Some canes store sucrose faster

A Brisbane-based research team has found that some cane plants may have an in-built control system that enables them to store sucrose faster and earlier than many other sugarcane varieties.

This 'genetic control system' could allow growers and millers to better utilise the harvest season and potentially extend it, which would be of significant value to the Australian sugarcane industry.

The typical harvest season in Queensland lasts for around four months and an ideal harvest is one with a constant supply of cane with high levels of sucrose.

Many commercial cane varieties do not peak in sucrose accumulation until the middle of the harvest season. A district with a mix of early and late sugar varieties could extend harvest and significantly boost sucrose at the mill.

Dr Annathurai Gnanasambandam (Anna) is unravelling a 'genetic control system' that could allow growers and millers to better utilise the harvest season.

High early sugar

According to Dr Annathurai Gnanasambandam (Anna), this ability to store sucrose faster, is known as high early sugar (HES) and has been sought after by sugarcane breeders for some time now.

The CRC SIIB project was initiated to make the process of selection more targeted and faster so growers could have easy access to HES varieties.

"Just over two years ago we set out to understand what makes current HES varieties different from conventional cane. Our team wanted to see if we could understand how these canes accumulate sucrose so much sooner than most other varieties," Anna said.

"Additionally, we aimed to develop tools for breeders to test for these traits early in the breeding cycle."

The CRC team looked at the performance of cane in the glasshouse and found that the HES plants consistently accumulated more sucrose sooner in the stem. Importantly, they found that higher sucrose accumulation started early in the plants' growth and the HES varieties had significantly more sucrose in their stems after only three months growth.

"This information, and a series of other DNA results, has pointed us towards genes that appear to be responsible for HES," Anna said.

In recent months, the CRC research team has worked on three tools that could be used by breeders to measure potential new varieties for their early sucrose potential. One test, based on the Brix model used by mills, will soon be trialed by BSES Limited's plant breeders. They hope to incorporate the research findings in the development of more HES varieties for Australian sugarcane growers.

High Early Sugar varieties could be used to deliver an extended harvest with a boost in sucrose at the mill.

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