Varieties & Plant breeding UPDATE

Sugar Research Australia

Autumn 2018

SRA gains Smartcane BMP accreditation for Ingham research station

Sugar Research Australia (SRA) has achieved Smartcane Best Management Practice (BMP) accreditation for its research station at Ingham in the Herbert region.

Smartcane BMP is an industry-led and government-supported program to assist sugarcane farming enterprises achieve and demonstrate best practice.

SRA CEO Mr Neil Fisher said that SRA placed a high priority on ensuring its research stations are meeting the Smartcane BMP standard for management and stewardship.

"We have already achieved Smartcane BMP accreditation for our stations at Meringa and Mackay, and are delighted that the SRA Ingham station has now joined the list," Mr Fisher said. "SRA is also pursuing BMP accreditation at our other sites, consistent with SRA's farm operational and environmental management plans.

"SRA's research stations have unique differences to a typical sugarcane farm. We grow cane, but our core focus is research, development, and adoption, which means that our objectives vary from those of a commercial farm.

The high value product we produce from our farms is quality results and observations, leading to improved productivity, profitability, and sustainability for growers and millers.

"However, the principles of Smartcane BMP remain the same and are a natural fit with our operations."

The accreditation occurred following the work of SRA's Ingham Farm Manager, Mr Vince Blanco, with support from SRA Meringa Farm Manager, Mr Jeff Smith, and SRA's Leader for Farm Operations, Mr Jerome Gumley.

It also follows a series of investments and improvements that have occurred at the SRA Ingham station in recent years.

In line with the Ingham BMP accreditation, Mr Fisher said that major investments had been made in response to an external review that pointed toward specific steps that could improve the sugarcane plant-breeding program in the Herbert region.

"SRA has invested in additional staff within the breeding program, farming equipment and infrastructure. We have also purchased a near-infrared machine that allows for efficient and rapid analysis of samples and adds value to the breeding program," he said.

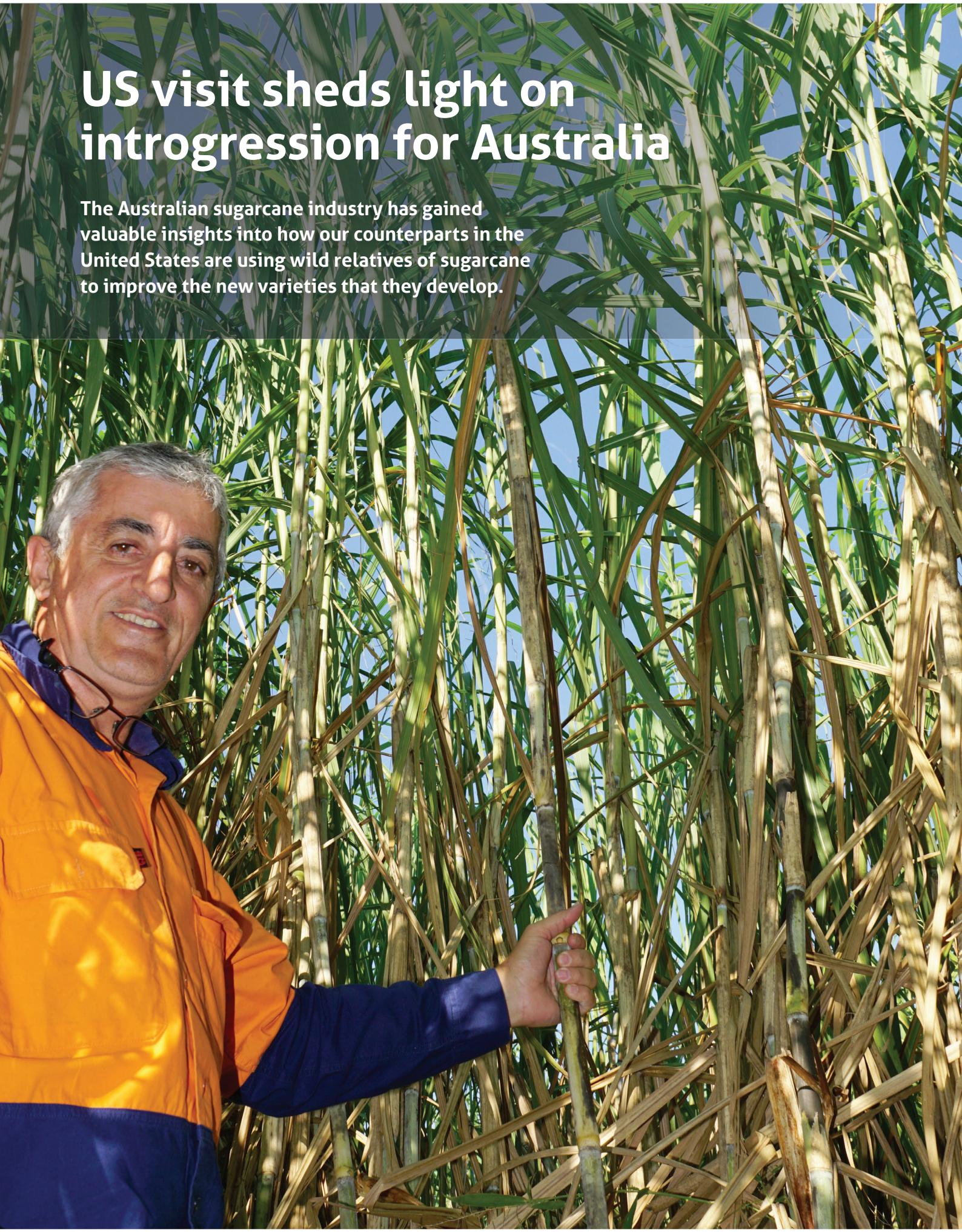
"This equipment is providing vital research support for local variety development and, over coming years, will continue to add value to variety development and other research activities."

In addition to the extensive work on developing new varieties, SRA research activities that now occur in the Herbert include soil health, yellow canopy syndrome, enhanced efficiency fertilisers, and improving harvesting efficiency. ■

***(Above)** Ingham Farm Manager Vince Blanco.*

US visit sheds light on introgression for Australia

The Australian sugarcane industry has gained valuable insights into how our counterparts in the United States are using wild relatives of sugarcane to improve the new varieties that they develop.



Called introgression, this breeding technique introduces useful genes of other species of grasses that are related to sugarcane, with the goal of bringing these traits into commercial varieties.

In September 2017, SRA plant breeder Dr George Piperidis (SRA Mackay) visited the US industry in Louisiana, where they have been using introgression to introduce traits such as disease resistance and cold tolerance. Dr Piperidis has led research projects into introgression at SRA, and has also been instrumental in introducing introgression as being a new, core part of our Australian breeding program.

"The SRA program will have ratoonability as the target trait and will feed new parental material into the core breeding program," Dr Piperidis said. "Ratoonability is also a target trait in the US program. In that context, the lessons from my trip to the US will be invaluable as SRA undertakes our new program."

The visit to the US also provided valuable information on their overall commercial breeding program, and coincided with their work on trial evaluations and seedling selections.

Dr Piperidis said an important foundation of sugarcane breeding in the United States is their introgression (also known as basic) breeding program. This basic breeding creates new material for the commercial breeding program by creating suitable parents with desirable traits from wild relatives of sugarcane.

He said the commercial breeding programs in the USA have benefited greatly from the basic breeding efforts that have been running continuously since the 1960s; and approximately 85 percent of the commercial crop in Louisiana can be attributed to outputs from the basic breeding program.

Dr Piperidis was able to see all this work occurring in the field. The visit also opened up further avenues for collaboration. Australia and the US already exchange varieties and elite lines, which Dr Piperidis said would continue to be valuable given the US's specific selection for early maturing varieties, which is becoming a high priority for some regions in Australia. ■

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(Over Page) Dr Piperidis inspecting a back-cross one plot in a second line trial. (Above Left) The brixing team, recording brixes of selections from seedling trials. (Above Right) Collection of basic material.

Hidden sugarcane disease stealing industry profits

The Far North Queensland sugarcane industry is joining together to combat the bacterial disease, ratoon stunting disease (RSD).

The disease has been known to growers, millers, and researchers for more than 70 years, but it continues to cost the industry through lost production and requires ongoing vigilance and management.

Sugar Research Australia Adoption Officer, Mr Gavin Rodman, based at Meringa station near Gordonvale said: "RSD is something that can be managed by using disease free planting material, keeping blocks free of volunteer cane from the previous crop and by maintaining good machinery hygiene practises.

"Unfortunately, some of these practices are no longer being followed religiously, which has led to a dramatic increase in infected cane throughout a large part of the Wet Tropics. Some mill areas within the Wet Tropics are reporting positive infections in 30 percent of blocks tested.

"The cane that is being tested for use as planting material is meant to be the best cane we have. It is scary to think about what sort of numbers we are talking about when it comes to infection within commercial blocks.

"Specialised methodology and lab analysis is required to diagnose the disease. The days of slicing open a stalk and looking for the disease in the field or under a microscope are gone. We know that these methods unacceptably underestimate infection.

"If RSD is present, there is a good chance you are losing significant yield."

Cane productivity services from Innisfail, Babinda, Mulgrave, Mossman and Canegrowers Tableland, MSF Sugar and SRA have teamed up to tackle the issue.

MSF Sugar Mulgrave Field Officer, Mr Matt Hession, said RSD was one of the easiest diseases to spread but also one of the hardest to manage.

"Mulgrave growers have been very conscientious about RSD in the past and this is evident in our low infection rate," Mr Hession said.

"However, as milling companies and contractors begin to operate across productivity boundaries attention again needs to focus on farm hygiene.

"Volunteer cane, dirty machinery and out of area cane purchases will continue to risk the reintroduction of RSD to disease-free parts of the district."

Innisfail Babinda Cane Productivity Services Manager and Field Officer, Ms Bianca Spannagle, said RSD had fallen under the radar due to a combination of factors, with the industry on the Cassowary Coast heavily affected by RSD.

"In the great rush of late season finishes, larger agri-farming and the general increased pace of the sugar industry, some growers and contractors have forgotten the fundamental steps to achieving increased productivity and, therefore, increased profitability for our local industry," Ms Spannagle said.

Growers and contractors are encouraged to implement stringent on-farm hygiene controls and introduce clean seed onto farms to help minimise the spread of RSD.

***(Above)** SRA Adoption Officer Gavin Rodman; CANEGROWERS Tableland Extension Agronomist, Drewe Burgess; Tully Cane Productivity Services Limited Senior Extension Officer, Jordan Villaruz; Mossman Ag Services Extension Officer, Rebecca Stone; Innisfail Babinda Cane Productivity Services Limited Manager, Bianca Spannagle; MSF Sugar Senior Agronomist (Tableland) Graham Cripps; and SRA Leader for Disease Management, Rob Magarey.*

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