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Scouting for eldana

Growers are encouraged to train their staff to conduct regular on-farm scouting exercises in addition to the official P&D surveys carried out by SASRI's local P&D teams. These additional surveys ensure the early detection of any potential pest and disease threats, especially eldana. The article on page 12 provides guidelines for these on-farm scouting initiatives.

Also in this issue...

Unlocking the potential of sugarcane

Message from the...
DIRECTOR

Dr Carolyn Baker

The drought being experienced throughout most of the sugarcane growing areas in KwaZulu-Natal needs no introduction. Even where isolated rains have fallen, and crops are looking relatively healthy, there is scant optimism regarding the 2015/2016 crop, since the prospect of further rains this season appear dim. Only in those areas where water resources are not limiting and irrigation systems are working well, does the cane look good.

Coincident with the drought and stressed conditions, the risks of pest and disease outbreaks increase and the impact of the dry conditions on the sugarcane crop is exacerbated. This is amply demonstrated by the current eldana crisis. In those areas where eldana is an acknowledged pest, its incidence has risen sharply, and even in those areas traditionally seen as 'being outside an eldana area', numbers of eldana have increased. Aggravated by the dry weather, cane growth has been particularly poor, and in many cases is resulting in a crop that is unworthy of harvest, thereby elevating the desire to carry over increasing areas of cane. However, such cane serves as the ideal reservoir for eldana.

Hence, the current combination of climatic factors that encourage pests such as eldana to thrive, and that enable population explosions, calls for extraordinary measures of control. As one of the valuable elements associated with an integrated pest management (IPM)

approach to eldana control, insecticides serve to suppress outbreaks. When used responsibly within an IPM programme (e.g managing crop stress, enhancing plant resistance, encouraging biodiversity and monitoring), they are very effective in containing pest eruptions. The recent registration of several new chemicals that are also effective in managing eldana is encouraging since the likelihood of building pest resistance is diminished through responsible deployment of a diverse spray programme.

SASRI's role in dealing with this eldana biosecurity threat is clear. Following identification of the hotspots, specific field surveys will be conducted and should eldana levels warrant immediate harvest, these will be ordered. Where eldana levels are containable below threshold levels, various control measures will be identified, including spraying.

> Aggravated by the dry weather, cane growth has been particularly poor, and in many cases is resulting in a crop that is unworthy of harvest.

Responsible use and application of registered chemicals is essential and full compliance with label requirements goes without saying, since they have been developed as a consequence of rigorous product testing and in response to trial evaluation. It is well known that some of the dangers associated with using products off-label are linked with health and environmental risks.

In emergency situations such as those that we currently find ourselves in, SASRI is facilitating a request for approval from the Registrar to spray in advance of the designated spray window and using a range of application devices.

While eldana control remains high on our agenda, the importance of keeping a sharp lookout for other pest and disease outbreaks is obvious. Through the inclusion of all pest and disease structures under SASRI's umbrella, a co-ordinated approach to pest management has been enabled. This brings a number of significant benefits such as augmenting pest and disease support to those areas requiring intensive surveys. At all costs, it is imperative that the spread of eldana be contained to ensure that the areas where eldana is less of a problem do not become more heavily infested.

Topical Tips

September - December 2015

Harvesting

With large parts of the industry having been affected by severe drought, harvesting decisions become critical.

- What should you do with your fields? Should you harvest, cut back or leave to stand over? This depends on the level of stress the crop has been subjected to, whether recovery is possible, and whether further stress is likely in the future. The number of green leaves is an important indicator; if cane has three green leaves or less, good recovery is unlikely. If in doubt, consult your Extension Specialist.
- Scout potential carryover fields to monitor eldana levels and stalk damage. If within the P&D thresholds for carryover and the cane is in satisfactory condition, then seriously consider applying an insecticide to manage eldana during the remainder of the season and the off crop. During your surveys, also check for sour rot and harvest as soon as possible if severe.

Crop nutrition

- Take soil samples in all plant and ratoon fields. Significant savings can be made by applying exactly what the crop requires rather than a blanket application of a single type and rate of fertiliser.
- By now, your fertiliser programme for the coming spring should have been fully planned and ready to implement. Accuracy of application is important. Have your staff trained and keep a close watch on the uniformity of fertiliser application. Walk through your fields to check.
- Ask your Extension Specialist for advice on the possibility of reducing rates of nitrogen fertiliser in times of drought and low yields.
- With the prediction of low rainfall in the remainder of the season and the coming summer, it makes sense to split your N applications.
- Lime applications (where required) are a good long-term investment. Correct any subsoil acidity problems to ensure healthy, prolific rooting.

Weed control

- Even though the cane has not grown well, this does not mean that weeds will also not grow. On the contrary, in absence of adequate shading from the crop, weeds will grow prolifically. Be ready with an appropriate long-term pre-emergent treatment and apply as soon as the soil moisture content is adequate. Weed control in difficult seasons like this is a priority if next year's crop is to be protected. Have additional staff and equipment available in order to spray when conditions are right. The timing of weed control is critical.
- Take note of patches of creeping grasses. Mark these clearly with flags, if necessary. Return to these spots frequently over the spring and summer and apply shielded spot sprays of glyphosate away from the cane in order to prevent these patches from spreading.

Land preparation and planting

- In fields where the drought has caused stool mortality, consider gap planting to restore the plant population. However, this operation is very expensive and it is often better to replant the entire field if gaps are frequent and widespread. Consult your Extension Specialist for assistance.
- Good quality seedcane will be in very short supply this year. If you haven't already made arrangements to secure supplies then this is a matter of urgency. Do not plant with material that is not approved by your local LPD&VCC. If buying seedcane from an outside source, check the inspection records and visit the field to ensure that the seedcane is in good condition and will germinate well. Planting is expensive. You can't afford to plant inferior seedcane.
- Make sure all volunteer regrowth in fallow fields is eradicated. Volunteers can harbour diseases and need to be removed. This is particularly important in seedbeds which need to be 100 percent free of volunteers.
- Select the sites for next year's nursery seedbeds now so that they can have a long fallow prior to planting in spring 2016.

SASRI Extension and Biosecurity

Sustainable Suga

Self-regulation through RTMS

Several years ago, the freight industry embarked on a self-regulating initiative, aptly named the Road Traffic Management System (RTMS), in order to improve the safety and productivity of freight vehicles and to reduce road damage. RTMS is now well established and there is ample evidence of its positive impact in the road transport sector. In order to become RTMS accredited, members have to abide by a comprehensive set of standards that contribute to preserving road infrastructure, improving road safety and increasing productivity.

Sugar Industry Initiatives

In 2007, the sugar industry proactively developed a strategy to deal with vehicle overloading. This was partly in response to news that more stringent traffic regulations were being developed to address the country's premature road deterioration and its overall poor road safety record.

Working in conjunction with the national Department of Transport, and within the framework of RTMS, the sugar industry began to strategically improve all vehicle-loading practices while gathering loading data. During this period of adoption of more stringent loading requirements, mill areas were urged to test various initiatives to reduce both overloading and under loading. Initial data showed that over 30% of vehicles were overloaded by nearly 8% above legal limits and the average under loading was nearly 30%, both aspects being undesirable and increasing the cost of transport.

Over time, the project has resulted in a substantial improvement. Reduced overloading has resulted in safer vehicles, less road damage and reduced operating costs. The reduction in under loading has improved transport efficiencies, by reducing the number of trips and mill congestion. This shows how effective the Sugarcane RTMS self-regulation process has been and all stakeholders including the local and provincial authorities have played their role and have supported the initiative.

More importantly, these early initiatives have allowed the industry sufficient time to alter some of its practices. The self-regulating exercise has placed the industry in a better position to become fully compliant with the more stringent regulations which have now come into effect.

New Traffic Regulations

The 22nd Amendment to the National Road Traffic Act (NRTA) Regulations became effective in January 2015. These amendments specify several obligations on all participants in the value chain, i.e. the consignor (the party offering goods for transport, in our case, the sugarcane

arcane Transport

farmer), the transport operator, and the consignee (the party receiving the goods - the mill).

One aspect of the regulations deals with overloading. Previously, the liability for overloaded vehicles seemed to fall squarely on the transport operator. Now, the consignor, transport operator and consignee may all be regarded as parties to the transgression if they have been negligent in fulfilling the obligations placed on each of them by the new regulations. While it is not possible to deal with obligations of all parties comprehensively in an article of this nature, some of the implications for the sugar industry are summarised as follows:

- The regulations apply to consignors transporting more than 500 tons per month (any material, not just sugarcane).
- Written contracts must exist between all parties.
- Growers must have a method of determining that vehicle mass limits and axle mass limits are not exceeded.
- Growers must keep records of the mass of every load transported from their farm.
- The cane must be securely loaded so that it cannot dislodge or spill.
- Transport vehicles must carry detailed documentation relating to, inter alia, vehicle details, goods details, consignor and consignee details, contractual obligations and insurance particulars.
- The mill has to reject any consignment that is more than 2% overloaded.

While these amendments to the NRTA may appear onerous, the sugar industry recognises its value in ensuring well-managed, sustainable, productive and safe freight operations.

> “Reduced overloading has resulted in safer vehicles, less road damage and reduced operating costs.

by Peter Tweddle
(Agricultural Engineer) **and**
Peter Lyne
(Research Consultant)

For more details please visit the Mechanisation page on the SASRI website: www.sugar.org.za/sasri

Monitoring Grasshoppers/ Locusts

on the North Coast

by Des Conlong
(Senior Entomologist)

Hopefully the severe outbreaks of the grasshopper/locust complex in 2010-2012 are just a bad memory in the Zululand area, but regular monitoring of pests and potential pests is an essential part of an integrated pest management system.

SASRI entomology research has shown that we should expect hoppers of most species occurring in this area to start emerging from their egg packets in the soil from end of October/early November. **Keep a look out for them**.

Not all grasshoppers/locusts are pests. For example small black hoppers, found on grasslands, or on grass in abandoned fields next to your sugarcane, grow into the multi-coloured "Glenwood grasshoppers" (*Zonoceros elegans*), and do not move into sugarcane in high numbers.

Right: Red locust hoppers (gregarious phase) on young sugarcane.

Rather monitor the hoppers of the five species found most commonly in sugarcane. Once the hoppers get to the adult stage, it becomes almost impossible to control them. The two most common and most devastating species are the red locust (*Nomadacris septemfasciata*) and the grasshopper Petamella (*Petamella prosternalis*). Both of these pests have two different hopper types.

Name	Hopper	Adult	Description
Red Locust (*Nomadacris septemfas-ciata*)			The red locust is the species that needs closest monitoring, because it swarms, and can migrate long distances. When it is not in its swarming phase, its hoppers are green in colour. However, when they are in their gregarious phase, they become yellow/ reddish in colour. **This is the dangerous stage**.
Petamella (*Petamella prosternalis*)			Petamella, does not swarm and migrate, but can build up into large local populations, which as adults can be devastating. They also have a green hopper morph which is not speckled black, and does not have a black line running down the top of its body. The brown adult is as slender as the green morph, both of which are more slender that the chunky red locust.

The following species were less commonly found in sugarcane. They are all grasshoppers, and thus do not migrate, but like Petamella, can form large local populations.

Name	Hopper	Description
Grasshopper (*Cataloipus zuluensis)*		The only other brown coloured chunky hopper you may find is that of the grasshopper *Cataloipus zuluensis.* It is not remarkably speckled, and has large dark brown markings on the top (dorsal) part of the collar covering its thorax, and clear "fishbone" like markings on the large femur of its hind legs.
Green Tree "Locust" (*Cyrtacanthac-ris aeruginosa*)		This is the most chunky of all the species, and are green coloured. The green tree 'locust' is a uniform green, with a black stripe on the knee joint of the femur and tibia of its large hind leg.
Bird "Locust" (*Ornithacris cyanea*),		The collar of these hoppers is dorsally ridged, and black in colour, while the rest of the body is green. The femur of the hind leg also has a distinc-tive 'fishbone' pattern on it

Please look out for these pests in the coming spring. Do not hesitate to contact Extension and Biosecurity staff should you need help in identifying hoppers you may find. Remember, the foundation of a good integrated pest management programme is effective monitoring, which serves as an early warning and thus a rapid response tool.

It will be best to control the hoppers, **but only of those species identified as sugarcane pests**, when they emerge in the wet season, usually October-November. The regis-tered application rate of Sumi-Alpha® can be sprayed by hand directly onto the hoppers. This will minimise adverse environmental impacts.

For more reading:

1. *"Acridid outbreaks on Zululand Sugarcane" by Adrian Bam (MSc Thesis).*

2. *"Insects of Cultivated Plants and Natural Pastures in Southern Africa" edited by Gerhard Prinsloo and Vivienne Uys, and published by the Entomological Society of Southern Africa.*

Available on request from Des Conlong (des.conlong@sugar.org.za).

Soil Health

Neil Miles
(Senior Soil Scientist)

Re-visiting the use of LIME & GYPSUM in the industry

Trends in soil test data indicate that there has been marked acidification of soils in the rainfed areas during the past few decades. Not surprisingly, therefore, FAS's adoption - some three years ago - of a more stringent approach to the management of soil acidity has met with widespread support from extension specialists, consultants and growers. The new recommendations are resulting in improved yields, while crops in fields in which acidity problems have been corrected are reportedly better able to cope with the current severe drought conditions.

Is it worth the expense?

There have been some questions relating to the economics of the new recommendations. Comprehensive long-term SASRI field trials provide useful information in this regard. The trials were carried out on soils that were highly acidic, with acid saturations in the region of 80% throughout the profiles. The results show significant yield responses to lime alone, and to a combination of lime and gypsum. Responses were generally greater in later ratoons than in the plant crop and initial ratoons.

Long-term field trials conducted elsewhere in the world support these findings on the duration of lime effects on crop production. In one such trial, the influence of a single application of 5 t/ha of lime at planting was still evident 18 years later!

In the SASRI trials, soil tests revealed marked re-acidification of limed treatments in the course of the study, with acid saturations increasing by 20 to 25% in the topsoil over a period of five years.

The net economic return on expenditure on lime and gypsum over the duration of the trials ranged from 237% to a massive 1 222%!

Additional benefits relating to the use of lime and gypsum

In addition to addressing aluminium toxicities, lime and gypsum applications to acid soils have a range of other (often overlooked) benefits in terms of soil health and crop growth and nutrition. These include the following:

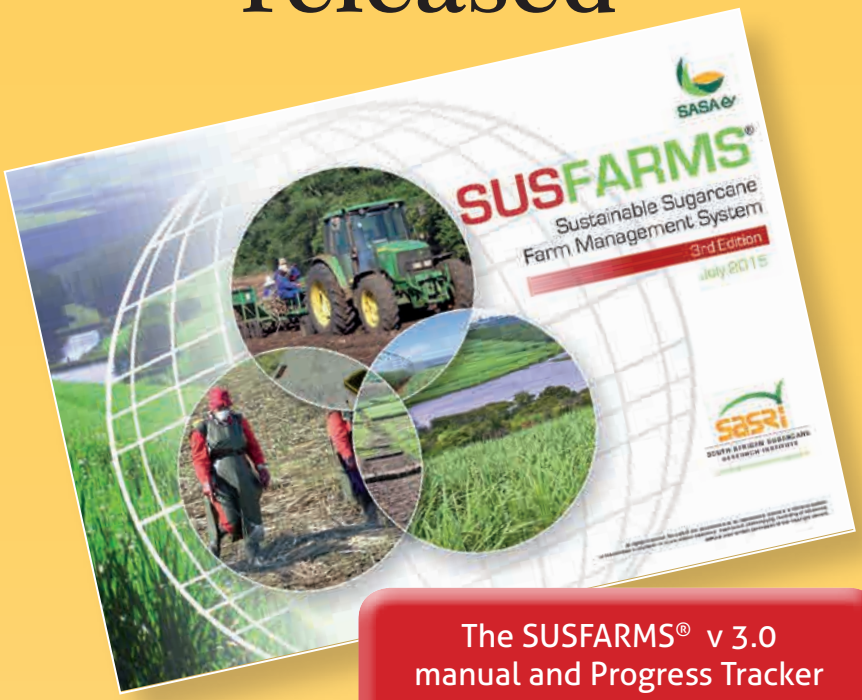
- Lime and gypsum contribute essential nutrients for crop growth. Both products contain large amounts of calcium, while the use of dolomitic lime remains the most cost-effective means of addressing the frequent magnesium deficiencies encountered

> Lime and gypsum contribute essential nutrients for crop growth.

in the rainfed areas of the industry. Importantly, periodic applications of gypsum also ensure adequate supplies of sulphur for crop growth, and obviate the need for the purchase of far more expensive sulphur-containing fertilisers.

- Liming results in marked increases in the plant-availability of the essential micronutrient, molybdenum. It also improves phosphorus availability and promotes nitrogen release from the organic matter.
- The increase in pH following liming, results in sharp increases in the cation exchange capacity (CEC) in soils. Cation exchange capacity, reflected by the 'Total Cations' parameter in soil test reports, is an indication of the storage capacity of the soil for nutrients.
- The increase in pH which accompanies liming promotes soil biological activity, including the proliferation of all-important earthworms.

Latest edition of SUSFARMS® released



The SUSFARMS® v 3.0 manual and Progress Tracker are now available!

The third edition of the Sugar Industry's Sustainable Sugarcane Farm Management System has 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 system 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.

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

Implementing the entire system may be an intimidating exercise for even the most enthusiastic farmer, but growers are urged to explore sections of the system. Starting, perhaps, by choosing one or two areas of particular relevance to the farming operation, for example ensuring irrigation systems are working efficiently, or just tackling those practices which are legally required.

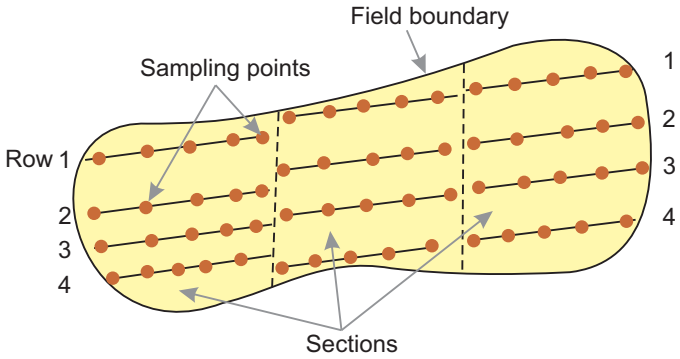
Whichever way the system is used, growers are encouraged to access an e-version of the manual and the associated Progress Tracker by either downloading it from an emailed invitation link or by contacting their Extension Specialist for a copy.

Scouting for Eldana

The term 'scouting' refers to the additional routine 'surveys' that you should carry out to supplement the official surveys conducted by the local P&D teams. Scouting is an easy exercise and does not have to be as detailed as P&D surveys, but it will provide valuable information that will allow you to adjust harvesting to minimise the impact of eldana. Remember that frequent small surveys are more useful than infrequent detailed surveys.

You can conduct scouting using the following steps:

- Use a diagram of the field to divide it into a number of sections, each of roughly the same area.
- Sample five stalks in each section according to a set pattern. Aim to sample stalks so that the whole section is represented in the sample. To estimate levels of damage, random samples must be taken; there must be little or no bias in selecting stalks for sampling.
- Count the number of internodes of each stalk before splitting it along its length. For each stalk sampled, count the number of internodes that have been bored and count the number of eldana larvae found (if any).
- You can now work out the following:



1

Percentage of stalks bored =

$$\frac{\text{The } \textbf{number} \text{ of stalks } \textbf{bored} \text{ in the field (or section)}}{\text{The } \textbf{total number} \text{ of stalks } \textbf{sampled} \text{ in the field (or section)}} \times 100$$

This measure gives the **extent** of eldana infestation.

2

Percentage of internodes bored =

$$\frac{\text{The } \textbf{number} \text{ of internodes } \textbf{bored} \text{ in a stalk}}{\text{The } \textbf{total number} \text{ of } \textbf{internodes} \text{ of a stalk}} \times 100$$

Calculate this for all the stalks then find the average.

This gives an indication of the **intensity** of an infestation, i.e. how much damage has been done.

3

Number of eldana per 100 stalks =

Divide the total number of larvae recovered, either by section or field, by the number of stalks in the sample. This gives the average number of larvae per stalk. Multiply this by 100 to calculate the number of eldana larvae per 100 stalks.

$$E/100 = \frac{\text{Total larvae per field or section}}{\text{Number of stalks in sample}} \times 100$$

This gives an indication of the **population** in the area, and the potential threat to other fields.

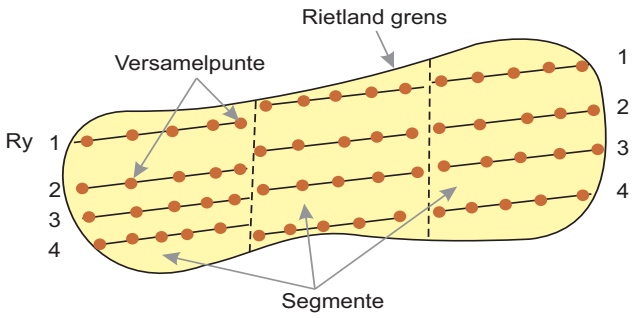
By regularly conducting surveys, a pattern of eldana distribution and intensity will be built up for your farm. Such information can be used as an aid for decisions on harvesting priorities, ploughout and replant variety selection.

Eldana verkenningsopnames

Die term verkenning of "scouting" soos dit in Engels bekend staan, verwys na addisionele opnames wat gereeld uitgevoer behoort te word om die amptelike opnames van die P&D spanne aan te vul. Verkenningsopnames kan redelik maklik en vinnig geskied aangesien dit nie so gedetaileerd as die P&D opnames hoef te wees nie. Waardevolle inligting kan hierdeur verkry word, wat byvoorbeeld gebruik kan word om oesdatums aan te pas en so die impak van ldana tot 'n minimum te beperk. Gereelde kleiner opnames kan van meer waarde wees as ongereelde gedetaileerde opnames.

Verkenningsopnames kan uitgevoer word deur die volgende basiese stappe te volg:

- Maak gebruik van 'n basiese diagram van die spesifieke land en verdeel dit in 'n aantal gelyke dele/segmente.
- Versamel vyf stokke in elkeen van die segmente volgens 'n voorafbepaalde patroon (Figuur 1). Neem stokke op so 'n wyse dat die hele area verteenwoordig word. Dit is ook baie belangrik dat stokke totaal ewekansig geneem word, groter en dikker stokke moet byvoorbeeld nie voorkeur bo kleiner en dunner stokke geniet nie.
- Tel die aantal internodes van elke rietstok voordat die stok in die lengte verdeel word. Tel dan vervolgens vir elke stok die aantal internodes wat eldana skade toon, asook die aantal larwe wat gevind is (indien teenwoordig).
- Met hierdie inligting, kan die volgende bereken word:



Figuur 1. Opdeling van die land in 'n aantal gelyke segmente voor die aanvang van die eldana opname.

1

Persentasie stokke met boorskade =

$$\frac{\text{**Totale aantal** stokke met **boorskade** in die land of segment}}{\text{**Totale aantal** stokke **versamel** in die land of segment}} \times 100$$

Hierdie waarde is 'n **aanduiding** van die omvang van die eldana infestasie.

2

Persentasie internodes met boorskade =

$$\frac{\text{Die **aantal** internodes met **boorskade** in 'n stok}}{\text{Die **totale aantal internodes** van die stok}} \times 100$$

Bereken hiedie waarde vir elke stok en bepaal dan die gemiddelde waarde.

Hierdie waarde gee 'n **aanduiding** van die intensiteit van die infestasie, m.a.w. hoeveel skade is alreeds aangerig.

3

Aantal eldana per 100 stokke =

Verdeel die totale aantal larwe wat versamel is, per land of per segment, deur die aantal stokke wat versamel is. Dit gee die gemiddelde aantal larwe per stok. Vermenigvuldig hierdie getal met 100 om die getal larwe per 100 stokke te bereken.

$$E/100 = \frac{\text{Totale aantal larwe per land of segment}}{\text{Totale aantal stokke wat versamel is}} \times 100$$

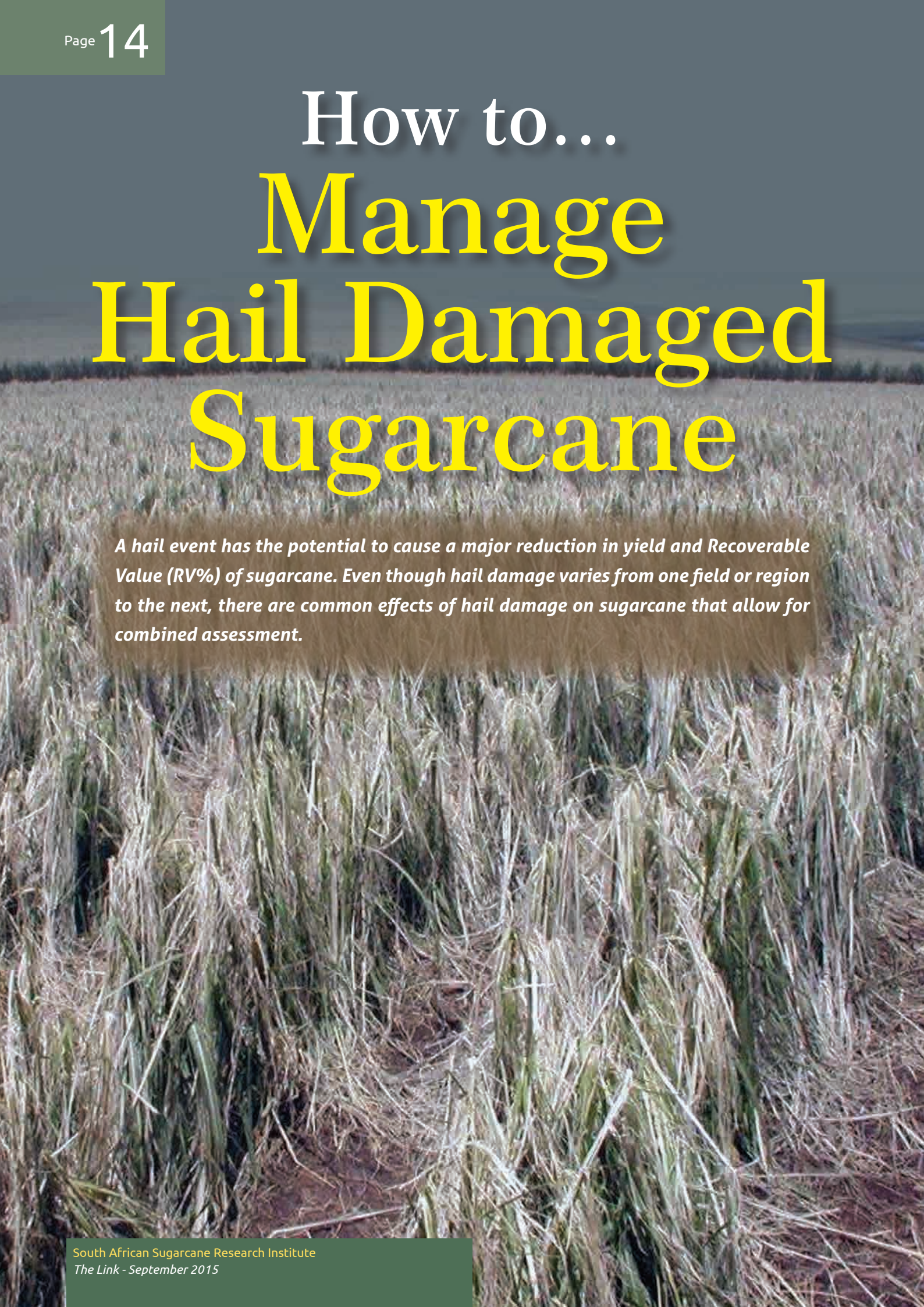
Hierdie waarde is 'n aanduiding van die **populasie** in die area en gevolglik ook die potensiële risiko vir besmetting van ander lande in die omgewing.

Deur gereeld sulke verkenningsopnames uit te voer, kan daar oor tyd 'n patroon van eldana verspreiding en intensiteit op elke plaas opgebou word. Hierdie is waardevolle inligting wat gebruik kan word as dit kom by besluitneming oor watter lande eerste geoes moet word, uitploeg voorkeur en varieteit keuse met herplant.

How to…

Manage Hail Damaged Sugarcane

A hail event has the potential to cause a major reduction in yield and Recoverable Value (RV%) of sugarcane. Even though hail damage varies from one field or region to the next, there are common effects of hail damage on sugarcane that allow for combined assessment.



How do you assess hail damaged cane?

It is advisable to wait for at least five days after the hail event before determining the extent of the damage to the cane. It will be necessary to check if there is new growth on the undamaged growing shoots, and to split cane stalks lengthwise to check for damage to any growing points and any discoloration in the stalk.

How does hail affect crop growth?

The amount of leaf area present in a field will determine the yield potential of the crop because green leaves produce biomass. Hail can damage green leaves and then reduce the amount of leaf material available, which results in a reduced growth rate and ultimately a reduction in yield. Young cane (e.g. three months old) is the most susceptible to a long-term reduction in yield after a severe hail event.

Stalks can also be bruised by hailstones and severe stalk damage will make it difficult for the plant to recover. Stalks can become infected with a number of fungal pathogens that can reduce sucrose content and juice purity.

How does hail damage affect RV%?

To assess how hail damage will affect RV%, 10-20 stalks must be sampled per field. It is necessary to split the cane stalks lengthwise and make an assessment of percentage Stalk Length Red (SLR%). The more severe the SLR%, the greater the negative impact on RV%. SLR% and RV% are well correlated: 1% SLR = 1% reduction in RV%.

Therefore the percentage loss in RV%
taking SLR% into account can be calculated as follows:

Loss in RV% = SLR% X RV%

Example: If RV% is usually 12% and SLR% after a hail event is 5%, then

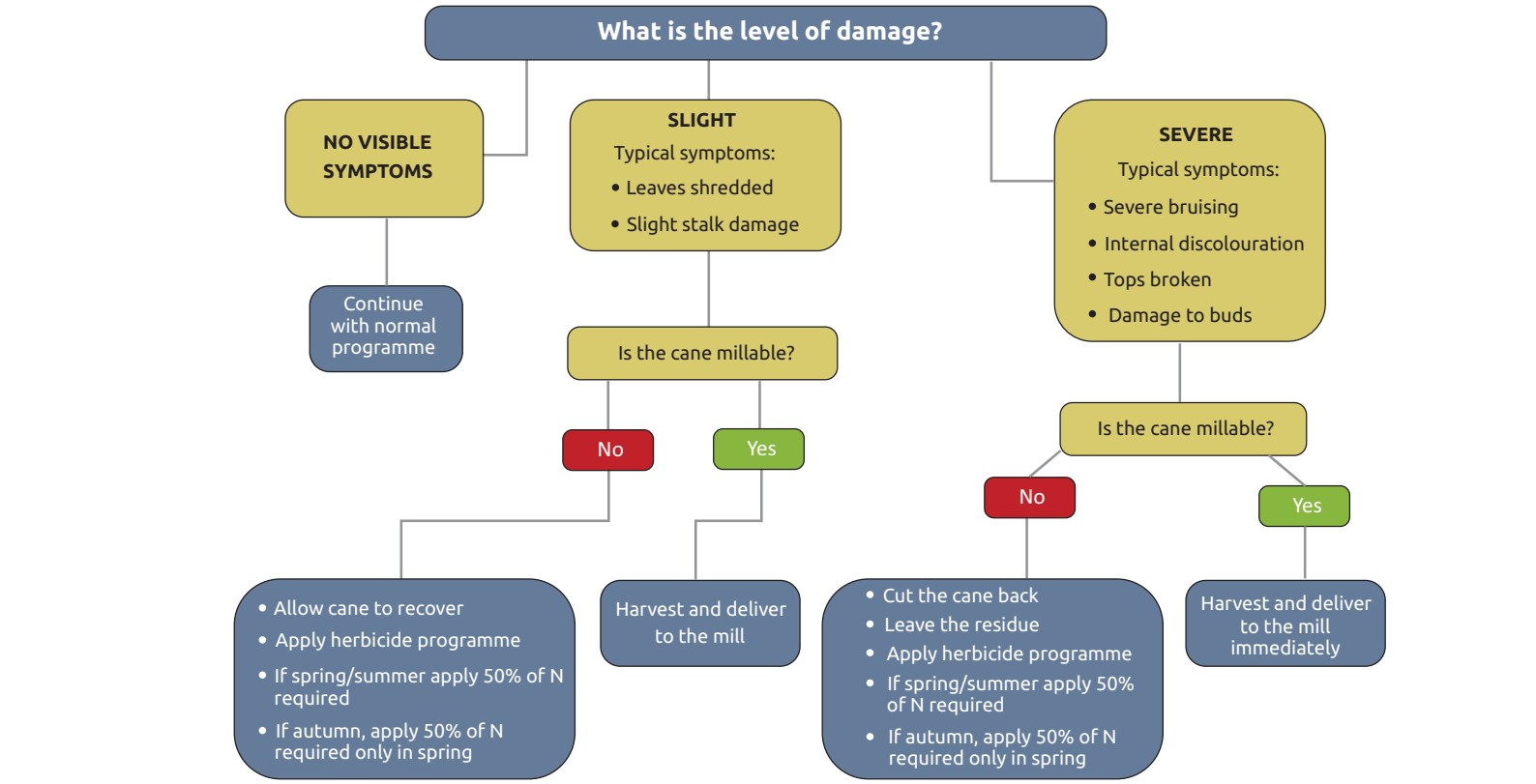
$$\text{Loss in RV\%} = \frac{5 \times 12}{100}$$
$$= 0.6\%$$

Therefore the **final RV%** with damage will be
12% - 0.6% = 11.4%

Management decision tree: hail damaged cane

The decision tree shown below has been developed to assist growers affected by either slight or severe hail damage. Please contact your local SASRI Extension Specialist if assistance in managing hail damaged cane is required.

by Alana Eksteen
(Crop Scientist: Agronomy)



Hoe om haelbeskadigde suikerriet te bestuur

deur Alana Eksteen
(Gewas wetenskaplike: Agronomie)

'n Haelstorm het die potensiaal om 'n groot afname in opbrengs asook in die herwinbare waarde persentasie (HW% of RV%) van suikerriet te veroorsaak. Selfs al wissel haelskade van een land of streek na die volgende, is daar algemene gevolge van haelskade op suikerriet wat voorsiening maak vir gesamentlike evaluering.

Hoe om haelskade in suikerriet te evalueer

Dit is raadsaam om vir ten minste vyf dae na 'n haelstorm te wag voordat die omvang van die skade beraam word. Dit sal nodig wees om te kyk of daar nuwe groei op die onbeskadigde groeipunte is. Suikerriet stamme kan ook in die lengte deurgesny word om te bepaal hoeveel skade daar aan die groeipunte is en of daar enige verkleuring in die stamme teenwoordig is.

Hoe affekteer hael die groei van suikerriet?

Die hoeveelheid blaaroppervlakte in 'n land bepaal die oespotensiaal van die gewas, want die groen blare produseer biomassa. Hael kan groen blare beskadig en verminder dus die hoeveelheid beskikbare blaarmateriaal. Dit veroorsaak 'n verlaagde groeitempo en uiteindelik 'n verlaging in oesopbrengs. Jong riet, ongeveer drie maande oud, is die mees vatbaarste vir

Suikerriet stamme kan ook gekneus word deur haelkorrels en ernstige skade aan die stam sal dit moeilik maak vir die plant om te herstel. Stamme wat beseer is, kan ook besmet raak met 'n aantal swampatogene wat die sukrose-inhoud en sap suiwerheid kan verminder.

Hoe beïnvloed haelskade HW% (RV%)?

Om te bepaal hoe haelskade die persentasie HW (RV%) beïnvloed moet 10 – 20 stammonsters per land geneem word. Die stamme word in die lengte deur gesny om die persentasie stamlengte rooi (SLR%) te bepaal. Hoe hoër die SLR% is, hoe groter is die negatiewe impak op HW% (SLR%), byvoorbeeld 1% SLR = 1% vermindering in HW% (RV%).

Dus, om die persentasie verlies in HW% (RV%) te bepaal met in ag neming van die SLR%, kan die volgende vergelyking gebruik word:
Verlies in HW% (RV%) = SLR% X HW% (RV%)

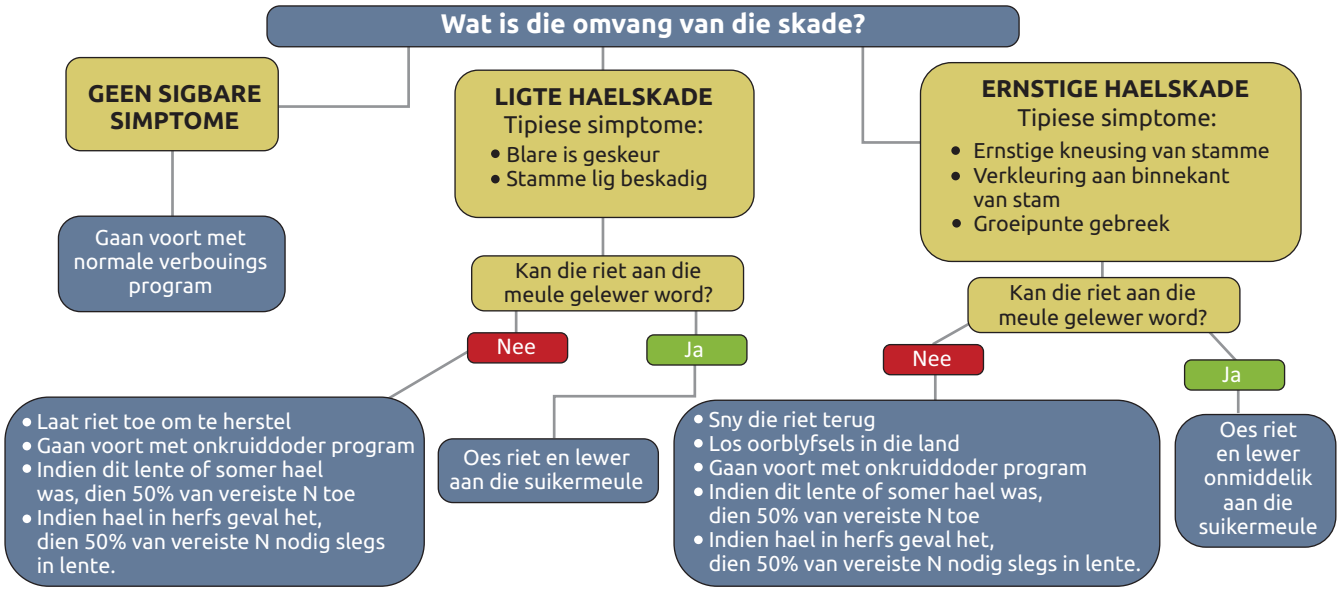
Byvoorbeeld: As HW% (RV%) gewoonlik 12% is en die SLR% na 'n haelstorm 5% is, kan die verlies as volg bepaal word:

$$\text{Verlies in HW\% (RV\%)} = \frac{5 \times 12}{100} = 0.6\%$$

Die **finale HW% (RV%)** met haelskade sal dus 12% - 0.6% = 11.4% wees.

Bestuursbesluitnemings hulpbron: haelbeskadigde suikerriet

'n Bestuursbesluitneming hulpbron is deur SASRI ontwerp om rietkwekers te help met besluitneming ten opsigte van wat hulle te doen staan na ligte of swaar haelskade. Kontak asseblief u naaste SASRI voorligtingsbeampte indien u hulp nodig het met die bestuur van suikerriet wat deur hael beskadig is.



Sustainable Practices
of a North Coast Grower

In a country where rainfall only meets half the world's average, South Africa's likelihood of a drought or dry spell is not uncommon. The occurrences of such weather events result in an increased risk of crop water stress due to drying soils. In order to minimise soil-water loss and thus crop stress, growers are encouraged to keep their soils covered. Allowing agricultural soils to remain bare has a negative impact on soil ecology, physical characteristics and chemistry.

The best means of soil cover in the sugar industry is the spreading of crop residues during green cane harvesting. The benefits of such a practice are immense and apart from reducing crop water stress, it reduces soil erosion and suppresses weed growth.

The average annual rainfall for South Africa is 450mm (compared to a global average of 860mm)

Dieter Lütge, is a grower on the KwaZulu-Natal North Coast who manages Savanna Dancer, Class A and KJM Schmidt Estate as a 600 ha family farm. The three farms have a history of 40 years of green cane harvesting – a practice that was started by the previous owners. Dieter has continued this practice enthusiastically as he believes the farm has thrived on the successes of mulching for decades.The soil on the farm are predominantly derived from Dwyka Tillite, giving rise to shallow soils with limited water holding capacity. With frequent dry conditions, such soil forms are a recipe for water stress and resultant lower yields. However, Dieter believes that due to repeated mulching practices, this is not the case. Except when replanting, all fields on the farm are harvested green with a crop residue layer remaining after harvest. This practice has contributed to years of high yielding good quality cane. Some of the best fields on this farm have yielded approximately 100 tons of cane per hectare.

Good variety management is key

All farms have a wide variety disposition. Some of the varieties grown here include N36, N39, N51, and a few other coastal varieties. This is a very important aspect when farming as a good spread of varieties reduces the impact of a pest or disease incursion, as well as improved suitability to the different soil types on the farm. Arranging varieties according to harvest age also ensures that there is cane for harvesting in both the late and early seasons, allowing growers to maximise on the milling season. One of the more successful fields on the farm is planted with the variety N12.

continued on overleaf...

This field has an astounding record of 16 ratoons. Despite showing slight symptoms of drought exposure – shorter internodes at the base of the stalk – this field was filled with cane taller and even greener than the younger fields around it. Dieter believes much of this variety's success is due to years of green cane harvesting.

Recently, Dieter has decided to introduce N41 to his farm. Planting began in November 2014 and filtercake was used as a source of organic matter to further enrich the soil. Although N41 is not suitable for these soils, one would beg to differ. Driving through this field of six month old cane, N41 was looking healthy and, despite a few dry leaves at the base, seems to be growing so well that Dieter has labelled the field his "pride and joy". Good management practices and decades of keeping the soil healthy with adequate crop cover has allowed this variety to root itself firmly in this field, despite the drought weather and shallow sandy soils.

Nutrition

Since attending SASRI's Senior Certificate Course in Sugarcane Agriculture, Dieter has realised the significance of soil sampling. His soils are sampled every second year and analysed by SASRI's Fertiliser Advisory Service (FAS). This has assisted him with many nutrient decisions including lime and gypsum recommendations as well as nitrogen requirements. Dieter fertilises all his fields with LAN, which is the preferred nitrogen fertiliser as it has reduced risk of volatilisation.

Tackling the pressures of pests and diseases using an integrated approach

Due to the effects of the recent drought, the industry is seeing a rapid increase in eldana infestations. SASRI recommends a fully integrated system of defence (IPM) in order to curb this invasion and reduce numbers. Dieter's farm is no stranger to these invaders. Some of the worst affected parts of his farm during this severe period of drought saw extremely thin cane stalks and average RV's as low as 6%. However, this hasn't deterred Dieter.

Being a man passionate about the environment and conservation of natural habitats, he had decided to implement the 'push-pull' system for eldana control. Waterways adjacent to the cane fields have been planted with Papyrus (*Cyperus papyrus*) and in the next few months he plans on planting melinis grass. These two plants will together create the 'push-pull' system. The papyrus plants are already showing the potential to serve as good 'pull' plants as live eldana larvae have been found in the flower heads.

> SASRI recommends a fully integrated system of defence (IPM)

Due to the severity of the infestation he has also implemented a spray programme. Fastac® is sprayed on carryover cane in an attempt to control the problem as much as possible. Whilst this hasn't completely eradicated the problem, it certainly has contributed to reducing the population on his farm.

Alien plant control

Alien invasive plants are also no stranger to Dieter. For alien weed control, Dieter has employed a team to identify and treat the weeds on his farm. This team comprises of three staff members who are specifically tasked with scouting out alien plants in sugarcane fields and surrounding areas. These unwanted plants are then manually removed or, in the case of severe infestations, sprayed with a registered herbicide treatment.

Investing in the future

Many years ago, the family began teaching a small group of the farm worker's children as they were unable to afford transportation to schools. As the years went on, this small group of students grew into a larger number, prompting the building of a school. This school is now a fully-fledged government school which Dieter assists by providing all the necessary amenities for the up-keep of this facility. Bongimfundo is now a successful school with a principal, an admin assistant, four teachers, 141 students and a fully-equiped computer room. It is attended by the farm worker's children as well as other children from the area. Combined classes are offered from grade R up to grade 7.

Dieter is also mindful about the well-being of all his staff. Housing has been provided for approximately 47 staff members and their families. This includes proper sanitation, a vegetable patch and seeds for the growing of their own produce, as well as a tuck shop to take care of their daily requirements. There are also religious facilities on site.

"The challenge of history is to recover the past and introduce it to the present". *David Thelen*

One of Dieter's personal hobbies is the collection and restoration of antique farming tools and equipment. He has amassed a vast assortment of these antiques which he stores in a building that has been converted into a museum – open to public viewing. Here at the Rudolf Dittrich Museum, Dieter has everything from sickle shaped knives and timber saws to a a folding camera and even a wooden two-wheel ox-drawn plough.

While Dieter places much value on the restoration of the past, this effort is juxtaposed with a keen interest in embracing new technology and practices that have stood the test of time. Dieter embraces many of the best management practices promoted by the sugar industry's farm management system, SUSFARMS®. His principles lie in his employee's well-being (the People Principle), conservation of natural resources (the Planet Principle) and consequently 'Profit'.

So, what does the future hold?

Recently, Dieter has acquired a neighboring farm. The farm is in a neglected state and contains fields riddled with mixed varieties, low quality cane and weeds. This farm will be a 10 year project and will also serve as an excellent comparison to confirm his current green cane harvesting practices. He also plans to rehabilitate much of the natural vegetation in and around both his farms and conserve the natural birdlife, in particular, a nest of fish eagles.

We wish Dieter well for the future and continue to support him and other growers who are striving to produce cane in a sustainable and profitable manner in the face of some extremely tough drought conditions.

by SASRI Knowledge Management Team

Dieter appeals to all growers who want to get rid of their old farm implements or equipment to please donate them to the on-farm Rudolf Dittrich museum. For Dieter's contact details please email pubs@sugar.org.za.

Out & About

with SASRI staff...

The SASRI breeding programme is the largest sugarcane variety breeding programme in southern Africa. It is a complex operation involving several stages of crossing, selecting and releasing varieties over a number of years. Furthermore, the programme is responsible for planting, managing and monitoring several thousand sugarcane plants on five research farms in the regions. This enables the selection of superior varieties specific to each particular region.

The plant breeding group have been very busy hosting both growers and SASRI staff on these research farms, in an attempt to illustrate not only the plant breeding process, but also some of the gains that are being made in breeding new varieties.

Pongola

In May, plant breeders, the Pongola Farm Manager and staff hosted growers on the Pongola Research farm. After a drive around the various plant breeding stages on the farm, the team drove a short way across to Kobus Horn's farm to view a released variety trial. This trial is one of two in the area aimed at testing newer varieties under commercial conditions, managed by growers. The latest information on variety performance was presented and discussed with the grower group.

At the end of the afternoon a delicious vleis braai (never complete without Pongola steak) was held under the Acacia and Marula trees.

Midlands

Towards the end of June, it was the Midlands growers' opportunity to visit the Bruynshill Research Farm. Again, the purpose of the morning session, was to introduce growers to the SASRI Plant breeding and Selection processes. This gave everyone present a better appreciation of the time and effort involved in releasing a single new variety. It also provided an opportunity to view Midlands-specific varieties that are selected under local growing conditions. Growers were shown promising varieties being considered for bulking in 2016.

A further field day was held in July. This took place at a new variety trial planted in the Table Mountain area on Donovale Farm (Anthony Edmonds). Growers in the area had the opportunity to view the harvesting of the variety trial and get a feel for how the different released varieties performed after 20 months of growth. Fourteen growers attended the field day. Variety issues for the region were discussed with SASRI's variety specialist, extension and P&D officer. Growers showed enthusiasm and interest in many of the newer varieties and are now eagerly awaiting the trial results.

Umfolozi

A successful grower event was held in the Umfolozi region at the end of June. The event was hosted by SASRI Extension Specialist Alexander Searle on two farms. Approximately 20 growers and industry patrons attended the event.

The aim of the event was to promote two new varieties (N58 and N59) as well as to endorse a greater adoption of two existing varieties (N53 and N57) in the region. The first farm (owned by Andrew & David Johnson) had varieties N53 and N57 growing on site. Both are irrigated varieties and were originally cultivated for the Irrigated North Region (Pongola and Mpumalanga). With most farms in Umfolozi being under supplementary irrigation, these varieties are also able to flourish in this region. Both have had good reports of disease resistance and have adapted well to the farm. N58 has also been cultivated on this farm in a pre-release trial.

The second farm (owned by Paul Wattam) showcased the variety N59. N58 and N59 have been officially released this year and are currently under the bulking phase on the farms. Both have been cultivated for the rainfed regions of the industry and are growing well. Very little eldana damage was noted in these varieties when compared to some of the varieties being grown adjacent to them i.e. N46 which was notably high and of concern.

Empangeni

Growers in the Empangeni area visited a variety trial being harvested at Patch Addison's farm in July. With the current drought situation being experienced in the area, it was beneficial for growers to view the performance of all varieties (NCo376, N17, N19, N27, N35, N36, N39, N41, N42, N45 and N47) that were evaluated in this trial. This was the seventh crop that was harvested.

This field visit followed a local study group meeting the day before which was also attended by SASRI variety specialists and plant breeders.

These field visits provide a valuable opportunity for growers and SASRI staff to share information on variety choice and performance in each area. It also allows for growers to view the importance of breeding varieties suited for specific conditions, upcoming varieties in their areas as well as the opportunity of gaining a greater insight into the plant breeding process.

by SASRI Extension Specialists and Plant Breeding Team

Rotating Chemicals for eldana control

Until very recently, Fastac® was the only insecticide registered for use against eldana in sugarcane. The very real danger of using a single chemical repeatedly is that it could result in eldana developing resistance to it. In fact, insecticide resistance is a long standing and expanding problem for pest control worldwide. The key to managing this problem lies in diversity of chemical use. To help in this regard, an international classification scheme has been developed which groups insecticides according to their mode of action. The general principle is that insecticide programmes should make use of chemicals from different groups on a rotational basis, and not focus on the use of chemicals from a single group.

Fortunately for sugarcane, we now have a total of four insecticides (from three risk groups) to rotate within our eldana spray programmes.

INSECTICIDE	GROUP
Fastac®	pyrethroid (Group 3)
Ampligo®	diamide + pyrethroid (Group 28 + Group 3)
Steward®	oxadiazine (Group 22)
Coragen®	diamide (Group 28)

The diamide and oxadiazine chemistries offer superior eldana control with longer residual periods and very low toxicity to beneficial insects from other insect families. The diamide group, however, appears particularly prone to the development of resistance in target pests. Worldwide, the most rapid resistance development occurred just 18 months after diamide deployment!

GUIDELINES FOR EFFECTIVE RESISTANCE MANAGEMENT

Monitor pests. Scouting is one of the key activities in the implementation of an insecticide resistance management strategy. Monitor insect population development in fields to determine if and when control measures are warranted. After treatment, continue monitoring to assess pest populations and their control.

Focus on economic thresholds. Insecticides should be used only if insects are numerous enough to cause economic losses that exceed the cost of the insecticide plus application.

Do not reduce rates. Follow recommended timing of applications and spray volumes.

Rotate insecticide groups. Avoid exclusive repeated use of insecticides from the same chemical group.

Avoid treating two consecutive insect generations with a chemical from the same group (the average generation time for eldana is 60-days).

Multiple successive applications of chemicals from the same group are acceptable if they are used to treat a single insect generation i.e. within a defined window of 60-days.

- Coragen®: has 60-days residual + a 60-day window = minimum four months between Coragen® applications. These applications can be targeted to moth peaks when greatest efficacy is expected.
- Ampligo® and Steward® both have 30-days residuals and can be re-applied 30-days after the first application since both applications and their residuals would then occur within the same 60-day window. Thereafter a 60-day window of diamide or oxadiazine non-use would apply.

If a diamide was used in the final treatment before cutting a crop, a diamide should not be used for the first treatment on the next crop i.e. use an alternative in August.

Incorporate IPM practices into your pest control programme.

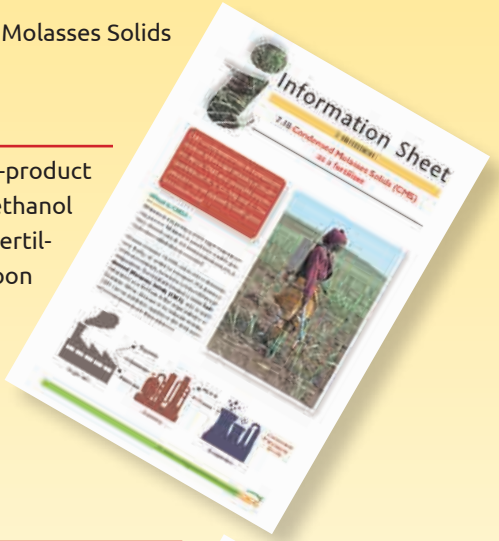
Combine the use of insecticides with other control methods. These include, among others, correct choice of variety, good soil and crop management practices, such as correcting subsoil acidity, careful fertiliser applications, good field hygiene and habitat management ('push-pull').

by Stuart Rutherford
(Senior Scientist: Pathology) ***and***
Jonty Ross *(Farmers Agri-Care (Pty) (Ltd)*

NEW

Information Sheets

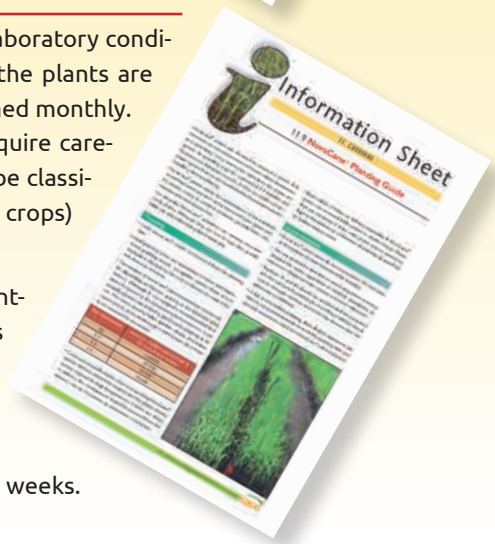
Two new information sheets have been published. The first is on Condensed Molasses Solids (CMS) and the second on NovaCane® planting guidelines.



7.18 Condensed Molasses Solids (CMS) as a fertiliser

CMS is a commonly used potassium fertiliser made from concentrating the by-product vinasse. Vinasse is a nutrient-rich waste material from the production of ethanol using molasses as a substrate. CMS fortified with N and P, is widely used as fertiliser in the sugar industry. The product may be applied to both plant and ratoon cane.

The new CMS information sheet provides further information on the nutrient content of CMS as well as how to apply CMS on your farm. There is also information on application rates, the fortification process and cautionary measures to adhere to during the application process.



11.9 NovaCane® Planting Guide

NovaCane® plants are disease-free plants that have been cultivated under laboratory conditions by means of tissue culture techniques. After leaving the laboratory, the plants are grown in speedling trays for a period of 3-5 months and the leaves are trimmed monthly. As they are similar to transplants grown from single-budded setts, they require careful handling during planting. NovaCane® plants satisfy the requirements to be classified as Certified Seedcane and can be harvested twice (plant and 1st ratoon crops) provided the cane remains pest and disease free.

The new information sheet on NovaCane® outlines the recommended planting guidelines you need to follow once acquiring your NovaCane® plants. This includes planning of your field layout, preparing the soil, the planting requirements and how to ensure reduced weed growth.

Both these information sheets will be posted to all growers in the coming weeks. For more information please contact your local Extension Specialist.

Meet SASRI's new Extension and Biosecurity Manager

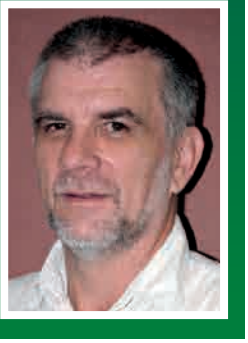
Rowan Stranack is the new SASRI Extension and Biosecurity Manager. He replaces Geoff Maher who resigned at the end of May to relocate to the UK.

Rowan is no stranger to the sugar industry; he has been with SASRI since February 1982 when he joined as a Pest and Disease Officer. He later served as Extension Officer in the Midlands, then Regional Extension Manager for the North Coast and Midlands, and more recently as Biorisk Manager.

As Biorisk Manager, Rowan's role has been pivotal in strengthening relationships, clarifying industry needs and being instrumental in the successful implementation of the required structures to ensure effective pest and disease management for the industry.

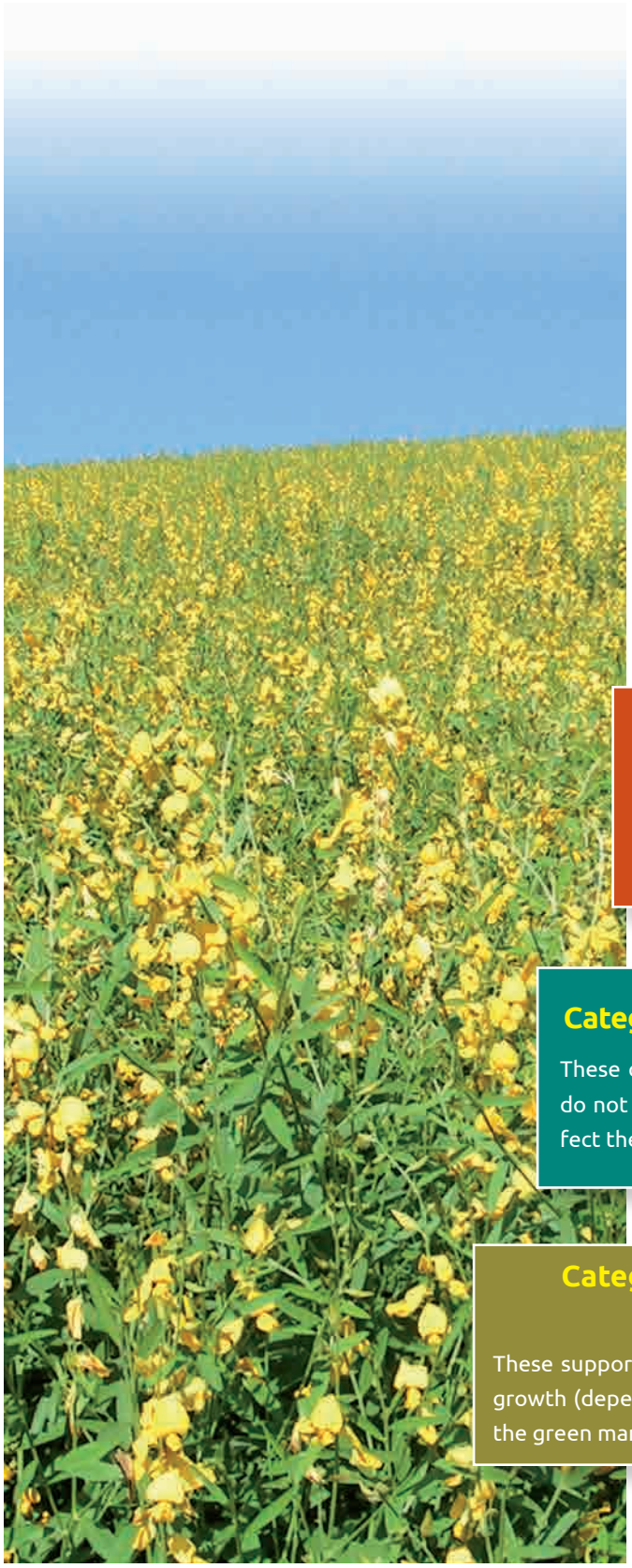
Rowan assumed the management of the combined Extension and Biosecurity service with effect from 1 June 2015.

He holds a Bachelor of Agricultural Management, Honours degree from University of Natal (Pietermaritzburg). He also has qualifications in Plant and Resource Technology and numerous certifications over the years.



Contact Details:
Rowan Stranack (SASRI Extension and Biosecurity Manager)
Email: Rowan.Stranack@sugar.org.za
Phone: 031 508 7459

Impact of Green Manures on Nematode Control



Green manuring is widely promoted in the sugar industry due to its beneficial effects on cane yield and soil health. In addition, it has also been shown to have positive outcomes for pest and disease control including nematode control.

In the current economic climate it is important to constantly find ways to reduce costs. Deriving maximum benefit out of each farming practice is an excellent way of doing this. One such example is the use of green manures to control nematodes. If the correct green manure is chosen, it can help control nematodes which may eliminate the need for a nematicide in the plant crop. Conversely, choosing the incorrect green manure could lead to an increase in nematode numbers and have adverse effects on cane crop growth.

Green manures can fall into 1 of 3 categories.

Category 1: Those that reduce plant parasitic nematode numbers in the soil.

This can be due to the plant either being a non-host or to the plant secreting a toxic compound that kills the nematodes. This is usually beneficial to the subsequent cane crop.

Category 2: Those that are tolerant to nematodes.

These crops allow multiplication of nematodes but the nematodes do not adversely affect their growth. It can, however, negatively affect the subsequent cane crop.

Category 3: Crops that are suitable hosts for nematodes.

These support high numbers of nematodes that can adversely affect their growth (depending on the cultivar). Nematodes must thus be controlled in the green manure crop and possibly in the subsequent cane crop too.

CATEGORY 1:

Crop does not support high numbers of nematodes. Nematodes will not affect growth of green manure. Can help to reduce nematode numbers and protect subsequent cane crop.

CATEGORY 2:

Crop will support high numbers of nematodes. Nematodes will not affect growth of green manure. However, it can increase numbers in the soil thus negatively affecting the subsequent cane crop.

CATEGORY 3:

Crop will support medium to high numbers of nematodes. Nematodes can affect growth of green manure (depending on cultivar) and subsequent cane crop.

SUMMARY: Summer crops

Property	LEGUMES					NON-LEGUMES		
	Sunn hemp	Velvet beans	Cowpeas	Dolichos beans	Soybeans	Forage sorghum	Babala	Buckwheat
Nematode susceptibility	Low	Low	High infestation (but tolerant)	Low	Medium to high	Low	High infestation (but tolerant)	Low

SUMMARY: Winter crops

Property	LEGUMES			NON-LEGUMES
	Serradella	Grazing vetch	Lupins	Black & White oats
Nematode susceptibility	Low	High infestation (but tolerant)	High infestation (but tolerant)	Low

Figure 1. Common green manure crops recommended for use in the South African sugar industry and their associated nematode susceptibility (see SASRI Information Sheet 14.2 Green manuring).

Figure 1 summarises the nematode susceptibility of various green manure crops used in the South African sugar industry and can be used to assist with green manure choice.

Knowing what effect a green manure has on nematodes is critical not only when choosing a green manure but also when the subsequent cane crop is planted, especially in a sandy soil. If the green manure has reduced nematode numbers, then it may possible to avoid nematicide application in the plant crop. The reduction in nematode numbers caused by the green manure crop will protect the cane plant during the early stages of growth. By the time the nematode numbers increase again, the plant will be well established and able to withstand the damage. Treatment with a nematicide works on the same principle. However, as nematode numbers will increase over time, a nematicide will still have to be applied in the subsequent ratoons. Similarly, if the green manure has increased nematode numbers, it is essential that a nematicide be used when cane is planted (in sandy soils) to avoid nematode damage. However, it is preferable to avoid planting such green manures, if possible, in sandy soils.

One must be cautioned that controlling nematodes using green manuring, like any other biological system, may not always be consistent. It is therefore advisable to take a soil sample for nematodes from your green manure at least one month before planting cane and send it to the Nematology laboratory at SASRI for testing. This will allow enough time to receive the results and make an informed decision regarding nematicide application before planting.

by Prabashnie Ramouthar
(Nematologist)

It Wasn't Me!!!

Over the past two years, in late spring (October through to November), dead hearts were noticed in newly planted sugarcane, especially in heavier soils along the KZN North Coast. In some cases whole fields were affected, and new transplants had to be sourced and planted, or stalks used for gap filling.

Above: A young sugarcane plant with a dead heart.

Above: A badly infested field.

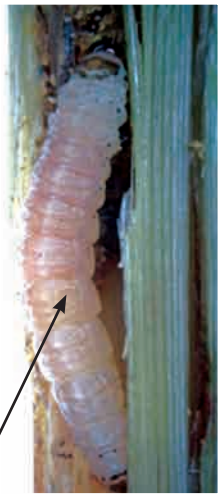
"Eldana, Eldana!!!" were the frantic calls I got from the different affected regions. When I got to the fields to investigate, I found out that eldana was not the culprit, and like that popular song "It wasn't me", eldana was desperately trying to say this!!

Eldana does attack young sugarcane, causing dead hearts, particularly if infested seedcane is used, or in the case of ratoons, if a significant population remains in stools below ground after harvest. A number of other insects do similar kinds of damage. These include a moth borer, *Sesamia calamistis*, more commonly known as a "pink borer" because of the colour of the larva; and a black beetle, *Heteronychus licas*, a white grub species, whose larvae also cause damage to sugarcane roots. All three insects cause dead heart symptoms in young sugarcane but enter and feed on the plant differently. Careful inspection above and below ground will identify which pest has caused the damaged.

If one finds a lot of frass, looking like saw dust, around the base of the tiller with a dead heart, then it is most likely eldana causing the damage (see below).

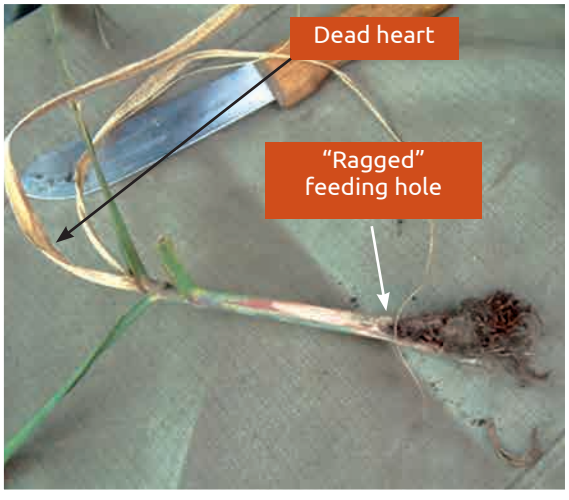
If the tiller with the dead heart is carefully removed, from below soil level, a cleanly cut hole will be found at the base of the tiller, and if the tiller is dissected an eldana larva may be found.

If a dead heart is found, and there is no frass, but when the tiller is removed, a clean cut hole is found, then it is *Sesamia calamistis* that is the culprit.



Pink borer,
Sesamia calamistis

If a dead heart is found, and there is no frass, and when the tiller is removed the hole you find has a very "tattered" appearance around its entrance, then it is caused by the adult beetle of the white grub *Heteronychus licas*. They chew the hole in line with the seedling meristem, and then feed on the meristem, thus causing the dead heart. It is unlikely that a beetle will be found in their feeding hole, but by digging around close to the affected seedling, beetles will be found hiding just beneath the soil surface.



Heteronychus licas,
adult beetle

This was the major culprit causing the damage reported in the previous springs. Keep an eye open for it, and please let us know if you have infestations. SASRI is currently researching the development of an effective biocide against the white grub species.

Even though the damage you will find in your fields may well be caused by eldana, you are urged to scout your sugarcane fields to confirm this prior to commencing your spray programme.

by Des Conlong
(Senior Entomologist)

Weather

Review

Most regions experienced very low rainfall for the period from March to June 2015 (Fig. 1), a trend which dates back to April 2014. Although excellent rainfall was received in July for most of the KwaZulu-Natal regions, total rainfall for the past 16 months remained well below the long-term mean in all the regions (Table 1).

The prolonged and widespread drought has caused severe yield losses in the 2015 rainfed crop and will also impact negatively on the 2016 yields. Growers are encouraged to implement management practices that maximise water use efficiency such as using crop residue layers to conserve soil moisture and improving/maintaining soil health to promote good rooting.

Yields in the northern irrigated regions are reasonably good, but irrigation water supply remained critically low in the Pongola, Umfolozi and Felixton mill supply areas.

Winter temperatures were generally mild and frost damage in the Midlands areas was minimal compared to that of 2014.

Outlook

The El Niño-Southern Oscillation (ENSO) system is currently in a moderate El Niño phase and is expected to strengthen as summer approaches and last through to early 2016. The El Niño phase of ENSO is associated with higher probabilities of below normal summer (December to March) rainfall over eastern parts of South Africa, including the sugar belt. However, current forecasts for spring and early summer rainfall (October to December 2015) are somewhat inconsistent. The South African Weather Service (SAWS) predicts above average rainfall for this period, while the International Research Institute for Climate and Society expects normal rainfall and the European Centre for Medium-Range Weather Forecasts predicts strongly below normal rainfall.

Please visit the SASRI WeatherWeb on the website (www.sugar.org.za/sasri) for links to up-to- date seasonal climate forecasts and also for the latest rainfall and other weather data.

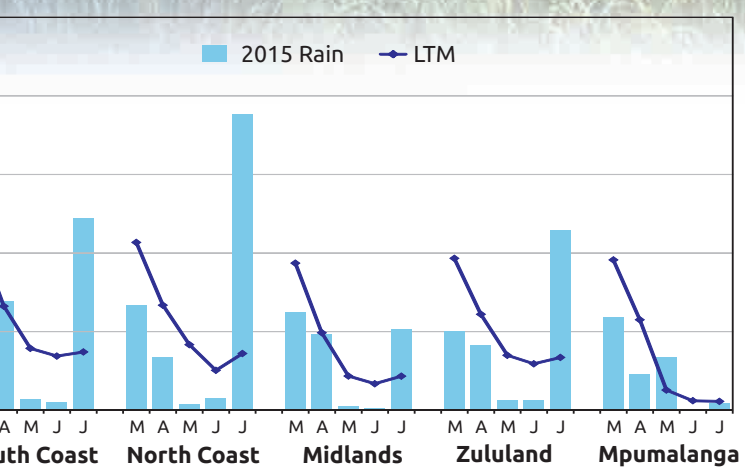


Figure 1. Regional average monthly total rainfall and the monthly long term means (LTM) for March to July 2015.

Table 1. Regional and industry average total rainfall for the past 16 months (March 2014 to July 2015) compared to the long-term mean (LTM) rainfall for the same period.

Region	Total Rain (mm)	LTM Rain (mm)	Percent of LTM (%)
South Coast	817	1186	69
North Coast	836	1187	70
Midlands	681	943	72
Zululand	670	1071	63
Mpumalanga	672	821	82
Industry	731	1056	69

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