SRA has produced new online publications that provide the latest detailed information on sugarcane varieties for growers and millers.

The 2018/2019 Variety Guides have been produced for the New South Wales, Southern, Central, Burdekin, Herbert, and Northern regions of the Australian sugar industry.

The guides contain information on new, recent and existing sugarcane varieties within each region.

This information includes updated yield and CCS (commercial cane sugar) data on the new sugarcane varieties from trials undertaken as part of the SRA breeding program. This information allows growers to compare these new varieties against various standard varieties grown in each region.

The Variety Guides also provide updated information on the disease resistance of the commercially grown varieties.

Of particular importance within the 2018/2019 Variety Guides is the changes that have been made to the Ratoon Stunting Disease (RSD) ratings.

RSD can cause yield losses of up to 60 percent. While individual varieties respond differently to RSD and are given a rating from SRA, varieties alone should not be relied upon for controlling the disease. Farm hygiene and management practices are also critical to managing the impact of RSD within a farm and a district.

In response to industry requests for better information, varieties are now rated on a scale that extends from “Susceptible” to “Intermediate-Resistant”, reflecting the commercial reality that this level of resistance still requires attention to farm hygiene and clean seed cane to control RSD. No varieties are now considered “Resistant” to RSD.

The guides also provide useful information on the uptake of new varieties in different mill areas within regions, biosecurity protocols in relation to movement of machinery and sugarcane and information for ordering sugarcane tissue culture for planting.

Growers and millers are always keen for more information on variety performance. There is already tremendous work occurring in many regions to provide information on local performance, and these SRA guides are an important part of that mix. We will be producing new guides earlier in the year in 2019, and these will be available in hard-copy format for growers and millers, so that they are of maximum value to the industry ahead of spring planting.

Tully grower Mr David Singh is involved in the variety release process through participation in the Tully Variety Management Group and the Far North Queensland Regional Variety Committee, which makes decisions about the release of new varieties.

“Planting a new variety is a big commitment for growers, so we are always looking for more information about how varieties perform such as through the SRA guides or the local group,” Mr Singh said.

“There are a number of varieties that come through the system, and also unique conditions across different parts of the district, so we are looking for a guide that would work for our situation.”

The guides can be viewed at www.sugarresearch.com.au/sra-information/publications/
An analysis of the 2017 sugarcane crop has shown the rising popularity of the variety Q240, as well as the ongoing dominance of varieties Q208, Q183, and KQ228.

In 2017, the Australian sugarcane crop was 33.3 million tonnes, back from 36.5 million tonnes in 2016. This crop came from an area of 375,500 hectares with an average yield of 89 tonnes of cane per hectare (TCH) and a commercial cane sugar (CCS) of 13.29.

With cyclone damage in the Central Region, along with drought, floods, and more erratic weather, these results saw the tonnes reduced from 2016 when it was 99.2 TCH, but CCS increased compared to 2016’s 12.84.

A breakdown of the varieties grown in 2017 showed that the top six varieties represented 79 percent of the crop.

Q240 is now the third most popular variety at 13 percent of the crop, which compared to 2016 when it was about 8 percent of the crop, and 2015 when it was still establishing and was 4 percent of the crop.

Q208 remains the most popular at 30 percent of the crop, with Q183 the next in line at 14 percent.

The top five Queensland varieties are Q208, Q183, Q240, KQ228, and Q200, while in New South Wales they are Q208, BN83-3120, Q232, Q183, and Q240.

Varieties & plant breeding UPDATE

Regional variety guides (six) have also recently been produced and are available online.

More information on varieties is available from SRA’s online variety decision support tool, QCANESelect®.
An international collaboration involving scientists at Sugar Research Australia (SRA) has identified a sugarcane gene that could unlock productivity gains for the industry.

Through their work, the scientists discovered a gene called ScGAI and learned that this gene can be manipulated to control stalk growth in cane.

The work was through the PhD project of Dr Rafael Garcia Tavares.

“This research aimed to gain a fundamental understanding of sugarcane growth regulation, particularly around sugarcane stalk development. Stalk growth and sugar content are the drivers of yield and profit for the industry,” explained Dr Tavares. “We have improved our understanding of the fundamental regulatory mechanism controlling sugarcane stalk development.”

The researchers have identified and manipulated the ScGAI gene and by doing so they were able to successfully modify the size and growth rate of the sugarcane stalk. They discovered that by manipulating this gene, either by increasing or decreasing its activity in the plant, they could increase or decrease sugarcane stalk growth dramatically.

The research partnership involved SRA, the University of Campinas in Brazil (IB-UNICAMP), the Martin Luther University in Germany, and the Brazilian Centre for Research in Energy and Materials.

This is part of the on-going research collaboration between Dr Prakash Lakshmanan, who was until recently the Leader for Trait Development, SRA, and Prof Marcelo Menossi from IB-UNICAMP on sugarcane crop improvement.

Dr Lakshmanan said that the research also significantly improved their understanding of the interaction of plant hormones with the stalk development gene, ScGAI.

Just as human hormones promote growth, some plant hormones increase plant growth remarkably.

In this case, the gene ScGAI was found to have a strong regulatory control on growth hormones, gibberellins.

Manipulation of the ScGAI gene modulated gibberellin activity in the cane. In addition, gene-manipulated plants greatly altered their response to the external application of gibberellins.

The use of hormones to assist with sugarcane production is familiar to the Australian industry, having been used before, such as, for example, crop ripeners.

“All living things have master controls or gene regulators for growth,” Dr Lakshmanan said. “This work has looked at gibberellins as they are one of the most potent group of hormones controlling plant growth and development.”

Dr Lakshmanan said that sugarcane scientists around the world were faced with the challenge of relatively slow productivity gains through breeding, agronomy, and management, and exploiting growth and developmental genes and their regulators would be an innovative genetic approach to boost crop production.

While the work is still in its early stages, the discovery could open the door for future potential applications through direct gene manipulations or molecular marker-assisted breeding.

This research has recently been published in the Journal of Experimental Botany.
Sugarcane growers, millers, and growers are reminded that they can access a wide range of information on varieties and the Australian sugarcane breeding program via the SRA website. By clicking on the ‘growers and millers’ tab of www.sugarresearch.com.au and visiting the varieties section, you can find information on how varieties are created, variety exchange with foreign countries, and also access online versions of our variety guides.

The website also hosts information on the Regional Variety Committees (RVCs) across the industry. This is a new section of the website that provides information on the structure of these committees and key decisions and information for industry.

The SRA website is also your gateway to the online variety decision support tool, QCANESelect®. It provides interactive, up-to-date advice and information on varieties for individual situations.

QCANESelect simplifies the process of choosing a variety and allows growers to define the characteristics and concerns for their farm such as disease concerns and receive information on varieties that are available and meet their individual requirements.

QCANESelect provides a wealth of reports on the performance of varieties from mill data, and we encourage everyone to make the most of this free online resource. Growers can develop a whole farm plan for varieties to help them calculate the amounts of clean seed they need to obtain this year for planting in one or two years’ time.

Visit www.sugarresearch.com.au

Variety information at the click of a button