

Burdekin Plant Breeding Program

The SRA Plant Breeding Program in the Northern region targets the needs of the local sugar industry through the optimised selection and release of more productive and disease-resistant varieties.



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Female and male flowers are positioned in a 'lantern' to facilitate pollen transfer and prevent contamination.



Potential new varieties are screened for disease resistance by SRA Pathologists.

Parent selection and crossing
in Meringa



Early stage selection
in the Burdekin of SRA
and Wilmar clones



Final stage
selection in the
Burdekin of SRA and
Wilmar clones



New varieties are propagated and
released for growers through local
productivity services



Seedlings grown from true seed from crossings are planted to the field for assessment.



Measuring cane yield with commercial harvesters and weighing equipment. Sucrose content (CCS) is analysed in juice laboratory including Near Infrared Spectroscopy (NIR).



New varieties which are approved for release are propagated for growers by Burdekin Productivity Services (BPS).

Burdekin Plant Breeding Program

The SRA team is focused on providing an efficient and effective Plant Breeding Program to the Burdekin sugar industry. Some of the improvements are as follows:

-  Better statistical analysis methods to assess potential new varieties in trials, which are compared to the current major commercial varieties.
-  By using new trial designs and collaborating with Willmar we have increased the number of potential new varieties we trial in the final stage by 100%; without an increase in resources.
-  Final stage selections are assessed over 5 locations in the Burdekin. The performance of potential new varieties are tested under different soil types, management practices and micro-climates.
-  The top performing potential new varieties from the first plant crop harvest results of the final stage trials each year are also repeated in a second set of trials to collect more productivity data before release.
-  The SmutBuster program has doubled the number of early stage potential varieties as a response to the smut outbreak.
-  The time from initial crossing to release of a new variety to the industry has been reduced from 12-13 years to 8-11 years.
-  Potential new varieties advancing through the selection program are screened for disease resistance to smut, Fiji leaf gall, leaf scald, mosaic, yellow spot at Woodford and for pachymetra root rot in Tully by SRA pathologists. This means disease ratings are available early before variety release decisions are made.
-  The SRA breeding program identifies and selects parents for crossing with traits that will enhance the clone performance for Burdekin challenges. These parents come from the vast SRA germplasm collection of old and current varieties as well as wild and foreign varieties.
-  The SRA variety exchange program exchanges varieties with 17 countries around the world, including Brazil and the USA. These varieties are included in assessment trials in the Burdekin region. They are also used for parents in the crossing programs, providing valuable traits.
-  Wild species of cane, closely related to the domesticated cane cultivars, have been used in the production of hybrids to capture valuable traits such as vigour, ratooning ability and disease resistance.
-  Inter Station Exchange (ISE) – As a method of exchanging elite clones between the other Plant Breeding Programs (North, Herbert, Central and Southern). This facilitates earlier adoption of new varieties from other regions.
-  Top performing varieties are assessed, for not only performance, but also suitability for the industry, with physical features such as lodging, arrowing, suckering, side shooting and bud prominence taken into consideration.
-  Varieties are assessed for their fibre and sugar quality before they are released.