



During the 2017 and 2018 harvesting seasons, SRA conducted 95 replicated field trials and workshops across 12 sugarcane regions between Harwood and Mossman.

The performance of settings recommended by Harvesting Best Practice (HBP) parameters were compared with each harvesting operation's standard practice by assessing cane yield, sugar yield, CCS, bin mass, extraneous matter (EM), fibre, sugar loss and revenue.

Findings suggest that harvesters are typically operating at ground and fan speeds of 0.9 km/hr and 95 rpm/hr on average above those recommended for harvesting best practices.

Higher ground speeds increased throat pour rate by about 21 tonne per hour. However, this overloads the cleaning chamber which necessitates an increase in fan speed to eliminate the additional extraneous matter entering the machine. Unfortunately, the increase in fan speed also removes additional cane through the extractor. Cane usually disintegrates in the process, making it invisible to the naked eye. The trial methodology included two methods – mass balance and infield sugar loss measurement system (ISLMS). The ISLMS treatment indicated the average sugar loss out of the extractor increased by 0.15t/ha when compared to HBP settings. Furthermore, HBP settings had no significant impact on extraneous matter levels or bin mass.

Mill analyses across all green cane trials identified cane and sugar yields for the recommended practice were 4.8 t/ha (cane yield) and 0.7 t/ha (sugar yield) higher than standard practice.

Economic analyses completed by the Queensland Department of Agriculture and Fisheries (DAF) indicated the potential for an additional \$25M revenue per annum for the Australian milling industry, should the green cane harvesting sector move from current standard practice to HBP. This was based on trial results with an assumed average sugar price of \$421/t.

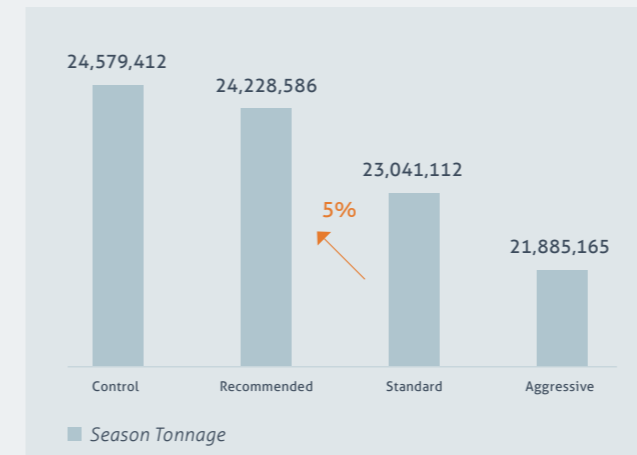
It is important that growers, harvest operators and millers recognise that cane loss through the extractor resulted in less cane per hectare delivered to the mill. Contractors in general endeavour to deliver the best outcomes for their grower but the harvesting industry is currently facing considerable challenges. The objective of the DAF economic analysis is to understand the cost-benefit ratio of operating within HBP parameters for both the grower and contractor in order to produce a positive financial outcome to both parties. Ultimately, each sector of the value chain will need to work together to find the "sweet spot" to maximize the potential economic gains for all members of the value chain.

Over the page is a combined summary of the 2017 and 2018 trials, with focus on the implications of HBP for the Australian milling sector (green cane).

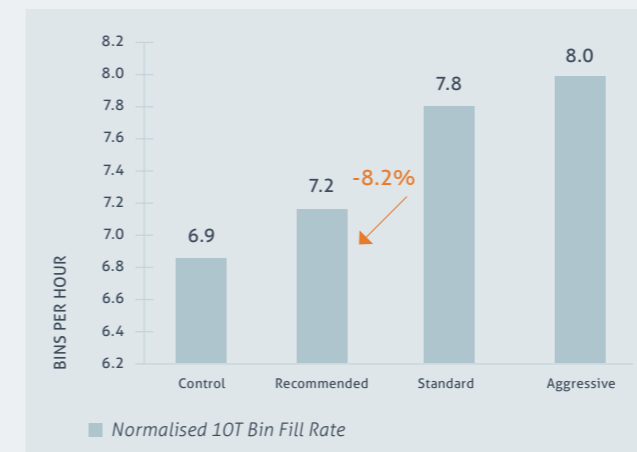
THE IMPACT OF HARVESTING BEST PRACTICE FOR THE AUSTRALIAN MILLING SECTOR

BY CAROL NORRIS
ADOPTION OFFICER, HARVESTING

(Above) 95 in-field trials have been conducted over the last two seasons to better understand the implications of adopting harvesting best practice. SRA has worked with the Queensland Department of Agriculture and Fisheries to conduct an economic analysis to also understand the implications for the milling sector.

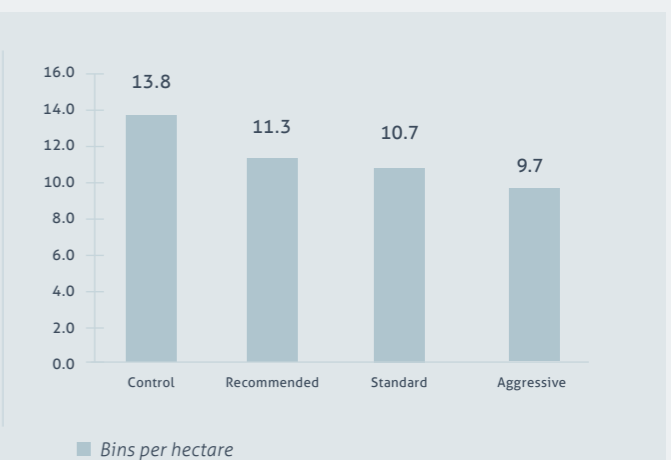


The 2017 and 2018 combined field demonstration trials show a 1.2M tonne or 5 percent increase (per annum) in tonnages moving from average industry contractor harvesting practices (standard) to recommended (HBP) practice. This yield increase requires no increase in cane land. A statistically significant difference was recorded between industry standard practice and recommended harvested yield.

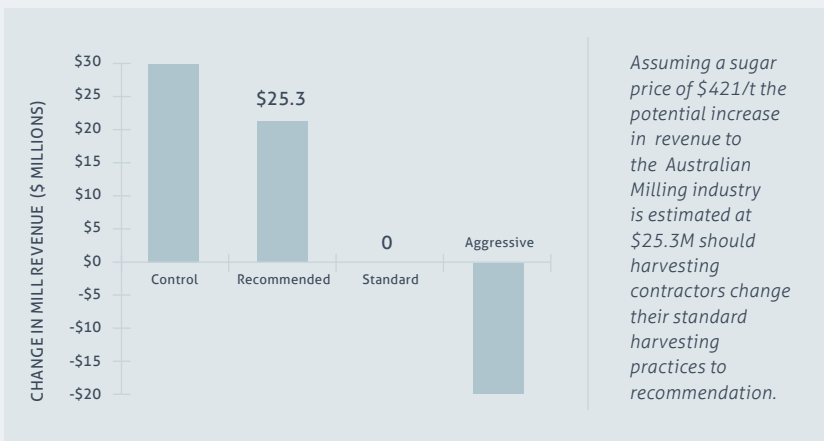
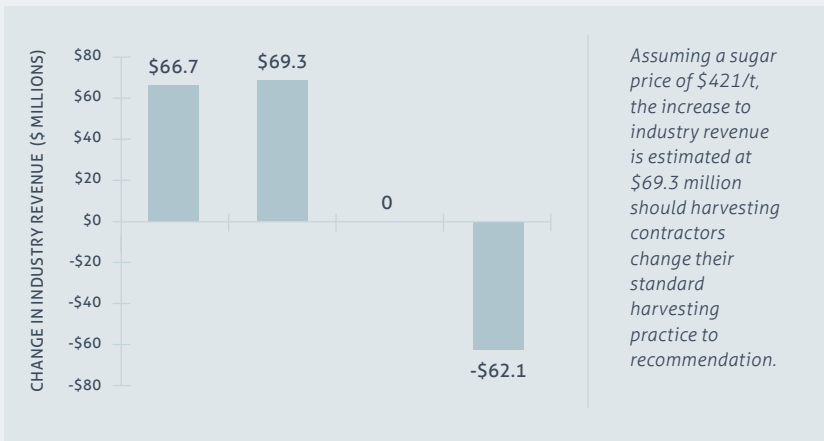
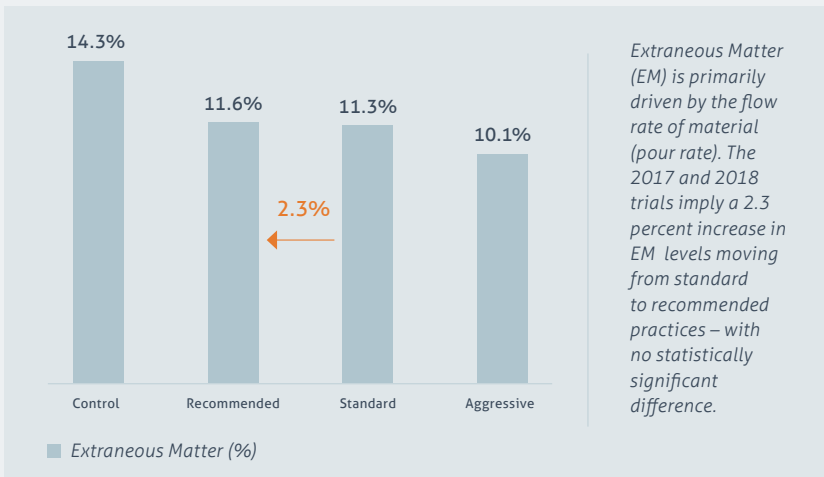


Bin fill rates in the 2017 and 2018 field demonstration trials indicate a 0.6 bin/hr (8.2%) decline between average industry contractor harvesting practices (standard) to recommended harvesting practice. (Statistically different).

A key measure of harvesting best practice is reduced flowrate into the harvester. Currently industry standard is >110 tonnes per hour. Harvesting best practice targets 70 – 90 T/Hr flow rate into the machine.



Bin mass across the 2017 and 2018 trials decreased on average 0.6% (this represents no statistically significant difference). Collaboration between the SRA Harvesting team and Australian milling sector to understand bin fleet logistics and tipping rate is a vital step towards optimising the potential yield gains of harvesting best practice.



In conclusion, the 2017 and 2018 harvesting demonstration trials indicate a \$25M increase to industry milling revenue if harvesting contractors were to change their standard harvesting practice to recommendation. However, the increase to milling revenue does not account for the cost (if any) associated with milling cane at HBP.

Each milling region has unique drivers (e.g. payment arrangements between growers and contractors, and between contractors and their operators) and pinch points (operating hours, bin fleets, number of contractors). The SRA harvesting team remain committed to working with the Australian milling sector to address, resolve or reduce these barriers to adoption and maximize the opportunities presented through innovative and efficient harvesting practices. ■

For more information contact
Ms Carol Norris on
E cnorris@sugarresearch.com.au
T 07 4963 6824.

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