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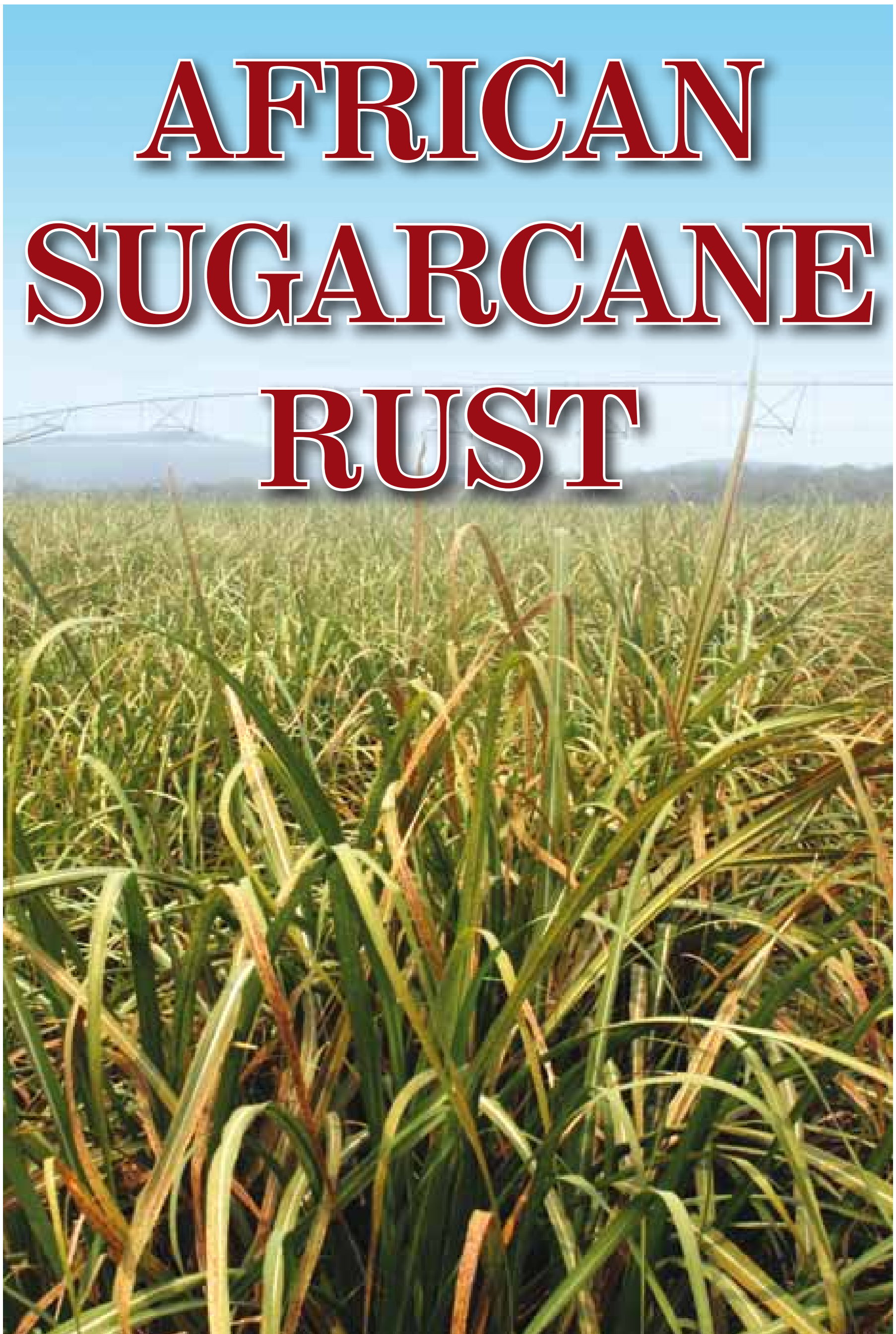
AFRICAN SUGARCANE RUST



Page 2: *African sugarcane rust has been observed in South Africa and Swaziland. It is most common and severe on N25 and N46, but has also been seen on N31, N41, N43, N46, N49, N53 and N12.*

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Page 12: *A report on the testing of minimum tillage mechanical planters in a commercial planting environment.*

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sasri

Unlocking the potential of sugarcane

AFRICAN SUGARCANE RUST

The new rust that has been observed in the South African sugarcane industry recently (as published in The Link, January 2012) is now referred to as African sugarcane rust, not Ash rust. This rust is closely related to Ash rust but the rust affecting sugarcane appears to be completely new and undescribed. To our knowledge, it has only been observed on sugarcane in South Africa and Swaziland.

So far, African sugarcane rust has been most common and severe on N25 and N46 but has also been seen on N31, N41, N43, N46, N49, N53 and most recently on N12. The disease has been seen on cane in Pongola, Mpumalanga (Komati), Umfolozi, Zululand North and Midlands North and South.

This rust produces spores that are similar in colour to orange rust (orange rust caused serious losses in the Australian industry in the early 2000s but has not as yet been reported in South Africa). Do not assume that if you see orange spores on the leaves it is African sugarcane rust, it could well be orange rust. It is important to contact your Extension Specialist if symptoms are seen on your farm. This will also assist us in monitoring African sugarcane rust and improve our understanding of the disease.

Sharon McFarlane *(Plant Pathologist)* **&** **Lauren Martin** *(Assistant Research Officer)*

Upper and lower leaf surface – brown lesions 2-20 mm long, 1-3 mm wide. Orange spores profuse on lower leaf surface but may also be seen on the upper leaf surface.

Message from the DIRECTOR

Dr Carolyn Baker

With only a few months to the end of the season, it is opportune to focus your attention on planning off-season activities. In this period significant inroads can be made into ensuring enhanced productivity for the following season. SASRI's mantra of "getting back to basics" is most evident during this time when considerable attention can be paid to weed management, pest and disease monitoring and management and also preparation for your fallow programme. However, recognising the substantial pressure that the increasing costs of inputs place on all farming operations, perhaps one of the first things to consider is the fertiliser programme that you intend to follow – and to ensure that all applications are aligned with results from soil sample and leaf analyses from the FAS to achieve optimal results. Timing of fertiliser applications is also tricky, since starting too early may result in unnecessary losses of nitrogen on certain soils. Maximising the potential of soils has to be one of the fundamental considerations for any grower, and adhering to sound scientific recommendations from SASRI is the first step in achieving this.

Many growers will be thankful for the recent rains and would have completed their planting operations. Access to good quality seedcane is always critical for the success of any crop, and while availability of seedcane has improved a little since last season, there remain significant shortages of good quality material. For many areas in the industry that acquired NovaCane® plants from Du Roi, there has been particular disappointment at the recent closure of their sugarcane operation. Recognising the significance of this technology for the research institute and also the industry, plans are in place for SASRI to gear up to produce sufficient quantities of material for its own plant breeding programme, and discussions regarding provision of material for the industry are under way. The latter requires development of significant production capacity and infrastructure. To achieve this in the short to medium-term, we are hopeful that a satisfactory agreement can be reached with a local service provider to enable production of NovaCane® plants. Although SASRI recognises the important role that NovaCane® can play in the industry and the urgency that has been expressed from some of our stakeholders regarding acquisition of plants, there are no immediate alternate sources at present.

Topical Tips

September - December 2012

Nutrition

- Now that spring has arrived, you should be well on your way with your fertiliser application programme especially in the coastal areas, which should have started during late August early September. Do not forget to plan a leaf sampling programme now for the appropriate summer months to audit the fertiliser applications.

Pests and diseases

- This is the time of year when you should be focusing on roguing your smut and mosaic susceptible varieties. Remember that there is a 'no plant period' from 1 November to 1 February in the high mosaic risk areas.

- Consider in-furrow applications of insecticide to reduce damage by thrips later in summer.
- Do final eldana inspections in carry-over cane during October.

Weed control

- With the advent of the spring rains, this is the time of year that weeds can become a problem so you should be considering applying long-term herbicides.
- Keep checking the effectiveness of the herbicide application and identify fields with problem weeds and begin follow-up treatments.
- Ensure all your harvested fields have received the necessary herbicide treatment before your staff go on their annual December/January leave.
- For the Midlands: monitor winter weeds in last season's cane.

Planting

- This is the time of year to start your spring planting programme, especially if you have had good rains.

Management

- Start your long fallow programme of crop eradication and green manures for commercial fields or nurseries to be replanted in late autumn or spring next year.
- If you are considering minimum tillage, check that all tillers have emerged before spraying. As a follow-up, check the effectiveness of your chemical stool eradication, and spray again where necessary.
- Expect rapid growth of vegetation in your verges and breaks and implement a programme to mow them.

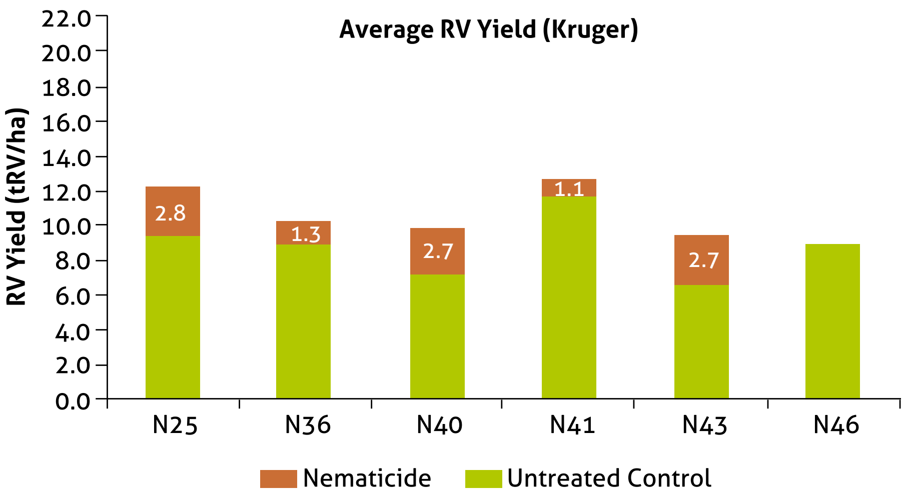
The SASRI Extension Team

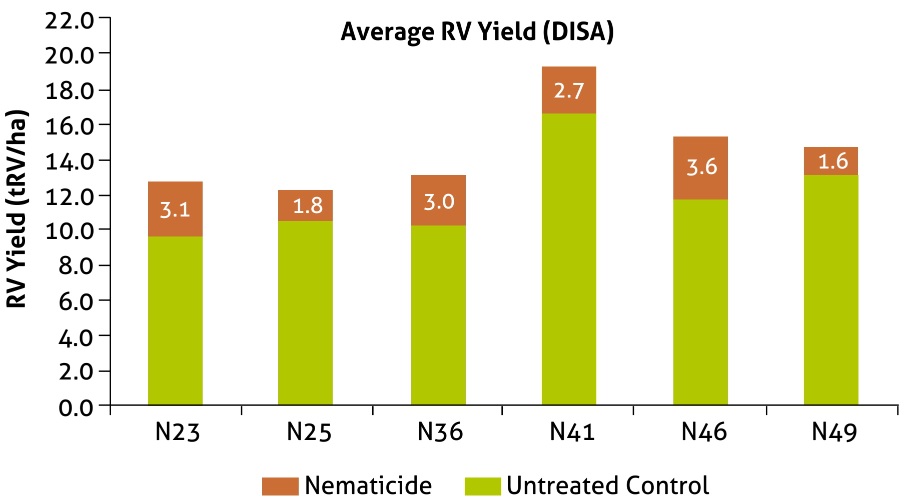
NEMATICIDE RESPONSES *in Mpumalanga*

New varieties released by SASRI are routinely evaluated for their responses to different environmental conditions and their reactions to pests and diseases. Nematode susceptibility ratings are given to varieties based on their responses to nematicide treatments in trials conducted on sandy soils.

An earlier trial (reported in the May 2010 edition of The Link) showed that variety N25 was a top performer in sandy soils in Mpumalanga, both with and without a nematicide. Following that, two new trials (Kruger and DISA) were planted in Tonga (near Malelane) containing newer varieties in comparison to variety N25.

The Kruger trial (9% clay) was planted with overhead irrigation in November 2007, and data was collected from a plant crop and three ratoons. The DISA trial (6% clay), planted in February 2010 with drip irrigation, has data from a plant crop and one ratoon. All crops were harvested early in the season (April or May). At both trials, varieties were either left untreated or treated with Temik at 20kg/ha. At planting, the nematicide was applied in the furrow





and again at each subsequent ratoon, over the row, within one month of harvesting.

All varieties tested, except N46 at the Kruger trial, showed a response to nematicide application. The largest response of 2.8 tRV/ha at Kruger was noted in N25, while at DISA the largest response of 3.6 tRV/ha was noted in variety N46. Variety N41 showed the smallest response (1.1 tRV/ha) at Kruger while N49 had the smallest response (1.6 tRV/ha) at DISA.

In general, a larger response to nematicide was seen at DISA compared to Kruger. This could be due to the difference in clay percentage between the two sites. It is well documented that the response to nematicide decreases as the clay percentage increases. This seems to be particularly exaggerated in variety N46 which shows a large response at DISA (3.6tRV/ha) but none at Kruger. This discrepancy highlights the need for prior assessment of nematicide use with test strips, particularly in soils with > 6% clay.

In both trials, variety N41 was the best performing variety overall. In plots not treated with nematicide, N41 produced 2.2 and 6 more tRV/ha than N25 at Kruger and DISA, respectively. The good performance of N41 shows that it may be a suitable replacement for N25 on sandy soils in Mpumalanga.

The new varieties N46 and N49 outperformed N25 at DISA by 1.2 and 2.6 tRV/ha, respectively, showing that these varieties may also be good replacements for N25 under these conditions. The difference in performance of varieties and the yield benefit associated with nematicide application in these trials clearly illustrate the importance of correct variety choice and nematode control, especially in sandy soils.

Prabashnie Ramouthar
(Assistant Research Officer: Nematology)
& Sanesh Ramburan
(Agronomist: Varieties)

BIOSECURITY

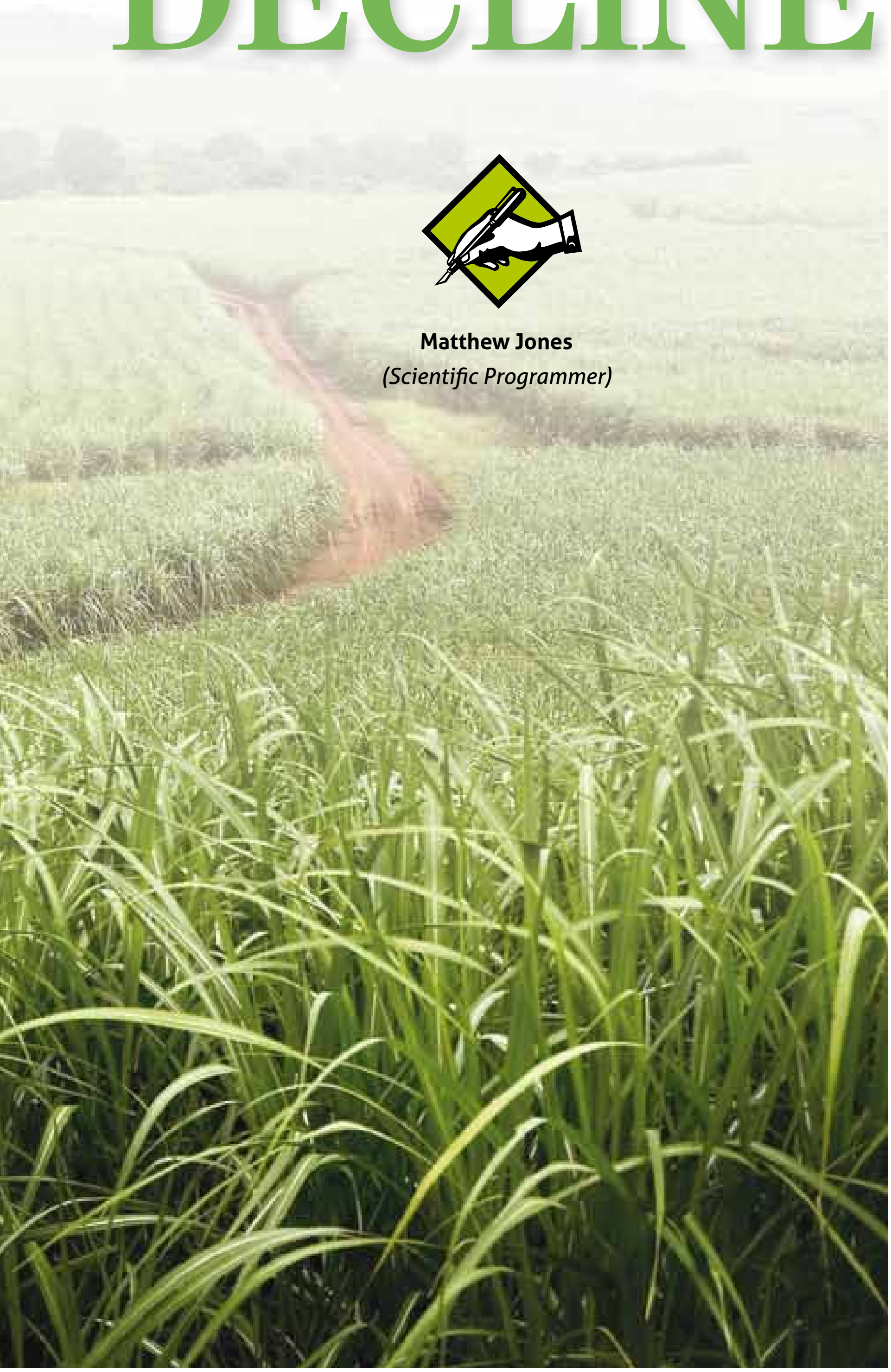
Collaborative ties at Border Posts with Swaziland

As part of the ongoing regional Biosecurity Programme driven by SASRI, a meeting was held at the Golela border post situated between South Africa and the southern part of Swaziland. Contacts were made that will strengthen working ties between SASRI and these phytosanitary bodies, common biosecurity objectives were identified and biosecurity monitoring tools e.g. insect traps were reviewed.

Interaction around biosecurity issues among involved parties at the border posts increases phytosanitary monitoring capacity, thereby lessening the chances of unwanted species from invading our sugarcane industry.

Mike Way *(Entomologist)*

Quantifying YIELD DECLINE



Matthew Jones
(Scientific Programmer)

Are sugarcane fields in South Africa experiencing yield decline? If so, where is yield decline happening, and how severe is it? What do we mean by 'yield decline', exactly? These are questions that SASRI scientists have set out to answer, in the most pragmatic and objective terms possible. It is hoped that by answering these questions, targeted efforts can be made to address yield decline where it exists.

DEFINING YIELD DECLINE

In quantifying yield decline, we are trying to determine the extent to which the agronomic management performance of our growers has changed (decreased) over time. Effects of climate variability and changes in age at harvest were explicitly excluded, because these yield-impacting factors are generally beyond the control of growers. It was also important to differentiate between decreasing yields (tons per ha) and decreasing cane supply (tons cane delivered to the mill). The latter could be caused by yield decline and/or the decrease in area under cane.

Our definition for yield decline is broad and pragmatic: the "decrease in productivity of sugarcane land, excluding the effects of changes in harvest age and climate".

MEASURING AGRONOMIC PERFORMANCE

Climatic potential yield

We are assuming that any changes in yield – decreases or increases over time – are due to changes in field management approach. Such changes could include moving from trashing to burning at harvest, or from manual weeding to herbicides, or from one fertiliser carrier to another. So how can we actually measure the quality of field management? Examining yield by itself is not enough: for example, 60 t/ha might be an average rainfed yield under normal conditions, but exceptionally good under drought conditions. Instead, it is necessary to compare actual yield, for a region and season, with the maximum yield that might have been possible under optimal management, taking into account actual climatic conditions and age at harvest. This is termed 'climatic potential' yield, and we have tools – the *Canesim* crop simulation model, for example – that allows us to accurately estimate these.

Yield gap analysis

The 'yield gap' is the difference between actual yields and climatic potential yields. Our basic approach with analysing yield decline is to examine trends in the yield gap – if the gap gets systematically wider over time, it suggests that management quality is decreasing and there is yield decline; if the gap narrows over time, it implies that management has improved and yields are actually increasing.

The yield gap can be expressed in different ways. One option is the absolute yield gap, a simple arithmetic difference: potential yield minus actual yield, with the gap expressed in t/ha. Because different regions in the South African industry have different yield potentials, this approach makes comparison between regions difficult. A grower in Pongola who achieves 140 t/ha, on a field with a potential yield of 150 t/ha, has a yield gap of 10 t/ha, but he has actually achieved 140/150 = 93% of the potential yield. A dryland grower on a shallow soil who achieves 40 t/ha on a field with a potential of 50 t/ha also has a 10 t/ha yield gap, but he has only achieved 40/50 = 80% of the potential.

For this reason, we choose to use a ratio (or percentage) of actual yield to potential yield for the analysing yield gaps. This is simply actual yield divided by potential yield, and is termed the 'Agronomic Performance Index' (API). Trends in API are used as our key indicator of yield decline.

CALCULATING YIELD TRENDS

The project team has developed a methodology for quantifying yield decline in each region (South Coast, Midlands, North Coast, Zululand and Mpumalanga) of the South African sugar industry, comprising the following steps:

1. Actual yields (tons per hectare under cane) are calculated per region, per season 1980/81 to 2009/10, using SA Canegrowers' Association production data. Linear best-fit yield trends over time are determined.
2. Climatic potential yields for each region are then estimated using the *Canesim* simulation model, using age at harvest inferred from production data, and actual recorded weather data. Linear best-fit trendlines are calculated for simulated yields to determine any systematic effect on yield of changes in harvest age and climate.
3. The Agronomic Performance index (API) for each season from 1980 to 2009 is calculated for large-scale and small-scale growers in each region. A decreasing API trend is considered indicative of yield decline.

These concepts, particularly the API, are illustrated in Figure 1, which shows hypothetical data.

YIELD DECLINE DISCUSSION WORKSHOP

Results of the study will be presented at a Yield Decline Workshop/Growers' Day at Mount Edgecombe in October. We hope to identify industry stakeholders – Extension Specialists (current and past), researchers, growers, consultants and others – who will join in discussions on yield decline.

SASRI Extension will identify and contact workshop participants in each region.

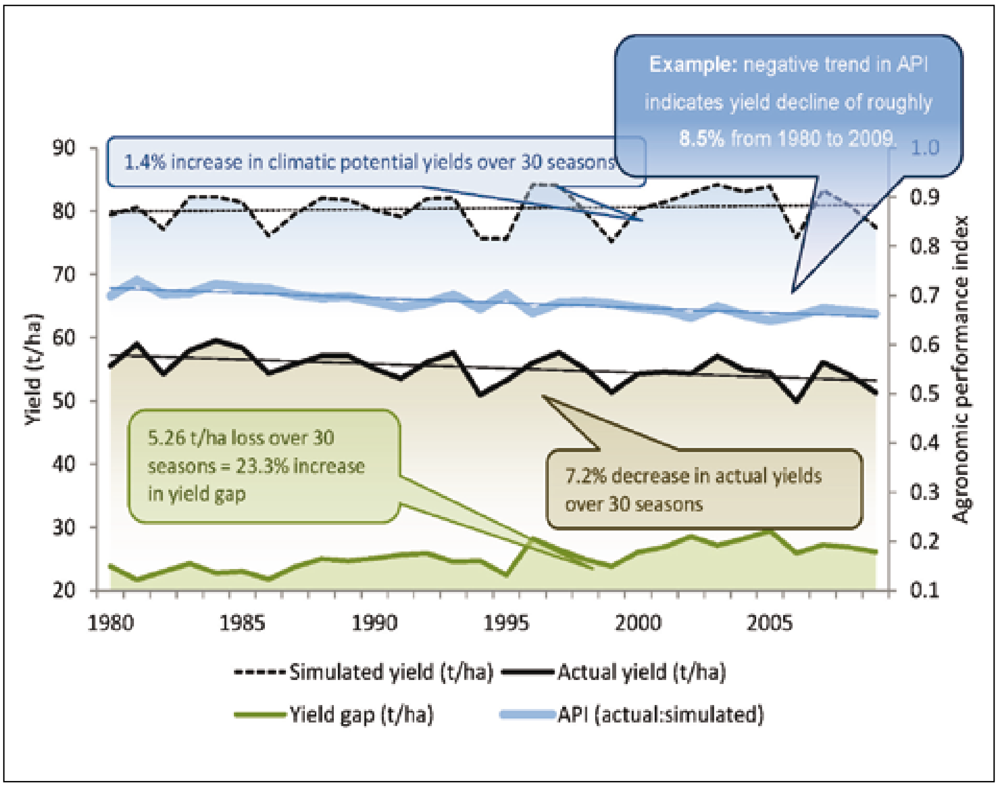


Figure 1. Graph showing hypothetical data for actual yield, simulated yield, the ratio of the two (the Agronomic Performance Index, API), and the yield gap. Seasonal variation in the API is explained by factors not taken into account by the model.

The basics to Producing your own compost!

Annett Weigel & Rian van Antwerpen
(Soil Scientists)

The need for organic manures has increased due to the value they add to sustainable soil management and soil nutrition. In some areas, however, organic manures are scarce or expensive due to transport costs. This has resulted in a growing interest in producing composts on the farm. The most common method is a high temperature, quick composting process which is discussed in this article.

Keep the biology working!

Composting is a microbial driven process. A compost pile is alive: it breathes and needs food.

It's all about the ingredients

Two important factors to consider when planning to make compost are carbon to nitrogen (C/N) and the moisture content ratios. To be a balanced food source, the starting material mix should have a C/N ratio of about 25-30 and the water content should be around 50 to 60% initially and to the order of 30% at the end.

Materials high in carbon content are usually dry, and are referred to as "Browns". They have little nitrogen and thus a C/N ratio far above the recommended value. In contrast, wet material ("Greens") provide too much water and Nitrogen. A compilation of "Browns" and "Greens" is given in Table 1.

Combining these materials in the correct ratios is important for a succesful decomposition process. A rule of thumb is 2/3 of brown material layered with 1/3 green material plus 10% by volume soil as an innoculant and to act as absorption surfaces for nurients to be captured.

Shredding and grinding (recommended size about: 1.5-7.5 cm) of the material increases the decomposition rate. Coarser materials have a high porosity and might be too well aerated to the extent that heat cannot be generated.

Fertilisers/Additives: Adding N for adjusting the C/N ratio is a common practice, but to avoid losses it should be used sparingly in a series of applications. Inoculum organisms utilised for composting are mainly fungi such as *Trichoderma sp*. They are an affordable choice if grown on the farm.

Table 1: C/N ratios of various organic materials.

GREENS			BROWNS	
C/N < 10	C/N < 20	C/N ± 25	C/N >30	C/N >100
Bone meal, chicken manure, pig manure, seed meal	Alfalfa hay, grass cuts, garden weeds, horse manure, cow manure (fresh), sewage sludge, silage, vegetables	Coffee grounds, cow manure (matured), fruit waste, hay (top quality), legume hulls, sea weed, summer grass	corn stalks dry, hay (low quality), horse manure+litter, leaves, pine needles, straw (grain crops)	Bagasse, trash, corn cobs, cotton mill wastes, grain chaff, paper, saw dust, tree bark, wood chips

The location of a compost pile

The piles should be on a site with a slight slope (2% - 5%) directly on the soil (not cement) to facilitate drainage and microbial innoculation. The raw compost pile should be about 2 m high and wide and there is no limitation to the length of the row.

Monitoring the pile

Temperature, CO_2 production, water content and pH are all indicators of conditions during the compost making process (See Table 2). A healthy composting pile should heat up to a maximum of not more than 70ºC in the first two weeks. A thermometer should be used to determine the correct time that the pile should be turned. After each turn, the maximum temperature will be lower until eventually the final temperature will barely reach about 35°C at the end of the composting process. By this time the pile would have lost about 20 to 30% of its volume.

Odour

A bad smell is a sign that the compost pile has turned anaerobic for various reasons such as the pile is too wet, too dense or poorly aerated.

At maturity the original organic materials are no longer recognisable, the pile will no longer be generating a significant amount of heat and the compost has a dark crumbly appearance and an earthy odor.

Compost utilisation

The recommended application rate for cane is between 8-14 t/ha. With an average nutrient content of 1.6% N, 0.3% P and 1.0% K this will provide 128-224 kg N, 24-42 kg P and 80-140 kg K as a slow releasing nutrient source. However the main benefit of compost application is the positive effect on soil organic matter and soil structure.

Bear in mind that, although valuable, compost making is time-consuming and costly. Transport is a major cost component and distances should therefore be kept as short as possible.

Interesting websites:

http://cwmi.css.cornell.edu/composting.htm#largecomposting

http://www.fao.org/docrep/007/y5104e/y5104e05.htm

Table 2: Criteria to be used with compost making indicators

Parameters	Minimum	Maximum
Temperature	Establish the cause if it does not heat up. 35°C at maturity.	Turn when it reaches 70°C
Carbon dioxide (CO_2)	2% at maturity	Turn when it reaches 12%
pH	5.5	6.5 at maturity
Water content	30% at maturity (end)	50 to 60% in the beginning

Minimum tillage mechanical planters

Peter Tweddle *(Agricultural Engineer)*

While zero and minimum tillage planters are currently not being used in the South African sugar industry, they are quite commonplace in agricultural industries elsewhere in the world. These machines plant directly into treated fallows of the previous crop or break crop residues and can also be used in conventionally prepared seedbeds. These planters offer a vital link towards practising conservation tillage and they also help to reduce input costs. In a recent project, SASRI tested minimum tillage mechanical planters in a commercial planting environment. The purpose of the project was to gauge the planters' suitability for local conditions and to gain an understanding of the performance and operating characteristics of these machines, all of which would enable SASRI to provide technical advice to growers wishing to purchase such planters.

While full project details are available from SASRI upon request, a brief summary of the project findings are presented here.

Planter operation

Whole sticks which are fed manually into the planter are mechanically cut into billets which are then funnelled into narrow soil slots formed by double disc openers. The standard machine is designed for tramline configuration of 500 mm row width and 1.8 m wheel-track. A seedcane trailer follows the planter. With modifications the planter can be adapted for conventional row spacings of about 1 m and can be operated on steeper slopes. Typical operating speeds are around 2 km/h and the planter should be able to plant 2 hectares a day (8 hours). At this work rate, six labourers are required for the planter and nine labourers to detrash seedcane. Strategic infield seedcane and fertiliser placement and good operations management will improve productivity further.

Advantages

The advantages of a minimum tillage planting system are as follows:

- Fewer tillage operations: this improves mechanisation efficiencies, reduces tractor operating hours and associated costs.
- Less soil moisture loss: may improve planting window periods.
- Lower fuel use: minimum tillage can be as low as 25% of the cost of conventional tillage.
- Less seedcane use: single stick mechanical planting density (±6.5t/ha) versus traditional double stick hand planting density (10t/ha).
- Potential for 'one pass' planting operation: soil opening, fertilising, planting and closing all occur simultaneously.
- Equipment can be used in a conservation farming, controlled traffic farming system approach.

Disadvantages

- Blades need to be sterilised regularly to reduce the risk of spreading RSD.
- Seedcane cleaning (trash removal) is required.
- Gaps formed during planting are difficult to observe as the covering operation occurs simultaneously.

Figure 1: Minimum till planter and seedcane trailer.

- As with any mechanical system, if breakdowns occur, all planting operations cease until the problem is remedied.
- Higher management levels (supervision, planning etc.) are required.
- The standard machine (500 mm dual row and 1,8 m wheel-track) needs to be modified for alternative row spacing requirements.

Seedcane usage

Seedcane use is approximately 6.5 tons per hectare at a single stick planting density. Initial tiller populations appeared lower for the mechanical planter. However, population and stalk lengths at 15 months age showed little difference, with the mechanically planted crop appearing to be of more uniform height. The incidence and extent of large gaps was, however, worse with the unmodified planter.

Actual performances may vary significantly from situation to situation. These will be influenced by factors such as seedcane length, field length, planting speed, planting downtime due to seedcane/fertiliser recharging.

Ubombo Sugarcane Estate, Swazitrac, Melmoth Farming and Mascor Empangeni are acknowledged for their collaboration in this project.

Table 1: Comparison between traditional hand planting operations and that of the minimum tillage planter.

PARAMETER	HAND PLANTING	MECHANICAL MINIMUM TILLAGE PLANTER
LAND PREPARATION EQUIPMENT	Full tillage Seedbed preparation	Minimum tillage or Full tillage
FURROW FORMING	Required	N/A
SEEDCANE PREPARATION	N/A	Detrashing: ±4 man days/ha
SEEDCANE USE	±10t/ha (double stick density)	±5.5t to 7.5t/ha (single to 1.5x stick density)
PLANTING: Labour PLANTING: Mechanisation	±18 to 25 man days/ha Includes covering	3 man days/ha (if planting 2ha/day) Excludes seedcane detrashing Excludes driver Minimum till planter

Grasshopper Project

UPDATE

Nomadacris septemfasciata (Red or Red Winged Locust)

Following on from the article published in The Link, September 2011, "Grasshopper outbreaks", the 2011/2012 growing season was characterised by fairly severe infestations which caused significant damage to five farms in Empangeni. Growers applied insecticides which seemed to control the extent and severity of grasshopper infestations to some degree. The problem growers are facing however, is that applications of insecticides are very costly and do not result in total eradication of the pests due to their highly mobile nature which results in secondary infestations. Research is currently being undertaken to understand the species composition of the infestations and the individual species ecology and biology which will provide crucial information to be used to control these pests in a more economically and environmentally sustainable manner.

In order to understand the causes of the outbreaks and their characteristics, regular population surveys and environmental monitoring will take place. This is backed up by laboratory trials which will be used to estimate potential yield loss and varietal susceptibility per species. It is hoped that this will identify priority species in terms of their potential to cause damage. Answering questions such as where the grasshoppers species are breeding (or

***Cyrtacanthacris aeruginosa* (Green Tree Locust)**

Cataloipus zuluensis

migrating from) will be crucial in order to develop a streamlined and effective integrated pest management plan.

Monitoring has been taking place since February 2012 and has resulted in the identification of five native species foraging on cane.

Only one species – the Red Locust (*Nomadacris septemfasciata*) is regarded as a pest of sugarcane therefore information pertaining to the other common species is limited. Importantly, we now know that only the Red Locust exhibits true gregarious behaviour and forms swarms, and although this species has been a pest of sugarcane in the past, currently it seems as though it is in its solitarious form. Therefore, these infestations are not really "locust outbreaks" but unusually large populations of grasshoppers as a result of some environmental or historical factor which has caused this significant population increase. Grasshopper abundances tend to peak in the wet summer months and decrease over winter, and will generally emerge again at the onset of summer rains.

Adrian Bam *(MSc Student: Crop Biology Resource Unit)*
& Des Conlong *(Senior Entomologist)*

Recommended control practices:

Currently, beneficial farming practices such as trashing and good weed management are recommended as this may reduce the impact of grasshoppers. Early detection and control of grasshopper nymphs is also crucial to limit damage, as flying adults are notoriously difficult to control. Please direct any questions or incidences of high grasshopper numbers or damage to your local Extension Specialist.

Petamella prosternalis

Ornithacris cyanea cyanea

THRIPS CONTROL *in sugarcane*

Graeme Leslie
(Principal Entomologist)

Since the initial outbreak in 2005 at Umfolosi, and its rapid spread throughout the industry, thrips *(Fulmekiola serrata)* remains a serious pest of young sugarcane crops and is unlikely to disappear. It is therefore a pest that must be managed and this article provides an update on practices that can help to reduce the impact of this pest.

SASRI studies have shown that crops (particularly plant crops) that are three to four months old over January are more susceptible to thrips damage. It is at this time that thrips numbers are at their highest (see Figure 1) and the combination of young cane and high thrips numbers results in severe damage to developing leaves (Figure 2).

Current best practices

The following options are recommended for control of this pest.

Variety choice

Some varieties tend to be more severely damaged by thrips than others. Where possible, select varieties that are less severely damaged by thrips, for example: N12, N14, N16, N33, N35, N37, N39, and N40.

Planting date

Avoid planting more susceptible varieties (for example N22, N27, N28, N31, N32, N41, N43, N45 and N48) over the September-December period.

Insecticide use

The insecticide Bandit (imidacloprid) is registered for use against thrips. It is most effective when applied in the furrow at planting at a rate of 1 L product/ha. Bandit can also be applied to ratooning crops as a foliar spray. Two to three sprays are recommended each of 500ml product/ha at fortnightly intervals after at least three to four green leaves are present. Note that the product is registered for ground application only. For more detailed information on the use of this product, please read the label.

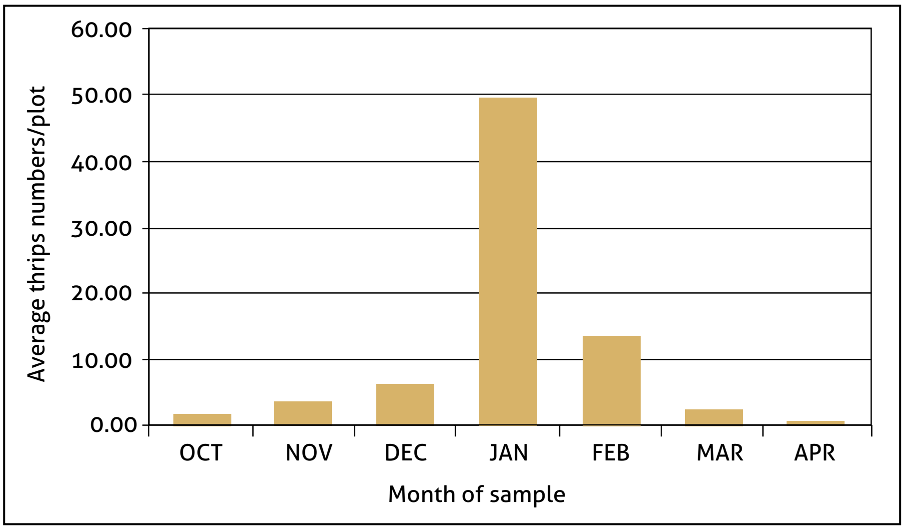


Figure 1: The trend in total thrips numbers in a crop ratooned in September at Gingindlovu, which matches the general trend in the industry.

Figure 2: Thrips damage to young sugarcane leaves.

SASRI Agrochemical Research

SASRI has recently established a long-term agrochemical research project involving entomologists, nematologists, pathologists and herbicide agronomists. The aim is to not only review and update agrochemical solutions for pest and disease problems of the industry, but also to provide guidance to ensure that products are used in ways that reduce the likelihood of the development of pest resistance, and risks to the environment.

N44 Degazetted

Variety N44 was degazetted in June 2009 because it is susceptible to *Maize streak virus* (MSV)-strain A, the most virulent strain known to infect maize. N44 was removed from the list of gazetted varieties for 2010 and further plantings were not permitted. The virus has been shown to cause a 31% decrease in cane yield in N44 along with a 2.5 unit reduction in sucrose percent. Hot water treatment is not effective in curing cane infected with MSV. There is evidence that MSV is being spread in seedcane as well as by certain species of the leaf hopper vector, *Cicadulina*.

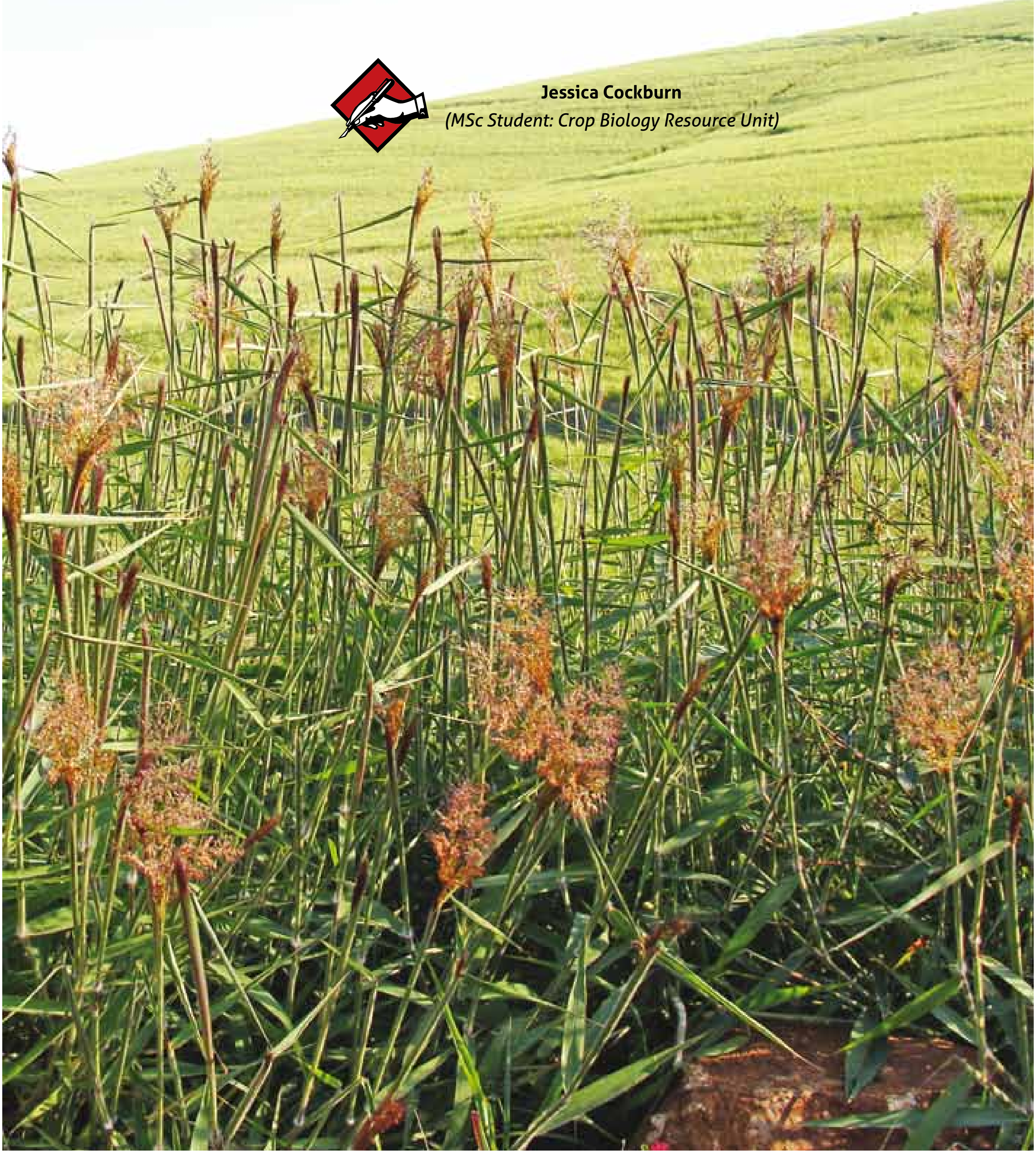
In one area, five fields that were planted to N44 towards the end of 2010 were found to be infected with MSV when inspected in 2011. Levels ranged from 0.2 to 1.1% infection. Outbreaks of maize streak disease are erratic and unpredictable in maize but an epidemic is expected every three to ten years. The disease is considered to be a serious risk to the sugar industry and for this reason N44 will not be put forward for re-gazetting. ***All existing fields need to be eradicated by 31 March 2015.***

Rowan Stranack *(Biorisk Manager)*,
Sharon McFarlane &
Tania van Antwerpen
(Plant Pathologists)

MOLASSES GRASS

How to make eldana uncomfortable in your cane

Jessica Cockburn
(MSc Student: Crop Biology Resource Unit)



Previous Link articles have highlighted the importance of using an integrated approach to eldana control, i.e. using measures such as resistant varieties, good soils and crop management practices, attention to fertiliser application and correct age of cane at harvest. The "Push-Pull" strategy (using plants that repel and attract the pest appropriately, see The Link, May 2011) may also help in reducing the impact of eldana on your crops. An important component of this strategy is Molasses grass.

Molasses grass is repellent to eldana and therefore has the effect of reducing damage caused by this pest. It is best planted in conjunction with other push-pull plants as part of an integrated pest management (IPM) system which emphasises good crop management. The techniques for its planting and maintenance are outlined below.

Layout and positioning

- Select a small area to start planting molasses grass to learn how to fit it into farm management.
- Plant molasses grass in contours or on road edges.
- Ideally plant plugs in the centre of the contour.
- Plant a single row of plugs 0.5 - 1 m apart .
- Do not plant molasses grass near wetlands/pull plants: leave at least a 30 m gap.
- Molasses grass grows best in full sunlight.

Planting

- Molasses grass grows best from seedling plugs bought from a nursery.
- Prepare land well: spray glyphosate to kill off other weeds and rip a single line in the soil.
- To prepare a suitable tilth one may need to further work the soil before planting.
- Plant during spring or summer.
- If you plant during a dry spell/in poor soils, water seedlings during the first few weeks or use an absorbent.

Maintenance

- Molasses grass can be mowed once a season.
- It can help in the suppression of creeping grasses at field margins and in contours.
- It makes a good livestock fodder.
- Inform staff about the grass. Avoid accidental hoeing: markers at the edge of contours can be helpful.
- Molasses grass does not tolerate herbicide overspray/ residues.
- The grass is not fire tolerant: it is best to mow before burning.
- It is important to manage molasses grass as a crop: keep it free of weeds and consider applying fertiliser at planting to ensure good establishment.
- Successful establishment is the key to healthy and effective molasses grass.

See the article "Let's push-pull it!" published in The Link, May 2011 for more information on push-pull and contact your local Extension Specialist or P&D officer for further information.

Figure 1. Seedlings planted in well-prepared soil.

Figure 2. Molasses grass planted in the centre of a contour.

Review

Tropical storm Irina caused heavy rainfall in March 2012 in many parts of the industry. However, April to July rainfall was generally well below the long-term mean throughout the industry (Figure 1). Temperatures were generally much higher than for the same period in 2011 and slightly higher than the long-term average. The low rainfall and relatively high temperatures caused an extended dry spell that affected cane yields negatively, whilst enabling good harvesting conditions and excellent cane quality in rainfed areas.

Outlook

The most likely state of the ENSO phenomenon to occur this summer is the warm phase (El Niño), which has historically been associated with below normal summer rainfall in sugarcane producing areas of South Africa. The South African Weather Service and the European Center for Medium-Range Weather Forecasts both predict normal spring and early summer rainfall (August to October) for the industry, with increased chances of below normal rainfall later in summer (November to January). The International Research Institute for Climate Society also expects normal spring and early summer rainfall. Spring and early summer temperatures are expected to be above average.

Please visit the SASRI weather web http://portal.sasa.org.za/weatherweb/ for links to up-to-date seasonal climate forecasts and also for the latest rainfall and other weather data.

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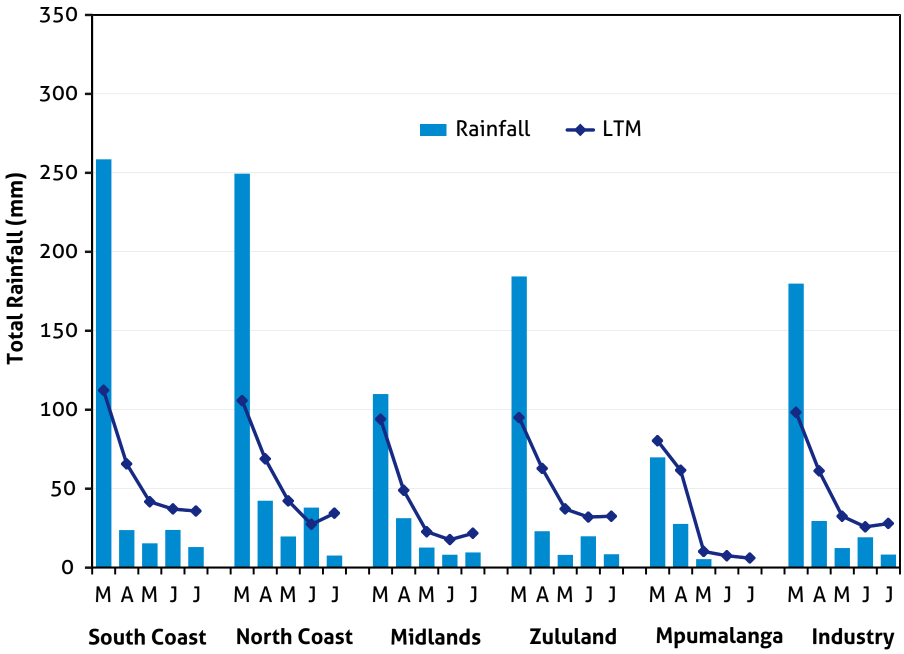

Figure 1: Regional and industry average monthly total rainfall and the monthly long-term means (LTM) for March to July 2012.

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