviour responds to different harvesting treatments.

Substantial work has also been going into designing the hydraulic and control systems to allow control of basecutter and front end speeds for the trial.

Work has also been underway to prepare fitting harvesters involved in the project with the hydraulic and control system upgrades required for the project.

Cane cleaner

A mobile cane cleaner has been under construction and will be used for large-scale trials in the 2017 season.

In mid-January project leaders Steve Ginns and Brian Robotham travelled to Finch Engineering at Kaimkillenbun to get an update on the construction of the mobile cane cleaner.

The project leaders have raised points for consideration regarding the safe transport and operation of the cane cleaner with the manufacturers, NorrisECT and Finch Engineering.

It is expected that the trials with the cane cleaner will involve large tonnages of cane from the cane cleaner, low loss harvesting and other treatments to study the impact of clean cane on the whole value chain.

This project is supported by funding from the Australian Government Department of Agriculture and Water Resources as part of its Rural R&D for Profit programme.