



The project team in Indonesia recently as part of the ACIAR-funded research to help protect Australia against a potential threat from sugarcane streak mosaic virus, an exotic threat not currently within Australia.

## Australia and Indonesia working to understand sugarcane streak mosaic virus

*Estimated to be costing the Indonesian sugarcane industry in the region of A\$50 to A\$100 million dollars annually, sugarcane streak mosaic virus (SCSMV) presents a real threat to the Australian industry.*

***By Matt Reynolds, Adoption Officer***

Recent surveys have reported regions of Indonesia with greater than 85 percent of crops exhibiting visible mosaic symptoms. The Indonesian sugarcane industry covers 380-400,000ha with the profitability of the cash crop being important for alleviating poverty amongst the Indonesian sugarcane community.



**Above:** Recent surveys indicate more than 85 percent of Indonesian cane has visible mosaic symptoms.

SRA's collaborative work with CIRAD, University of Bogor, Indonesian Fibre Crop and Sweetener Research Institute and the Indonesian Sugar Research Institute aims to gain valuable information to prepare and protect the Australian industry.

"The project aims to prepare our industry for a potential incursion of sugarcane streak mosaic virus. Not enough is currently known about the disease and the work we are doing with the Indonesian institutions is shedding valuable light on the disease," Project leader, Dr Rob Magarey, said.

The Australian Centre for International Agricultural Research (ACIAR) is funding the project, which is in its early stages. It is already delivering insight into the impact of the disease, with the virus shown to be capable of reducing yields by more than 20 percent.

In May 2017, the project team met in Indonesia to discuss and plan future work in line with the discoveries already made as part of the project. The meeting offered valuable insight and enabled in-depth discussion on the current work, and it also highlighted the value and expertise that SRA brings to the collaborative arrangement.

The ACIAR funded project aims to:

### 1. Develop a rapid diagnostic test

A number of diagnostic tests will be developed as part of the project, with those tests already developed showing real promise for their application in Australia. "We are developing a range of diagnostic tests from ELISA to LAMP and qRT-PCR. These methods will be tested to determine their most appropriate application in Australian and Indonesia," SRA Senior Researcher, Dr Nicole Thompson, said.



**Above:** SRA Technician Ms Liz Wilson and SRA Senior Researcher, Dr Nicole Thompson, in the field in Indonesia.

### 2. Understand transmission of the virus, associated yield losses, varietal resistance and the distribution of the disease within Indonesia

A number of critical pieces of information are not currently understood about SCSMV. Understanding how the virus is transmitted and the varietal resistance of Australian sugarcane varieties is critical to protect the Australian industry should an incursion occur.



**Above:** Sugarcane streak mosaic virus symptoms.

### 3. Extension program aimed at improving management of the disease

Extension is a key part of the project and aims to reduce the level of SCSMV within Indonesia. A recent survey in Java of 931 crops found greater than 85 percent of crops displayed visible mosaic symptoms. Reducing the presence of SCSMV within the Indonesian industry has the potential to reduce the likelihood of an incursion into Australia.

Australia is currently home to two forms of mosaic viruses; sugarcane mosaic virus and striate mosaic virus. SCSMV is caused by a different virus to the two Australian forms and is regarded as being more severe. Streak mosaic exhibits symptoms similar to those seen with sugarcane mosaic virus in Australia with mosaic leaf patterns and stripes on the young stalks and leaves.

Dr George Piperidis, SRA Leader of crossing and selection and the Central Region's plant breeder, was invited to participate in the ACIAR project meeting and took the opportunity to discuss the potential for variety exchange with Indonesia, and the assessment of important Australian varieties for SCSMV resistance. "Indonesia already has a number of older SRA varieties and so the opportunity to gain an understanding of the current commercial standards is critical. The Indonesia program does however present some promising clones for inclusion within our breeding program. Like all, however, they will need to prove themselves under Australian conditions," Dr George Piperidis.



**Above:** SRA Leader for Crossing and Selection, Dr George Piperidis, with SRA KFA Leader for Biosecurity, Dr Andrew Ward, in Indonesia.

The importance of understanding a disease, which pose a significant biosecurity risk to the Australian industry, is crucial in the event of an incursion. Knowing how the disease is spread, how to identify the disease and the control measures available to the industry are the foundation of any disease management plan. If you believe you have found an exotic pest or disease in Australia please do not hesitate to contact the exotic pest hotline on 1800 084 881, SRA, or your local Productivity Service.

#### For more information

**Matt Reynolds**

0431 100 062

mreynolds@sugarresearch.com.au