



# The South African Sugarcane Research Institute's Specialist, Analytical and Advisory Services

*The South African Sugarcane Research Institute (SASRI) is the leading sugarcane agricultural research institute in Africa. Since its inception 90 years ago, it has become world-renowned for its research into the development of new sugarcane varieties and improvement of crop management and farming systems to enhance profitability. Effective technology development and knowledge exchange make a significant contribution to the sustainability of the industry.*







The FAS provides a soil, leaf, fertiliser and irrigation water testing service as well as fertiliser, lime and gypsum recommendations to local and SADC growers.

Research conducted at the institute informs and contributes to several global sugarcane initiatives such as the International Consortium of Sugarcane Biotechnology, the Sugarcane Genome Sequencing Initiative and the International Consortium for Sugarcane Modelling.

Due to the diverse soil and climatic conditions prevalent in the South African industry, SASRI has the capability of being able to develop and offer unique varieties that are suited to a range of growing conditions throughout Africa.

While all of these analytical, advisory and specialist services are developed for the South African sugar industry, SASRI also offers services and support to sugarcane farms outside of South Africa, including Swaziland, Zimbabwe, Malawi, Tanzania, Mozambique and Zambia on a user pays basis. Services typically provided to the SADC region include soil and leaf analysis; RSD analysis and training; the installation, servicing and calibration of automatic weather stations; nematode analysis; biosecurity advice; varieties and ripener advice; and sugarcane certificate courses.

SASRI has a Specialist Advisory Request (SAR) panel of experts who are tasked with assessing all specialist and advisory requests submitted. Included in these requests are field assessments of promising new agrochemical products for the local industry, and hence SASRI is able to provide advice and guidelines to companies that operate outside of South Africa.

## FERTILISER ADVISORY SERVICE

The Fertiliser Advisory Service (FAS) is unique in that it conducts analyses that have been specifically calibrated for sugarcane. FAS provides a soil, leaf, fertiliser and irrigation water testing service. In addition, fertiliser, lime and gypsum recommendations for sugarcane are available on a user pays basis. Together with a large customer base in South Africa, the FAS is widely used by sugarcane producers in other southern African countries such as Tanzania, Swaziland, Mozambique, Zambia, Malawi and, more recently, Zimbabwe.

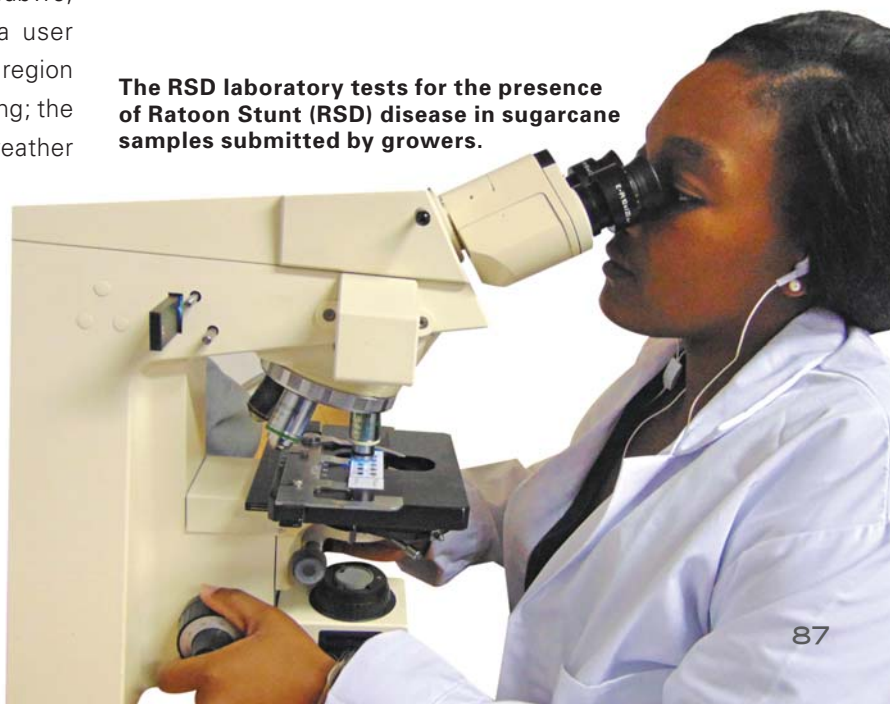
Since January 2015, the number of leaf and soil sample submissions from SADC countries have increased significantly, which has resulted in the FAS receiving far more samples from these countries than from local growers. Currently, 79% of leaf samples and 65% of soil samples are received from growers in SADC regions.

The FAS was ISO 9001:2008 SABS certified on the 30 July 2014. This demonstrates the ongoing commitment of the FAS to implement, maintain and continually improve the effectiveness and efficiency of the Quality Management System.

## VARIETY AGREEMENTS

SASRI has a long history of sugarcane breeding and releases between one and three varieties to the South African sugar industry annually from its well-established plant breeding programme. Each of these varieties goes through an intensive crossing and selection programme over a period of 12 to 15 years depending on the cutting cycle (12, 18 or 24 months) before it is considered and recommended for commercial release. The varieties are selected and evaluated across a range of diverse agro-climatic environments. As a result of the diverse soils and environments found in South Africa, many of the released varieties are known to be stable and have a good ratooning ability. In particular, many of the irrigated varieties are also suitable for growing outside of South Africa.

**The RSD laboratory tests for the presence of Ratoon Stunt (RSD) disease in sugarcane samples submitted by growers.**







**ABOVE | LEFT TO RIGHT:** Testing for the presence of RSD in sugarcane samples submitted by growers.

Plant breeders select parent varieties that will be planted in the glasshouse and photoperiod house to obtain flowers for crossing

Plant breeding technicians selecting parents for the crossing programme.

**BELOW:** The Fertiliser Advisory Service is unique in that it conducts analyses that have been specifically calibrated for sugarcane.



Variety licence and evaluation agreements exist with most sugarcane-producing SADC countries including Swaziland, Mozambique, Malawi, Tanzania, Angola and the Democratic Republic of Congo.

SASRI has different agreements with Zimbabwe, Mauritius and Reunion as these countries have their own breeding and selection programmes. SASRI exports 100 crosses annually to the Zimbabwe Sugar Association (ZSA). ZSA evaluates the material from these crosses through an established selection programme, similar to that of SASRI. The agreements with Mauritius and Reunion involve an exchange of breeding material with South Africa and each of these countries in order to expand the genetic diversity of the existing breeding populations.

Some SADC countries receive pre-release varieties for evaluation and if any of these varieties are released in that country they are still regarded as SASRI varieties e.g. MN1. South African varieties contribute to between 50% and 100% of the sugarcane production in many of these countries. More recently, SASRI has entered into agreements with companies that are using sugarcane for ethanol production.

In all new agreements, SASRI charges an access fee to varieties being tested. Thereafter once varieties are planted and harvested for commercial production, these





industries are charged a further levy based on production figures of these varieties.

New sugarcane ventures in SADC regularly request use of South African varieties. SASRI specialists identify suitable varieties that will perform well under specific conditions after evaluating agro-climatic data from the regions in question. This leads to the development of new licence agreements. In support of these agreements, variety specialists occasionally visit these new estates to assess the performance of the South African varieties, and at the same time facilitate evaluation of their stability across the varied environments, thereby confirming their suitability.

All varieties exported to countries outside of South Africa are grown and monitored in the SASRI quarantine facility at Mount Edgecombe to ensure that they are free of pests and diseases before they are exported. This quarantine facility is registered with the Department of Agriculture, Forestry and Fisheries (DAFF) and is the only authorised sugarcane quarantine facility in South Africa. The quarantine facility also receives imported sugarcane varieties from other countries mainly to broaden the genetic base of the parental breeding stock. Imported varieties are also evaluated as potential commercial varieties. SASRI manages the application process for phytosanitary certificates from DAFF on behalf of estates wishing to import/export varieties. It is required that

all imported sugarcane varieties go through the SASRI quarantine facility since foreign varieties that bypass quarantine, expose not only our industry but any other crop and indigenous vegetation to the risk of exotic pests or diseases. Exposure to this risk compromises the biosecurity status of southern Africa.

All varieties produced by SASRI are protected by Plant Breeders' Rights and represent the intellectual property of the South African Sugar Association. These rights provide SASRI protection against potential exploitation of SASRI varieties without their permission for 20 years from the time of release of a variety. In view of a range of sugarcane crop characteristics as well as the significantly long time that it takes to develop and release a variety, SASRI has applied to DAFF for protection of gazetted sugarcane varieties to be extended to 30 years. This is currently under consideration by DAFF and is awaiting finalisation and passing of the new Plant Breeders' Rights Bill due in 2015. It is however important to note that regardless of the time frames associated with the Plant Breeders' Rights, the specific knowledge regarding the characteristics of each of the varieties and their management contributes to a significant element of intellectual property associated with the varieties. All of SASRI's variety licence agreements with SADC partners take this very important aspect into consideration.



## TRAINING IN SUGARCANE AGRICULTURE

Sugarcane farming requires an understanding of the complex interrelationship between the soil, atmosphere, plant and climate. SASRI's training courses, which address all aspects of sugarcane husbandry, are important vehicles for developing capacity and competence.

SASRI has been conducting a Senior Certificate Course in Sugarcane Agriculture for 52 years, with an overall attendance of 3 400 students. Since 1975, approximately 2 500 students have attended the three-week Junior Course, which focuses on developing the capacity of junior farm managers, supervisors and more recently new entrant farmers. Due to their wealth of knowledge and experience, SASRI staff are well placed to lecture on these short courses.

While these courses have been instrumental in developing the capacity of the South African sugar industry, they also serve as an important training resource for the southern African region.



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# What is success?



Tongaat Hulett believes that real, sustainable success can be achieved through partnership.

Our holistic view of success extends beyond wealth created for shareholders, to improvements made in the lives of the communities in which we operate through small scale grower initiatives, the upskilling of employees in a zero-harm work environment, creating successful and sustainable neighbourhoods for communities in the lower socio-economic spectrum and partnerships with government to contribute towards achieving the National Development Plan in the communities surrounding company operations.

