



Dr Bakshi Ram, Director of Sugarcane Breeding Institute, Coimbatore, India, with Mr Neil Fisher, CEO, SRA.

India partnership paving the way for variety improvement

A new collaborative partnership between SRA and the Sugarcane Breeding Institute in India is hoped to lead to mutual benefits for both countries.

SRA is strengthening the relationship with the Sugarcane Breeding Institute, Coimbatore (SBI), in India, as part of a joint effort to improve plant breeding in the two countries.

A collaborative project with SBI, jointly funded by the Australian and Indian governments, is currently underway. It is also funded by SRA and SBI.

With that background, SRA Researcher Dr Prakash Lakshmanan and CEO Mr Neil Fisher visited SBI in April this year and had discussion with the institute staff.

The focus of the project is sugarcane variety improvement for cane yield, sugar content, drought tolerance and red rot resistance through an integrated approach of genomics and phenomics.

Dr Lakshmanan said the project would also look to understand the genetic diversity of Indian and Australian germplasm and make a recommendation on how to use that information for variety improvement and variety exchange.

This research will be conducted by both organisations.

During the visit Dr Lakshmanan and Mr Fisher also visited the Indian Council of Agricultural Research (ICAR) in the Ministry of Agriculture and Farmers Welfare, in New Delhi.

They met with ICAR's Director General, Dr T. Mohapatra, and Associate Director General, Dr RK Singh, and discussed opportunities for SRA-SBI strategic alliance in R&D and variety exchange.

SBI is the principal variety developer for the Indian sugar industry and has supplied foundation materials for breeding to 28 countries, including Australia. It has never had a formal collaboration with Australia, although SBI supplied sugarcane germplasm to Australia in the first half of the 1900s.

"There has been no sugarcane germplasm exchanged between Australia and India for more than 60 years, which makes this collaboration an important step forward for both of our industries," Dr Lakshmanan said.

"Australia already has variety exchange agreements with numerous countries around the world, and exchanging germplasm is vital for seeking continual improvement in the SRA breeding program to deliver outcomes for Australian sugarcane growers and millers."

Dr Lakshmanan said that the industry only had to look to Q208[®] to see the importance of variety exchange. Q208[®] is currently the mostly widely grown variety and last year it represented 32 percent of the crop.

"Most of the ancestors of our most successful variety, Q208[®], trace back to SBI in India. One of the most successful international varieties, NCo310, is a seedling bred in SBI and selected by breeders at the South African Sugarcane Research Institute."

He said that SBI also had a strong introgression program for bringing in traits from wild relatives of sugarcane to commercial varieties.

"On the back of our current collaborative project, we are trying to establish a broader, strategic R&D alliance between SRA and SBI, and the first step of that will be to establish a memorandum of understanding between both institutions.

"SBI is one of the oldest breeding institutes in the world and is a pioneer in creating sugarcane interspecific hybrids of *Saccharum officinarum* and *Saccharum spontaneum*. So this is an exciting opportunity for the Australian sugarcane industry.

"We extend our utmost thanks to SBI, ICAR and the Ministry for Agriculture and Farmers Welfare for their time and cooperation during our visit and we look forward to strengthening our relationship."

About the Indian sugar industry:

- India is the second largest sugarcane producer
 - It cultivates about 4.5 million hectares in both tropical and temperate climates
 - 5 million sugarcane growers
 - 650 sugar mills



Above (clockwise from top left): A sign marking the collaborative research occurring between SBI and SRA.

The Australian and Indian researchers working on the collaborative project on variety improvement in sugarcane. The researchers held a workshop in April, which included Australian participants Dr Xianming Wei (SRA), Dr Phil Jackson (CSIRO) and CSIRO molecular marker expert Dr Karen Aitken.

Discussing red rot resistance in sugarcane at SBT.

Research trials at SBT

A drone demonstration from SBT

