



Sampling for RSD testing using the ELISA method.

## Working to improve RSD testing

*A new sampling and testing process for RSD has been developed, with a research project underway to assess the potential for commercial and widespread use of this new technology for the Australian sugarcane industry.*

Research is underway to advance new technology that could vastly improve the process and efficiency of sampling for ratoon stunting disease (RSD).

Currently, RSD samples are collected and diagnosed according to the ELISA method, which involves a labour-intensive process of collecting 16 to 20 stalk samples, and blowing compressed air through the stalk. In this test, antibodies specific to RSD are combined with other reagents to give a colour reaction when bacteria are present.

Each year, SRA tests about 30,000 samples this way. However, in recent years researchers have developed a new test that is currently used for research purposes. If it can be perfected for commercial use, it would allow for more efficient sampling and more accurate diagnosis of RSD in cane.

This project is building on the work of Dr Anthony Young (USQ) and Dr Kathy

Nock (SCU), who developed this new method of sampling for and diagnosing RSD.

This test, called LSB qPCR, involves the collection of leaf sheath samples and subsequent analysis using modern molecular techniques.

The new project involves SRA researchers Dr Rob Magarey and Dr Chuong Ngo as well as Dr Young and Dr Kathy Braithwaite. The project is also supported by a reference panel consisting of Dr Brendan Rodoni from the Victorian Department of Primary Industries and Mr John Agnew from MAPS, who bring diagnostic and end user perspectives to the project's design and implementation.

The project will assess the new test from a range of angles to ensure that it can provide a sensitive and reliable service for the Australian sugarcane industry and that it is practical to implement.

It is studying three varieties with different RSD ratings: Q208<sup>®</sup> (resistant rating), Q232<sup>®</sup> (intermediate rating) and Q242<sup>®</sup> (susceptible rating).

These will be used to assess different sampling times, as the LSB qPCR is able to be used much earlier in the growing season than the traditional ELISA test. The effects of variety on detection sensitivity will also be determined.

"We will be assessing the efficacy of the new test, as well as looking at its limitations. Then, further into the project, we will be looking at issues such as transport of samples and ensuring that contamination of samples does not occur," said SRA Researcher for Disease Management, Dr Chuong Ngo.

Dr Ngo said that diagnosis and management was critical for minimising RSD losses for the industry, so this project had significant potential for long-term benefit for the industry.