

Enabling Efficient Agrochemical Programmes

The South African Sugarcane Research Institute promotes sustainable and responsible agrochemical use.

It does this by conducting research to test the efficacy of new products and by offering services to facilitate registration of these products, where required.





SASRI RESEARCH AND SERVICES

In order to adequately manage pest and disease outbreaks in sugarcane, an integrated strategy combining chemical, biological and cultural control is required.

This approach is referred to as Integrated Pest Management (IPM). However, to maintain the effectiveness of chemical control, new products require evaluation in a way that will ultimately lead to their commercial use. This allows not only for product rotation but also the availability of new, potentially more effective chemistries or formulations.

One of the objectives of SASRI's Crop Protection Research Programme is to work towards the registration of new chemistries and application methods for the control of pests, diseases, nematodes and weeds in sugarcane.

This control must also be evaluated at an application rate that minimises harm to the environment. Another important aspect of these evaluations is to minimise the development of pesticide resistance by testing agrochemical rotations.

SASRI'S AGROCHEMICAL WORKING GROUP

Due to the large number of available active ingredients and chemical groups which could control the many pests in the industry (e.g. insect juvenile hormone mimics, biocides, avermectins and sodium channel blockers) a further, more focused group was required to support this research programme.

This prompted the establishment of the Agrochemical Working Group, initiated in 2012. This group comprises of SASRI staff involved in researching the control of pests and diseases in sugarcane.

The group evaluates chemicals, including insecticides, fungicides, nematicides and herbicides. There is also a focus on ripeners and fertilisers. The group is also involved in product rotation research as well as the evaluation of new product combinations in order to assist in the development of effective solutions.

To further enhance this process, the group shares this research through co-operative programmes within agrochemical companies and also ensures that environmental considerations are taken into account. Therefore this guarantees that the best agrochemical options are available for the industry. The group is also concerned with the stewardship of such products, which SASRI promotes through the use of the farm management system, SUSFARMS®.



RESPONSIBLE USE OF AGROCHEMICALS – HOW CAN SUSFARMS® HELP YOU?

While the use of agrochemicals forms a necessary part of any sugarcane farming operation, the sugar industry is keenly aware of the need to use these products within an Integrated Pest Management strategy and in a responsible manner. Furthermore, there is a growing trend globally for customers to question the methods used to produce raw materials and the assessment mechanisms developed to verify the sustainability of production of the raw material.

The industry's Sustainable Sugarcane Farm Management System (SUSFARMS®) can be effectively used by farm managers to gauge what best farming practices they have implemented and, more importantly, what other practices they can implement in the future.

This system dedicates an entire section to the subject of agrochemicals. Growers can quickly establish whether their use of agrochemicals meets acceptable standards by answering the checklist of questions that appear in the self-assessment tool called the Progress Tracker.

The tool guides users through the appropriate legislation and best management practices related to storage and application of agrochemicals. Users also have to answer questions about how they dispose of unused chemicals and empty chemical containers. The need for operator training and regular calibration of application equipment is highlighted. Where necessary, the assessment tool is linked to explanatory notes, and to other published reference material.

As a new emerging grower, the SUSFARMS® manual is a valuable resource with notes on what practices are important to ensure safe and satisfied workers, protection of soil, water and other natural resources as well as financial

sustainability. Growers who have farmed for years may also use the system to highlight gaps in their farming operations and to guide them through new legislative requirements (e.g. the new consignee/consignor regulations).

A NEW VERSION IS NOW AVAILABLE

The third edition of SUSFARMS® has recently been released. This edition contains the latest legislative requirements applicable to cane growers along with a few more best practices that promote more efficient use of resources.

The use of agrochemicals is just one of many topics covered by SUSFARMS®. The ultimate aim of this farm management system is to assist sugarcane growers in running a profitable and sustainable business while being environmentally responsible and legally compliant.



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Agrochemical Best Management Practises

promoted by SUSFARMS®

SUSFARMS® has been designed to try and reduce the negative impacts of agrochemicals through several measures including monitoring and recording volumes of chemicals, taking the necessary precautionary measures to prevent hazards, promoting integrated pest management, controlled acquisition and use of chemicals, storage and application of fertilisers and agrochemicals and legal disposal of containers and unused chemicals. These are elaborated on further below:

- The production potential of the land is maintained or enhanced through recording and monitoring inputs and outputs. This includes recording of volumes of all agrochemicals (herbicides and pesticides) used.
- The farmer provides and maintains precautionary measures with respect to potential hazards to the health and safety of employees. Chemicals are stored in accordance with the manufacturer's instructions and in a room that can be locked.
- Predation of sugarcane pests and diseases is promoted through the use of integrated pest management, which includes the protection of natural habitats. This includes discouraging misuse of agrochemicals.
- Acquisition and use of agricultural remedies and fertilisers are controlled.
- Farmers are prohibited, in terms of the Fertilisers, Farm Feeds and Agricultural and Stock Remedies Act 36 of 1947, from acquiring and using agricultural remedies that contain:
 - » 2,4-D (dimethylamine salt) » Monocrotophos
 - » 2,4-DB (sodium salt) » Chlordane
 - » dicamba (dimethylamine salt) » Lindane (gamma – BHC)
 - » Any other salts or esters of 2,4-D (except APM salt) on farms in certain Magisterial Districts.
- The aerial application of agricultural remedies listed above, as well as any agricultural remedy containing 2,4-D (iso-actylesther), NCPA (potassium salt), MCPB (sodium salt), any salt or esters of triclopyr or salts of dicamba is prohibited in KwaZulu-Natal.
- Farmers are prohibited from acquiring, selling, disposing or using any agricultural remedy containing the pesticide chlorobensilate (a pesticide and probable human carcinogen).
- The sale and use of the fertiliser "Super phosphate + Cu" is prohibited in KZN and Mpumalanga.

Storage of fertilisers and agrochemicals

- Buildings where agrochemicals are kept are secure and comply with the relevant standards
- Toxic Group I poisons are secured in a separate, locked storage area
- No agrochemical is stored near food and animal feed.
- Safety requirements are available.
- Material Safety Data Sheets (MSDS) are available at point of use for all chemicals used.
- Employees are made aware of and/or trained on the use and understanding of the MSDS.
- Storage area is easily drained and a sealed sump to collect spillage has been constructed.
- A daily inventory and record of products used and returned to the store is controlled by a designated member of the farm staff.

Application of agrochemicals

- Mixing of agrochemicals is carried out in a well-ventilated area and the necessary protective clothing, is worn.
- Washing of equipment is done in a manner which avoids.

Operators and equipment

- All application equipment is serviced and calibrated regularly.
- All operators using agrochemicals are trained and provided with the necessary safety equipment.
- Agrochemicals are applied according to the manufacturer's specifications.

Disposal of containers and unused chemicals

- Empty chemical containers should be returned to the supplier if this is a requirement stipulated on the label.
- Empty containers that are not required to be returned to the supplier are rendered unusable
- Flammable material from containers may not be burnt, unless at a licensed facility.