Sugarcane growers in the Central Growing region will have access to two new sugarcane varieties that have been developed by SRA.

SRA Leader for Crossing and Selection, Dr George Piperidis, said that the new varieties were called SRA12 and SRA13 and they had recently been approved for release in the region.

“New sugarcane varieties are a building block for the productivity, profitability, and sustainability of sugarcane growers and millers,” Dr Piperidis said. “These new varieties have been developed as a result of more than 12 years of work through the SRA plant breeding program and they have stood out among several thousand clones, through many years of trials, and have gained final approval by the local industry in the Central Region.

SRA12 and SRA13 have recently been approved for release by the Central Regional Variety Committee, which consists of growers, millers, and industry representatives.

Dr Piperidis said SRA13 had good resistance to sugarcane diseases Pachymetra root rot, leaf scald, and Fiji disease.

“In trials it yielded good tonnes per hectare and commercial cane sugar (CCS), and also showed acceptable milling characteristics,” he said.

He said SRA12 is considered highly resistant to Pachymetra root rot, and leaf scald, and produced good tonnes of cane in trials, although with CCS below the varieties that it was compared to in trials.

Canegrowers Mackay Chairman, Mr Kevin Borg, said that the varieties show a mix of positive traits with resistance to diseases and productivity, based on trial data.

“We have a high priority put on pachymetra resistant canes in our region,” Mr Borg said. “Having options such as SRA12, with resistance to pachymetra and then leaf scald, will help improve our management of these diseases. The real test always comes when growers get a variety in their own paddocks, so we look forward to seeing how they perform in years to come. The release of new varieties is always welcome as they are the future to increasing productivity.”

Senior Technologist with Wilmar Sugar, Dr Brian Edwards, was part of the Regional Variety Committee meeting.

“Factories are looking specifically for information about the varieties which will enable millers to decide that the factory can process the cane in a reasonable time, and can produce good quality sugar which can be sold on behalf of the growers and millers. This information was all available at the meeting and aided the decision making process,” Dr Edwards said.
Variety program update

BY CLARE HOGAN, SENIOR TECHNICIAN, BUNDABERG

The sugarcane genome is very complex. For this reason, the SRA breeding program needs to start with a large number of individuals to find that one clone that, 12 years later, will perform better than what is currently available to growers.

Each individual has the potential to be the next variety so a lot of care is taken to ensure the survival of every pot. These seedlings are then planted in the field with CCS, tonnage and fibre data being gathered the following year. This data is then used to select the top performing families from which individual stools are visually selected in the field in the first ratoon crop for planting into the next stage.

Visual selection in the early stages of the program allows for certain undesirable traits to be rejected, such as disease susceptibility and poor growth habit (open and sprawling stools).

There is a fine art to it but it is satisfying to find a cane that stands tall amongst its sprawly siblings. When selecting varieties in the field, the breeding staff sometimes need to contain their excitement. We may think we are standing in front of the next big thing but, on closer inspection, it may as well be bamboo for all the sugar it has.

The important thing to remember is that the early stages are about cutting those numbers down (removing the rubbish) rather than finding the one.

The large numbers of clones that go through the program also require a large dependable work force. The casual staff at SRA must be commended for the efforts they put in to see our large scale projects completed on time.

Their willingness and enthusiasm for the job, be it big or small, always shines through. Many of the jobs require attention and precision as well as a lot of shifting and lifting which must be done by hand. We are always grateful for the work that has been put in at the end of a big week.

(Over page) Research trials in 2018 have looked at the potential for bringing in the traits of wild relatives of sugarcane into the Australian breeding program. This work has occurred as part of a project called New approaches to identify and incorporate Pachymetra resistance genes from Erianthus into the SRA breeding program (2016/039), led by Dr Nathalie Piperidis with SRA at Mackay. These pictures show a trial at the Meringa research station showing the significant genetic diversity in sugarcane clones that have Erianthus (wild relative) parents.

Dr Piperidis said that one of the challenges with bringing in these traits from Erianthus was that, previously, crosses produced sterile clones. “We are aiming to produce fertile crosses where we can isolate the Pachymetra resistant trait, as well as a range of other useful traits.”

(Above left) Clare Hogan looking for ‘the one’. (Above right) Recently, the Tully pathology team headed by Judi Bull (now retired) and Laura MacGillycuddy came to Meringa to screen parents and clones for yellow spot and orange rust. Yellow spot and orange rust can cause significant yield loss if susceptible varieties are planted. Every year, the Tully Pathology team inspects seedling and parent clones in Meringa for these two diseases. The data collected for yellow spot and orange rust will be analysed and a rating will be assigned to the inspected clones and will be stored in the SRA database, called SPIDNet.
SRA has been through the process of installing and testing new irrigation infrastructure for the new farm at Welcome Creek.

This farm was purchased last year to be the new site of SRA’s research, development and adoption activities in the Southern Region as we make the transition away from Ashfield Road, which is too close to town and therefore restrictive for conducting our research activities.

Having this new research station has given SRA to ensure that the infrastructure is established in a way that allows us to deliver the best research results for the local industry.

As part of that, we have invested in two lateral irrigators, which are fed by surface and groundwater allocation with the farm. Applying irrigation with the precision and flexibility of two laterals will allow us to improve results from our variety trials on the farm, and also other trial work that will occur there.

As well as having the ability for automation, this irrigation method will be an improvement on the previous mix of sprinkler and furrow irrigation that was on the farm.

The irrigation system provides more options to better manage cane research trials.

“With our farm, it is very important to make sure that we are providing best opportunity for both cane seedlings and sets to establish well at planting in order to generate good observations for our plant breeding and other research trials,” said SRA Leader, Resources, Jerome Gumley.

“We will also be able to improve our weed management by irrigating to promote a flush of weeds allowing better chemical control prior to planting.

“Laterals offer a lot of potential for our research farm operation. They allow us to be operating at a standard expected by our investors.”

More information on lateral irrigators, and other irrigation application methods, is available in the Irrigation of Sugarcane manual on the SRA website. It is also available in hard copy for free by emailing Renee Van Drunen rvandrunen@sugarresearch.com.au.