Northern 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.

25 new varieties (including 8 from other regions) have been released in the North since 2000 from the SRA breeding program.

Parent selection and crossing in Meringa

Early stage selection in Meringa

Final stage selection in Mulgrave, Babinda, Silkwood & Tully GGIP trials in Tableland and Mossman

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

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.

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 by Near Infrared Spectroscopy (NIR).

New varieties which are approved for release are propagated for growers by Mulgrave Central Mill, Innisfail Babinda Cane Productivity Services (IBCPS), Tully Cane Productivity Services Limited (TCPSL), Tableland Sugar Services and Mossman Agricultural Services (MAS).
Northern Plant Breeding Program

The SRA team is focused on providing an efficient and effective Plant Breeding Program to the Northern 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, we have increased the number of potential new varieties we trial in the final stage by 50% (150-180); where they are trialled each year without an increase in resources.

- Final stage selections are assessed over 4 locations in the North, and are also duplicated at 4 locations in the Herbert. 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 new 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 10-11 years.

- Potential new varieties advancing through the selection program are screened for disease resistance to smut, Fiji leaf gall, leaf scald, mosaic, yellow spot, red rot 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 the Northern 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 Northern 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 (Herbert, Burdekin, 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.

sugarresearch.com.au

Copyright © 2017 • All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior permission of SRA.

Disclaimer

In this disclaimer a reference to 'we', 'us' or 'our' means SRA and our directors, officers, agents and employees. Although we do our best to present information that is correct and accurate, we make no warranties, guarantees or representations about the suitability, reliability, currency or accuracy of the information we present in this Information Sheet, for any purposes. Subject to any terms implied by law and which cannot be excluded, we accept no responsibility for any loss, damage, cost or expense incurred by you as a result of the use of, or reliance on, any materials and information appearing in this Information Sheet. You, the user, accept sole responsibility and results of the information appearing in this Information Sheet, and you agree that we will not be liable for any loss or damage whatsoever (including through negligence) arising out of, or in connection with the use of this Information Sheet. We recommend that you consult our staff before acting on any information provided in this Information Sheet. Warning: Our tests, inspections and recommendations should not be relied on without further, independent inquiries. They may not be accurate, complete or applicable for your particular needs for many reasons, including (for example) SRA being unaware of other matters relevant to individual crops, the analysis of unrepresentative samples or the influence of environmental, managerial or other factors on productivity.