

OPTIMISING SEASON LENGTH TO INCREASE INDUSTRY PROFITABILITY IN THE HERBERT RIVER DISTRICT, QUEENSLAND, AUSTRALIA

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Abstract

The Herbert River District is located about 100 km north of Townsville in north Queensland. It produces 4-5 million tonnes cane largely under rainfed conditions from a harvested area of around 57,000 hectares. The cane is supplied to two sugar mills: Victoria and Macknade, with crushing rates of 1100 and 550 tonnes/hour respectively. Season length has traditionally been 21-22 weeks from mid-June to mid-November.

With the recent decline in international competitiveness and uncertain long-term outlook for world sugar prices, the Herbert sugar industry is exploring a range of options to improve its profitability. One initiative is to increase season length to up to 26 weeks, depending on weather conditions, and to operate Macknade Mill for only part of the season, during the period of peak CCS.

A research team has been formed and funding has been obtained from the Sugar Research and Development Corporation (SRDC) to investigate:

- Management strategies for early harvested cane, including the use of chemical ripeners
- Ratooning ability of different varieties under both early and late harvesting
- Predicted trafficability of different soils for early harvest based on soil properties and risk of rainfall at different times of the year.

Funding has also been received from SRDC for a study group to travel to South Africa to collect information on:

- Crop management for different harvest times
- Adoption of best management practices on-farm
- Changes to farming systems in response to low sugar prices, particularly on large mill-owned farms
- Regional extension programs and farmer education
- Farm and financial record keeping systems
- Industry R&D services.

Keywords: season length, early harvest, crop management, profitability, Herbert district, Queensland.

Increasing industry profitability and viability

The long term outlook for world sugar prices has highlighted the need for the Herbert sugar industry to seek ways of reducing industry costs and increasing revenues. In late 2001 leaders from the Herbert sugar industry decided to analyse the whole sugar value chain, benchmark it against the Brazil centre south region and look for opportunities for improvement. McKinsey management consultants were engaged by CSR Ltd to guide and facilitate the process and work with representatives from the growing, harvesting, milling and research and development (R&D) sectors. Although opportunities for improvement were found in all sectors, this paper will focus on those identified in the crop production and harvesting areas and describe some of the initiatives taken to implement improvements.

The Cane Productivity Initiative (CPI) was launched in 2002 with the goals of achieving a sustainable 10% improvement in sugar yields and a 0.75 improvement in commercial cane sugar (CCS). However, productivity was defined in its broadest sense as being the ratio of revenue to costs. Key issues identified in the analysis were the wide range in yields between farms in areas with similar climate and soil conditions, the relatively slow uptake of R&D findings and the lack of awareness amongst growers and harvester operators of the opportunities that exist for improving their productivity.

The CPI focused on four areas that offered the largest opportunity for productivity improvement:

- Improved adoption of the most productive varieties for different soils and climatic areas
- The application of best harvesting practices to reduce cane losses in the field, stool damage and extraneous matter in the cane supply
- The adoption of a more sustainable farming system aimed at improving soil health, with legume fallow crops, minimum tillage, wider row spacing and controlled traffic
- The adoption of improved drainage and water management practices aimed at minimising the impact of protracted wet periods and improving water quality.

The CPI has resulted in the identification of 26 geographical Productivity Zones, with around 30 growers in each zone. Productivity forums are held in each zone 3-4 times per year, and at these forums growers are encouraged to share their ideas, knowledge and experience and to develop solutions to issues thought to be constraining productivity. In addition, four R&D teams have been formed to accelerate the adoption of best management practices in the four areas offering the greatest potential for productivity improvement.

The CPI has heightened awareness of the need for change and the opportunities for improving productivity. However, it has only been successful in engaging around 50% of growers. The challenge ahead is to use the wide range of on-farm trials and demonstration plots to engage the wider community and demonstrate the economic benefits of adopting best management practices on farms.

Optimising season length

In 2003, a second initiative began with the establishment of a team consisting of representatives from the growing, milling and harvesting sectors together with research and extension organisations. The brief for the team was to develop and reach agreement on a cane harvesting, transport and processing plan that maximised industry profitability through an earlier than normal start to the season, a longer than normal crushing season for Victoria Mill

and a staggered start for different parts of the district depending on CCS and weather conditions. The provision of a consistent supply of early harvested cane and a longer overall crushing season was particularly important to support the financial justification for a proposed cogeneration facility at Victoria Mill.

With little data available on CCS profiles and ratooning performance of early harvested cane, and little knowledge on how cane should be managed for early harvest, the team developed an experimental program with financial support from the SRDC. A major activity in 2004 was to conduct 12 trials on farms using the chemical ripener Moddus[®] and to examine its effectiveness in increasing early CCS and its effects on cane yield and ratooning. The results showed that Moddus[®] was an effective means of increasing CCS without adversely affecting cane yield, provided that the crops were harvested early in the season. The data collected will be used by the manufacturer of the chemical, Syngenta, to register the product for use as a ripener for sugarcane. Other trials will be conducted to find out the most cost effective fertiliser applications and most suitable varieties for early harvest and the benefits of wider row spacing and controlled traffic for minimising compaction in blocks likely to be harvested under wet field conditions early in the season.

Another initiative was to conduct an early CCS sampling program using the 12 ripener trials but also involving growers in eight harvesting groups around the district to provide us with more information on changes in CCS from early May to mid-June. These data will be collected on an annual basis and will be used in conjunction with a crop sampling program used to 'ground truth' the pre-season crop estimate. The data on CCS trends from the sampling program will be combined with historical CCS data to characterise the rate of increase in early CCS for different parts of the district. The lack of quantitative data on early CCS trends is a major factor limiting acceptance of an extended season length by growers in the Herbert.

A simple, short term goal set by the team in 2004 was to conduct an early start trial using Victoria Mill and to harvest around 70,000 tonnes of early cane from the traditionally drier, higher CCS areas of Ingham Line and Upper Stone. The early season start commenced on schedule on 7 June. However, cane supply was much lower than expected during the first two days, with a number of harvesting groups unable to supply cane either because of harvesters not being ready, harvester breakdowns or wet field conditions. Some groups agreed to cut above quota but these arrangements were unable to make up for the shortfall in supply. The lack of a full cane supply led to stop/start crushing operations at the mill and caused bagasse stocks to become depleted. Other groups in Stone River, which were due to commence on day five, were not prepared to start harvesting earlier. It was therefore decided on day three that the early start trial would have to be abandoned. A total of only 20,000 tonnes cane, with an average CCS of 11.4, was supplied to the mill during the first week, from 45 different farms.

A major recommendation from an after-action review following the early start trial was that a survey should be conducted to obtain the views of growers and harvester owners on early season harvesting and extended season length. The survey was conducted in August 2004, with around 50 randomly selected growers participating, two from each productivity zone. The results showed that the majority of growers had reservations about seasons starting earlier than 1 June and finishing later than 20 November.

The team has continued to meet and is now involved in planning for the 2005 season. The early CCS sampling program will again commence in April 2005, and further field

experiments will be conducted using crop ripeners, different nitrogen rates and different varieties for early harvest. The current goal is to start Victoria Mill on 1 June, and again to draw the majority of the early harvested cane from the drier areas with naturally higher CCS. However, the season start date is dependent on the successful negotiation of a cane supply agreement between millers and growers where the benefits of an extended season length are shared equitably between the different industry sectors.

In view of the uncertainty regarding the impact of extended season length and earlier starts to the harvesting season on grower profitability, a study tour to the South African sugar industry has been organised for July 2005, with partial funding from the SRDC. The study group includes four growers, two research/extension staff from BSES Limited and a milling/R&D representative. The study group aims to collect information on:

- Crop management for different harvest times
- Adoption of best management practices on-farm
- Changes to farming systems in response to low sugar prices, particularly on large mill-owned farms
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The Herbert sugar industry faces a substantial threat to its viability and sustainability and needs to implement change. R&D agencies in the Herbert will play a significant role through the CPI, and through optimising season length and cane supply arrangements in helping the industry to embrace change and to become one of the lowest cost producers in the world.

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