Deterioration of sugarcane billets can start to occur 14 hours after harvest.

Project details

Key Focus Area:

Capability development, attraction and retention

Project name

Reduction of post-harvest deterioration of sugarcane

Project number

2014/401

Principal provider

SRA

Project leader

Anthony O'Connell

RESEARCH

Pilot project looks at billet deterioration

A small-scale career-development project has investigated the use of hormones in relation to deterioration of sugarcane billets after harvest.

Growers and millers already understand that once sugarcane is harvested the clock is ticking to get the cane through the mill before the billets start to deteriorate which minimises sucrose loss.

Research has shown that deterioration can start to occur after 14 hours of harvest, and best practice recommends milling the cane within 16 hours.

With that in mind, a small-scale career-development project funded through Sugar Research Australia (SRA) has investigated if there are ways to delay the deterioration process.

The research was part of SRA's investment in Early-Career Research Awards, which is a grants program that is aimed at building capacity within researchers and also in conducting research outcomes for the industry.

It was conducted by Dr Anthony O'Connell, who is based in Brisbane within SRA, and who also works on SRA's herbicide tolerant cane project, as well as a new project working with sugarcane breeders in India on collaborations with the Australian breeding program. The purpose of the research was to see if the natural plant hormone cytokinin could be used in various applications to sugarcane before harvest or after harvest, in order to delay the deterioration.

"What I had in mind with this project was that milling cane within 16 hours does have costs and creates logistical problems," he explained. "We have a massive transport network set up to get the cane as quickly as possible to the mill, and that has a cost. There are also bottlenecks and issues with scheduling.

"So the question was – what if the billets could last longer than 16 hours before milling?"

Dr O'Connell said the project was an initial investigation into the use of the cytokinin hormone and new scientific knowledge around its use with post-harvest deterioration of cane. He said while the hormone was able to reduce sucrose loss in billets, the effect was not large enough to make it a practical solution to post-harvest deterioration of sugarcane.

General Manager of the Research Funding Unit (RFU) at SRA, Dr Michael O'Shea, said the small project provided interesting work around billet life that was based around implications for season length, billet storage and harvest scheduling.

"Although the work wasn't successful in terms of leading to a new outcome, it is an example of an innovative small project from one of our bright young researchers to give him a chance to manage a project by himself, which is exactly why this scheme exists," Dr O'Shea said.

More information

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