May 2019 Volume 28. Number 2

Yellow Sugarcane Aphid

THE

In this issue...

Wat is die Vier Ks?

Die vier Ks bevorder belangrike bestuursbeginsels vir gewasvoedingsbestuur en is gebaseer op die korrekte toepassing van hierdie vier beginsels. **(bladsy 10)**



Land Restitution Farming Success

The Mahlalela Community Trust in Pongola has managed to overcome several challenges through the mentorship of SASRI Extension & Biosecurity, resulting in a Land Reform success story **(page 20)**



New publication alert!

SASRI has launched new publications on general farming practices and sugarcane pests. If you havent received them in the post, then please collect from your nearest Extension office **(page 13)**





Infestations of Yellow Sugarcane Aphid (YSA) have become more frequent in the industry, especially on the North Coast. Growers are strongly advised to scout for this pest throughout the year as it can cause devastating crop losses in a short space of time. SASRI advises a rigorous integrated pest management programme which includes chemical control, encouraging beneficial insects and planting YSA resistant varieties **(Page 14)**





DIRECTOR'S MESSAGE

🖉 Dr Carolyn Baker

There are three pressing and topical technical issues that SASRI is dealing with at present: survival of the Fertiliser Advisory Service (FAS) agricultural laboratory, seedcane supply and pest management.

FAS Agricultural Laboratory

The SASRI-FAS Agricultural Laboratory is a unique service in that it represents the only analytical soils laboratory offering customised recommendations for sugarcane growers based on the status of their farms. The advice offered is backed by national and international research as well as scientific analyses that are based on calibrated information. This research has taken into account climate, environmental sustainability and the cost to growers in terms of only applying as much fertiliser as the crop needs. This is a huge advantage in terms of fertiliser management as it does indeed cost the grower less by using FAS. In operation since 1954, the FAS has benefitted from its close association with the crop nutrition and soils research programmes at SASRI, which has enabled continuous improvement in its analytical methodology and technology.

Sadly, the marked decline in samples since 2015 has placed the laboratory in a precarious situation that could ultimately lead to its closure. In recent times, diversification into other crop analyses and competitive pricing have not seen a substantial increase in the receipt of samples. The reasons for this are varied, ranging from declining grower profitability to increasing competition from other service providers.

FAS's very competitive pricing structure was designed to encourage submission of soil samples to the lab, but unfortunately this has affected the longer-term sustainability of the service. As a user pays entity, FAS is not subsidised by SASRI's core budget, and it has become necessary to increase the cost of analyses quite significantly in the forthcoming season. The only way that such an increase could be avoided, would be for the FAS to receive a substantial increase in sample submissions.

With the survival of the FAS now at stake, we appeal to all sugarcane growers to use the service that was designed specifically for them. Should the industry lose this service, there will be dire consequences for sugarcane agriculture as no other service offers a package as robust, unbiased and environmentally sound as FAS. Their Sixty-years of valuable research and tireless service to the industry would be lost and the negative effect on sugar production will only be realised in the long-term.







Seedcane management

The foundation of our sugar industry resides in production of a healthy and sustainable crop. Because of its vegetative nature and the number of ratoons that can be achieved from each plant crop, sugarcane is an extremely cost effective crop. It is for this very reason that investing at the outset in good quality seedcane is essential.

In all sugarcane industries throughout the world, it is recognised that planting good quality and disease-free seedcane is a prerequisite for a healthy crop. Consequently, in each industry there are guidelines associated with production and use of seedcane that are all based on a similar model. In our industry, as a tool for enabling improved productivity, quality seedcane has no equal and is possibly the best investment any grower can make. In the January 2019 special edition of the Link, this subject was fully explored, and the entire issue was devoted to the subject of seedcane, making it one of the most valuable reference sources for all growers seeking to learn more about this subject.

Pest management

The recent warm and wet weather conditions have been ideal for pests to multiply. Considerable effort has been placed on monitoring the longhorn beetle infestations in the Entumeni area. In addition, there is currently engagement with growers, particularly on the north coast, that have been severely affected by yellow sugarcane aphid. This latter pest that has wreaked considerable havoc in the Zambian industry, was the subject of a panel discussion at the recent RD&E meeting that was held at SASA. Since its detection in our industry in 2013, SASRI specialists have conducted research and facilitated registration of aphicides designed to contain the pest. To date, varietal resistance has been addressed, yield loss trials are ongoing, and its role in potentially transmitting sugarcane mosaic virus has been established. The importance of early detection and immediate treatment of aphid patches has been emphasised in order to prevent spread. More recently, industry rules that make provision for compulsory spraying have been gazetted. SASRI has committed to providing the LPD&VCCs with clear and explicit instructions relating to the actions required for scouting and monitoring, as well as guidelines regarding the assessment of infestations, both spatially and in intensity. These will influence application of remedial measures.





Topical tips

Rowan Stranack (Extension and Biosecurity Manager)

In this tough economic climate, one of the most effective ways to remain in business is to farm smarter. One of the key aspects is to ensure you get the 'basics' right. Fortunately, many of these 'basics' do not necessarily involve spending money. By investing more time in managing and streamlining processes on the farm, considerable reward can be gained. For example, attention to cane quality, crop maturity, height of topping, base cutting and minimising delays wherever possible are all relatively 'quick wins' with considerable financial reward.

For another relatively inexpensive 'quick win', consider the fact that having untrained staff can result in unnecessary additional costs, wastage and damage to equipment, all of which growers can illafford at this time. Consult the Shukela Training Centre (031 508 7700) for a list of courses available to farm staff.

Pests and diseases

- In eldana-prone areas, start planning your insecticide spray programme on carry-over cane. Growers must regularly scout their cane. This will allow a good sense very early of which fields will require a spray programme.
- Yellow sugarcane aphid has been particularly widespread and damaging this year. Thorough and careful scouting followed by prompt spraying where appropriate is probably the only effective way of keeping this pest in check in the short-term. However, growers are encouraged to use an IPM approach for longer-term control. See article on page 14.
- Fields for replanting should be tested for RSD prior to harvest. If found positive, these fields need a long fallow of at least a year. Plant a low-growing green manure or cash crop during the fallow so that volunteers can be easily identified and removed. Fields tested positive for RSD must not be used as seedcane nurseries.
- Seedcane requirements need to be planned far in advance. For example, commercial fields replanted in 2021 require their nucleus certified hot watertreated seedcane to be planted in spring 2019. This will ensure that seedcane is ready for planting into an approved on-farm seedcane nursery in 2020 and thereafter, into commercial fields the following year in 2021.

Far too many growers leave their seedcane requirements to the last minute. If they are lucky enough to find seedcane, its is probably not going to be the most suitable variety. The cost of being forced to plant the wrong variety and the benefits gained by planting the right variety are significant.



Weeds

- Public enemy number one, in many parts of the industry, is *Cynodon dactylon*. This aggressive creeping grass, if left unchecked, will eventually smother the cane, forcing an early replant. Small patches of this grass and encroachments from the field edges must be controlled. Repeated sprays of glyphosate are the only effective means of control at this stage. In winter, after fields have been cut, identify patches of grasses that have gone unnoticed. This is the best time to carry out this practice and to allow for early treatment once the grass greens up. Consult your SASRI Extension Specialist for advice on this procedure.
- Careful, strategic application of herbicides in the winter and early spring can buy time for later when weed growth begins in earnest. Use your Herbicide Selector to plan your chemical weed control programme well in advance. Download the Herbicide Selector from the SASRI website (www.sasri.org.za).



Nutrition

Soil sampling done immediately after harvest will

ensure results are received in time for lime and other soil amelioration to be carried out, as well as for an adequate fallow period prior to planting later in the year. In plant fields, take samples of topsoil AND subsoil layers (0-20; 20-40; 40-60 and 60-80 cm) to determine if subsoil acidity problems exist.

- To check the salinity/sodicity levels in the soil, the sampling depth advised is 0-30; 30-60 and 60-90 cm.
- Remember to send your samples to the SASRI FAS Agricultural Laboratory for well-researched, unbiased, detailed and cost effective fertiliser recommendations - it does indeed "COST YOU LESS WITH FAS".



Soil conservation

- Winter is the only time of the year when maintenance of soil conservation structures should be carried out. The reduced risk of heavy rains allows conservation terraces and roads to be worked on with enough time to stabilise before the onset of the spring rains.
- Ideally, waterways should also be constructed in winter of the previous season, before a field is re-established. In doing so provides a stable channel to deal with any additional runoff that could occur when the field is being replanted.



LONGHORN BEETLE Update

The incursion of the longhorn beetle (*Cacosceles newmannii*) into the South African sugar industry in the Entumeni district in Zululand necessitated one of the most extensive containment exercises ever launched by this industry.

First identified in October 2015, efforts to contain the incursion have focused on eradicating fields of sugarcane where the pest was found, as well as other adjacent fields considered high risk. Once the sugarcane was removed, a cover crop was planted with the hope that with an extended fallow of at least two years, populations will be reduced sufficiently not to pose a threat to the industry. The cover crops planted were mainly permanent pasture that had been deemed unsuitable to effectively support the lifecycle of the pest. During 2017 and 2018, when most of the crop eradication was completed, a total of 1130 hectares of sugarcane had been removed. The success of this effort can perhaps be measured by the fact that in 2018, only two additional fields were found to be infested, and these were both within the greater containment area.

Another measure of the effectiveness of containment is the extent of emergence of adult beetles. This occurs from around January to March each year. In February 2018, there was a limited emergence from one of the previously infested fields. This year in late February and March there was another emergence of beetles also mostly from a single previously infested field.

Research work is now focused on identifying and producing a pheromone to lure male beetles to traps either placed in different vegetation types to help identify their indigenous host plants (to obtain more information on their ecology), and/or as a trap and kill strategy, linked to poisoned baits. These two options are likely to be key elements in the future control of this pest, reducing breeding populations in sugarcane significantly.

Afrikaanse Incertane 10 Jepladsy P Getting the **best** out of your **dress!**

The Four Cs of Nutrient Management

🖉 Louis Titshall (Senior Soil Scientist), Marius Adendorff (Extension Specialist), Sandile Mthimkhulu (Assistant Research Officer)

Things are looking a bit tight at the moment. We have just come off the back of a drought, with some areas still recovering, sugar pricing and taxes are not favourable, and there seems to be a never-ending series of fuel price hikes. All of these factors make it difficult to sustain and profit from sugarcane production. It is during these times that growers tend to cut costs on essential farming aspects of their operation to save money. Often, the first cut is to reduce, and sometimes, completely stop the nutrient management programme. This can have major consequences on future production and yields during a time when maximum gains are needed to offset poor economic drivers.

The detail of 'what to use', 'how much to use, 'when to use it', and 'where to put it' form the basis of the "Four Cs" of nutrition management.

When used appropriately these principles have the capacity to lower fertiliser costs, reduce nutrient losses and optimise crop use, thus benefitting yields. While each principle can be viewed on its own, the true value is only realised when they are combined into a holistic nutrition management plan.



If you plan your fertiliser programme considering the 4Cs, you have the makings of a solid nutrient management programme.



Correct SOURCE of nutrient

Simply, this refers to ensuring the most appropriate form of a particular nutrient is used. This is achieved by selecting certain types of fertiliser. It sounds simple enough, but there are considerations:

- Does my choice supply the right combination of nutrients in a form that is readily available to the plant (does it address all deficiencies)?
- Does the product suit my soil type and characteristics (will there be immobilisation or volatilisation of nutrients, will the soil pH be affected)?
- What else am I getting in my fertiliser (nonnutritive components, toxic compounds)?
- What operational systems do I have in place to deal with different fertilisers (granules, liquids and placement issues)?

Correct PLACEMENT of nutrient

A key intention of applying any nutrient to soil is to ensure that the nutrient is readily available to the plant root. For this to happen, nutrients must be in close proximity to the growing roots. For nutrients with low mobility, it is often better to apply near the growing root system (such as banding for P and K). However, too much nutrient around the root can also cause problems, such as root scorch with too much KCl. At a larger scale (such as across the field), placement can help control variability in that field, this being the basis of many precision fertilisation schemes. Placement also plays a role in controlling losses, where incorporation or subsurface application losses more than surface only applications. The main considerations are:

- The nature of the root growth of your crop (root dynamics).
- Soil-fertiliser dynamics that influence chemical reactions in the soil.
- Equipment and capacity to undertake different placement practices.
- Spatial variation requiring different rates in different places.
- Risk of erosion or volatilisation losses if surface applied.

Correct RATE of nutrient

The crop requires a certain level of plant available nutrients to grow and produce a good yield. However, there will be variations in the levels of nutrients in different soils. These variations can be the result of inherent soil properties (parent material) or due to farming activities (over-exploitation, monocropping). Soil testing is essential to establish soil requirements for a given crop and it will help apply the appropriate amount. To get this right we need to know:

- What nutrients are already in your soil (soil testing)?
- What else you may be adding (manures, compost or CMS)?
- How much of each nutrient does your crop require (dependent on soil nutrient content, target yield, green manuring and other crop practices used)?
- What is the efficiency of the nutrient (losses, immobilisation)?

Correct TIMING of nutrient application

While it is convenient to apply all nutrients at the start of the season, it is not advised as the crop nutrient requirement varies depending on size and growth rate. Immediately after planting, there is often a low nutrient requirement, but this increases rapidly as the crop grows. In sugarcane, if fertiliser is to be dry-applied, then P and K are spread at the beginning of the growth cycle, however, N application should be split 2 or 3 times through the season. P and K are less mobile in the soil, thus remaining available for longer, but N can be easily lost. Therefore, it is better to split the risk - improving N efficiency. If fertigation is used, then carefully control the timing and rate to ensure the crop is continuously fed. Another factor to consider is the prevailing weather condition. Applying fertiliser to hot dry soils is wasteful and risky as losses can be high. Also, consider equipment or labour requirements in the field prior to fertilising. So be mindful of:

- The dynamics of soil nutrient supply.
- Crop uptake changes as it grows.
- Weather conditions that influence nutrient availability or losses.
- Practical application considerations i.e. when can you get into fields to apply products.

Table 1. Broad guidelines for considering main nutrients applied in sugarcane using the 4Cs principles. Consult relevant Information Sheets for region and cycle specific adjustments.

Nutrient	Source	Rate	Placement	Timing
Nitrogen	Mostly as nitrates (LAN) or ammonium (Urea).	Dependent on soil organic matter status and target yields. Losses may be high so may need adjustment during split application to compensate	Usually broadcast, but a portion can be banded to improve efficiency. Avoid excessive urea in bands as this promotes volatilisation.	Best to split. Apply first split at/soon after planting/ harvest (later for winter harvest), followed by second application 6 – 10 weeks later (region, growth dependent). In long cycle crops, a third split at the start of the second spring may be required.
Phosphorus	Prefer soluble forms for ready availability (MAP, Supers).	Determined by soil test. In high P-fixing soils, higher amounts are needed to compensate for fixation.	Generally applied at planting in furrow in localised bands near the root.	Applied at planting, with small side-dressing in ratoon situations (limited effectiveness).
Potassium	Mostly potash (KCl), but K ₂ SO ₄ is better - however, expensive.	Determined by soil test and crop yield. Some soils have inherent supplies so rates can adjusted (reduced).	Can be banded or broadcast. Usually best to split between both. Excess KCl near the root can lead to root burn.	Typically applied with nitrogen at or near planting/ ratooning.
Micronutrients	Soluble or chelated salts generally most effective (granular or liquid foliar sprays).	Use soil and leaf tests to determine deficiency. Rates tend to be low.	If applied on soil, then apply in the furrow. Foliar sprays on growing crops.	Usually applied to soil at planting, but foliar sprays are used on actively growing crops.
Others	Calcium and Magnesium usually supplied by lime, and Sulphur from gypsum.	Soil tests determine need.	Broadcast is essential. For lime, incorporation gives best result.	Best applied at planting, but liming opportunity is limited soon after harvesting.







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Kry die **beste** uit jou toedienings in voedingsbestuur!

Die Vier **Ks** van Voedingbestuur

Omstandighede is tans baie moeilik in die suiker industrie. Die bedryf is nog besig om te herstel na die droogte toestande, die suikerpryse en suikerbelastings is nie gunstig nie en daar blyk 'n permanente styging in brandstofpryse te wees. Al hierdie faktore maak volhoubare, winsgewende suikerboerdery baie moeilik. Dit is gedurende hierdie tye wanneer boere neig om kostes op essensiële bedryfsaspekte te besnoei. Dit is met reëlmaat dat die eerste koste besnoeiing en in sommige gevalle totale besteding op bemestings/voedingsprogramme gedoen word. Dit kan lei tot ernstige gevolge vir toekomstige produksie en opbrengste, dit terwyl maksimum inkomste benodig word om kostes te dek weens swak ekonomiese omstandighede.

Die beginsel van, "wat om te gebruik", hoeveel om te gebruik", "wanneer om dit te gebruik" en "waar om dit aan te wend" vorm die basis van die Vier Ks in voedingsbestuur.

Wanneer hierdie beginsels oordeelkundig toegepas word, kan verlaagde kunsmis kostes, verlaagde voedingstof verliese en optimale gewas effektiwiteit en hoër opbrengste behaal word. Alhoewel elke beginsel op sy eie beskou kan word, word die ware waarde daarvan waargeneem wanneer hulle in kombinasie in 'n holistiese voedingsbestuursprogram gebruik word.



Korrekte SOORT voedingstof

Die korrekte soort voedingstof verwys na die gebruik van die mees geskikte vorm van 'n spesifieke voedingstof. Dit word bereik deur die keuse van spesifieke kunsmis tipes. Dit klink eenvoudig maar daar is verskeie opsies wat oorweeg moet word:

- Verskaf my keuse die korrekte kombinasie voedingstowwe wat plant beskikbaar is (spreek dit alle tekorte aan)?
- Is my keuse geskik vir my grondtipe en spesifieke grond eienskappe (sal daar immobilisasie of vervlugtiging van voedingstowwe wees en sal dit die grond pH beïnvloed)?
- Wat anders kry ek in my kunsmis (geen voedingswaarde komponente en giftige komponente)?
- Watter operasionele sisteme het ek in plek om met verskillende kunsmisvorme te werk (korrels, vloeistowwe en plasings aspekte)?

Korrekte PLASING van voedingstowwe

Die hoof doel met toediening van 'n voedingstof in die land is om te verseker dat die voedingstof geredelik beskikbaar is vir die plantwortels. Om dit te bereik moet die voedingstowwe in die omgewing van die wortelsisteem geplaas word. Vir voedingstowwe met lae beweegbaarheid is dit beter om hierdie aanwendings so na as moontlik aan die wortelsisteem toe te dien (band plasing van P en K). Let wel teveel voedingstof rondom die wortelarea kan ook probleme veroorsaak, soos wortelbrand deur te veel KCl toe te dien. Op 'n groter skaal (oor die hele land) toediening kan dit help met variasie in die land, die basis van baie presisie boerdery skemas. Plasing speel ook 'n belangrike rol met beheer van verliese. Inkorporasie of ondergrondsetoediening verminder gewoonlik afloop- en vervlugtigingsverliese baie beter as oppervlak toediening. Die hoof oorwegings is:

- Toestand van wortelgroei in die gewas (wortel samestelling).
- Grond/kunsmis dinamika wat chemiese reaksies in die grond kan beïnvloed.
- Toerusting en kundigheid om verskillende toedieningspraktyke te kan toepas.
- Ruimtelike verandering, benodig vir aanwending van verskillende hoeveelhede op verskillende plekke.
- Risiko van erosie of vervlugtigings verliese wanneer op die oppervlak toegedien word.

Korrekte HOEVEELHEID voedingstof

Die gewas benodig 'n sekere hoeveelheid plantbeskikbare voedingstowwe om te kan groei en 'n goeie oes te kan lewer. Daar is egter verskillende vlakke van voedingstowwe in verskillende grondtipes. Hierdie verskille kan wees as gevolg van bestaande grond strukture (oorsprong materiaal) of as gevolg van boerderypraktyke (oorbewerking, monokultuur). Grondontledings is van kardinale belang om grondbehoeftes vir 'n gegewe gewas te bepaal asook die korrekte hoeveelheid wat toegedien moet word. Om dit reg te kry moet ons die volgende weet:

- Watter voedingstowwe is reeds in die grond (grondontleding)?
- Wat anders kan bygevoeg word (misstowwe, kompos of CMS)?
- Hoeveel van elke voedingstof bendig die gewas (hang af van grond voedingstof vlakke, teiken opbrengs, dekgewasse en ander gewas praktyke)?
- Wat is die effektiwiteit van die voedingstof (verliese, immobilisasie)?

Korrekte TYDSBEREKENING van voedingstof aanwending

Terwyl dit gerieflik is om alle voedingstowwe aan die begin van die seisoen aan te wend is dit nie aan te beveel nie aangesien voedingstofbenodighede verskil afhangende die oeslading en die groeitempo. Direk na plant is daar gewoonlik 'n baie lae behoefte aan voedingstowwe, maar neem drasties toe namate die oes groei. In suikerriet wanneer droë kunsmis toegedien word moet P en K aan die begin van die groeisiklus gestrooi word terwyl N toedienings verdeel moet word in twee of drie toedienings oor die verloop van die seisoen. P en K is minder beweegbaar in die grond en bly dus langer beskikbaar maar N kan maklik verlore gaan. Dit is raadsaam om die N toedienings op te breek in meer toedienings en sodoende die N-effektiwiteit te verhoog. Wanneer kunsmis deur middel van besproeiing aangewend word, moet beheer versigtig uitgevoer word met die hoeveelheid en tydsberekening daarvan om te verseker dat die gewas aanhoudend gevoer word. Heersende weersomstandighede moet ook in ag geneem word. Toediening van kunsmis op warm, droë grond is 'n vermorsing en is riskant aangesien verliese baie hoog kan wees. Let ook op na toerusting en arbeid behoeftes in die lande voordat kunsmis toegedien word. Wees waaksaam met die volgende:

- Samestelling van grondvoedingstof aanwending
- Gewas opname en veranderinge soos dit groei
- Weerstoestande wat voedingstof beskikbaarheid en verliese kan beïnvloed
- Praktiese aanwendingspraktyke, byvoorbeeld wanneer kan daar in die lande beweeg word om produkte toe te dien.



Tabel 1. Breë riglyne vir die oorweging van toediening van die hoof voedingstowwe in suikerriet met behulp van die vier Ks. Raadpleeg die toepaslike informasieblad vir area en siklus spesifieke veranderinge.

Voedingstof	Oorsprong	Hoeveelheid	Plasing	Tydsberekening
Stikstof	Meestal nitrate (LAN) of ammonium (Urea)	Afhanklik van grond organiese materiaal en teiken opbrengs. Verliese kan hoog wees, maak aanpassings tydens verdeelde toedienings om te kompenseer.	Meestal uitstrooi oor die hele land maar 'n gedeelte kan in 'n band toegedien word om effektiwiteit te bevorder. Vermy oordadige band plasing van Urea aangesien dit vervlugtiging sal bevorder.	Beste om te verdeel. Wend eerste gedeelte tydens of so gou as moontlik na plant/oes (later vir winter oes) gevolg deur die tweede toediening 6 – 10 weke later (streek en groei afhanklik). Met lang siklus gewasse mag 'n derde toediening nodig wees met die aanbreek van die tweede lente.
Fosfor	Verkieslik oplosbare tipes wat geredelik plant beskikbaar is (MAP, supers).	Bepaal deur grondontledings. In gronde met hoë P-hegverbindings potensiaal word groter hoeveelhede benodig om te kompenseer vir die P-hegverbindings.	Aangewend in die plantvoor, band plasing naby die wortelstelsel.	Dien toe tydens plant met lae toedienings gedurende ratoen siklus (beperkte effektiwiteit).
Kalium	Meestal potas (KCl), maar K ₂ SO ₄ is beter maar aansienlik duurder.	Word bepaal deur grondontleding en behaalbare oes. Sommige grond het natuurlike hoë vlakke, dus kan toediening aangepas word (verminder).	Kan in 'n band geplaas word maar meestal versprei. Beste om te verdeel tussen die twee. Te veel KCl naby die wortelstelsel kan wortelbrand veroorsaak.	Tipies toegedien saam met stikstof tydens plant. Ratoentoediening – so gou as moontlik na oes.
Mikro-elemente	Oplosbare of saamgestelde soute is oor die algemeen die mees effektiefste (korrel of vloeistof blaarbespuitings).	Gebruik grond en blaarontledings om tekorte te bepaal. Toedienings is gewoonlik baie laag.	Indien in die grond, plaas in die plantvoor. Blaarvoeding slegs op aktief groeiende plante.	Algemeen toegedien tydens plant maar blaarvoedings kan gebruik word tydens aktiewe groei.
Kalk en Gips	Kalsium en Magnesium word verkry van kalk toedienings, Swael is afkomstig van gips.	Grondontleding bepaal behoeftes.	Verspreiding is noodsaaklik en inkorporasie gee die beste resultate.	Beste tyd is tydens grondvoorbereiding. Kalktoedienings is baie beperk en oneffektief tydens ratoene.









New App Alert!

SASRI has just produced three new manuals to assist you with getting the best out of your sugarcane farm. These manuals are essential for all growers and are guaranteed to help with understanding the sugarcane crop better. Look out for your copies in the post or consult with either your local Extension Specialist or the SASRI website (www.sasri.org.za).

Illustrative Guide to Sugarcane Farming (English and isiZulu)

These two publications aim to visually guide the sugarcane farmer through the fundamentals of farm management. Topics include basic management of pests & diseases, cane quality, the environment and much more. Available in both English and isiZulu, both large- and small-scale sugarcane farmers will find great value in this collection of farming principles.



Sugarcane Pests of southern Africa

This is a valuable collection of major and minor pests found on sugarcane. Summaries are included on identification, biology, damage symptoms and control options for each pest. This publication is useful for all growers, Farm Managers, Extension Specialists, Biosecurity Officers and other patrons of the industry.



MyCanesim Lite is a simplified version of the MyCanesim sugarcane growth model.

Users simply select options from drop-down lists for eight inputs and the program then simulates crop growth and water use.

The app is useful for

benchmarking yield, quality &

water use

against achievable targets and can also be used for limited crop forecasting.



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BIOSECURITY ALERT! YELLOW SUGARCANE APHID

🖉 Rowan Stranack (Extension & Biosecurity Manager) and Sharon McFarlane (Sugarcane Pathologist)

Widespread and serious outbreaks of yellow sugarcane aphid (*Sipha flava*) are currently occurring across the South African sugar industry. Growers are strongly advised to look out for this pest as it can cause **significant crop losses**. The pest is present in **most varieties** but some are more affected than others.

Outbreaks **most commonly occur in Spring and Autumn** but growers should be on the alert throughout the year.



If an outbreak is suspected please urgently contact your SASRI Extension Specialist or Biosecurity Officer for advice. For more information, please contact Extension & Biosecurity Manager, Rowan Stranack (031 508 7459).

Scouting advice

Generally, outbreaks of YSA are first seen as either yellow patches of cane in a field or very obvious yellowing, reddening and dying of the lower leaves on the cane plant (see photo below). However, by the time symptoms are obvious, the damage has been done. Therefore scout **continuously and carefully** when outbreaks occur in the area by looking for aphids on the **undersides of green leaves (lower leaves more favoured**). Early detection is **crucial** if infestations are to be treated before they cause significant damage. Aphid numbers build up very rapidly and response time has to be within days of detecting a potential outbreak in a field.

A unique habit of YSA is its ability to suddenly appear and disappear in the matter of hours. Ensure that fields included in the insecticide programme and fields in close The most effective approach to managing yellow sugarcane aphid (YSA) is through early scouting and the use of an integrated pest management (IPM) plan.

proximity to an infestation are thoroughly scouted to confirm that the aphid has not moved into an adjacent field or disappeared. This unique trait is still under investigation but growers are urged to be aware of this, especially before spraying.

In addition, make sure that scouting staff are mindful of YSA spreading onto their clothing during scouting practices. The aphid is prone to sticking to clothing during these practices and this could easily increase spread of the aphid to other fields. If possible, use disposable clothing or urge staff to cover up their clothing in disposable material that can be thrown away after scouting an infested field.

Typical patches of heavy infestations of YSA.

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Certain grass species are also hosts to YSA. Signs of the presence of the pest can be detected in the indigenous vegetation and grass breaks within canefields.



Variety rating

Certain varieties are more susceptible to YSA damage than others and these should be scouted more frequently.

YSA leaf damage categories of commercial varieties

Mild	Low-moderate	Moderate	Severe
N14	N12	NCo376	N16
N39	N27	N17	N19
N40	N31	N25	N36
N44	N35	N37	
N45	*N41	N42	
N46	N47	N54	
N48		N61	
N49			
N50			
N51			
N52			
N53			
N55			
N56			
N57			
N58			
N59			
N62			

*Some observations suggest that N41 may be **moderate.**

Chemical control

Four products are registered for the control of YSA on sugarcane, namely Allice[®], Actara[®], Bandito[®] and Ampligo[®]. Use of these products and the timing of applications should be considered carefully and in consultation with your Extension Specialist or advisor. Certain LPD&VCCs may require mandatory spraying of this pest as a remedial measure to contain outbreaks in their control areas. **Contact your Biosecurity Officer for details.**

Friends with Benefits Predators of Yellow Sugarcane Aphid

There are currently several natural enemies of yellow sugarcane aphid (*Sipha flava*). Growers are encouraged to look out for the presence of these predators as they greatly assist in naturally controlling YSA populations (biological control).



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Cheilomenes sulphurea



Lacewing (Chrysoperla sp.)



Exochomus concavus



Hover fly (Syritta flaviventris)



Hippodamia variegata



Spiders (awaiting identification)



Ladybird larva eating YSA



Ladybird pupa



Different ladybird larva eating YSA



Hover fly larva eating YSA



Lacewing larvae.



Lacewing larvae eating YSA.

Pur*Est***®** Opdatering nou beskikbaar!

It costs you less with FAS!

Gedurende 2016 het SASRI die mobiele toepassing, **PurEst**[®], vir beide iOS en Android bedryfsisteme vrygestel. **PurEst**[®]stel die kweker instaat om vinnig die volwassenheid (sapsuiwerheid) van riet op die plaas te beraam en besluite ten opsigte van sy rypmaakprogram te vergemaklik. **PurEst**[®]kan verder help met afdroog- en oesbesluitneming deurdat die toepassing ook stronkvog% en RV% beraam. Kwekers kan sodoende hul oesprogramme fyner bestuur deur die kapvolgorde van lande te prioritiseer.

PULEST

'n Opdatering van **Pur Est**® is sopas vir beide iOS en Android bedryfsisteme vrygestel. Die nuwe eienskappe is:

- Laatseisoen kwaliteit instandhouding funksionaliteit. Ten spyte van chemiese rypmaker aanbevelings, om rietkwaliteit te verhoog gedurende periodes van die Suid Afrikaanse meulseisoen wanneer kwaliteit laag is, akkommodeer die toepassing nou ook laatseisoen kwaliteit instandhouding, waar sekere chemiese produkte aangewend kan word om hoë kwaliteit (wat tydens die winter behaal is) te handhaaf in riet wat gedurende die laatseisoen (Oktober – Desember) geoes gaan word. Hierdie funksie word outomaties geaktiveer vir lande wat gedurende die maande van Augustus – Oktober getoets word.
- Variëteit reaksie tabel. Die toepassing huisves nou ook 'n lys wat die aanbevole rypmaker behandelings per variëteit bevat. Hierdie lys sal, soos benodig, opgedateer word met die nuutste bevindinge wat uit SASRI rypmaker evaluasie veldproewe verkry word.
- **Riglyne vir toetsing van suikerrietlande.** Die gebruikers handleiding binne die toepassing bevat nou ook 'n gedeelte met riglyne oor hoe om op die beste wyse suikerriet stronke vir refraktometer toetsing te versamel, gebaseer op die grote, vorm en uniformiteit van lande.

Indien u reeds **Pur***Est***®** op u foon geïnstalleer het moet u seker maak om na die nuutste weergawe op te dateer.

Nuwe gebruikers kan die toepassing via "Apple iStore" of die "Google Play Store" aflaai.



² Riekert van Heerden (Senior Navorser: Suikerriet Fisiologie) The FAS Agricultural Laboratory offers a dynamic service that analyses leaf and soil samples for a range of commodities including sugarcane, macadamia, vegetables, turf grass, fruit, maize, tea tree and other agricultural crops. Fertilisers and water can also be tested.

Manage what you measure

For growers in the sugar industry, uniquely tailored fertiliser recommendations for sugarcane soils and leaves are included in your FAS package. Growers sampling other crops are encouraged to request recommendations should they require these. These recommendations are unbiased and take into consideration only what the crop requires. This avoids unnecessary over-application of fertilisers, saving you money and protecting the environment.

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FAS realises the value in creating a 'one-stop' service for growers of many crops. This makes it easier for growers to test soil and leaf samples of a variety of crops in one place, saving the logistical nightmare and cost of submitting samples to several labs. In addition, a grower can receive all results at the same time for all farms and in a uniform easy-tounderstand format, simplifying the record keeping process.

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CAN RIPENERS BE APPLIED BY **OVERHEAD IRRIGATION?**

Ashiel Jumman (Agricultural Engineer: Irrigation), Marius Adendorff (Extension Specialist: Mpumalanga) and Riekert van Heerden (Senior Scientist: Sugarcane Physiology)

While ripeners are usually applied aerially via aircraft, growers have been asking about the viability of using overhead irrigation systems as an alternative (this was explicitly requested at the 2018 RD&E workshop held in the Lowveld).

While this option may seem promising, it is illegal because of serious human health and environmental risks.

The use of all agrochemicals, including chemical ripeners, is strictly governed by the product label, which details the legal specifications to which users must comply. The main issue with overhead irrigation systems is that they exceed the maximum volume of water which can legally be used to apply ripeners. This leads to contamination of water bodies through runoff, or infiltration into ground water. There is also the possibility of poor responses due to chemicals not remaining on the sugarcane leaves due to the high volumes of water used.

For all ripeners currently used in the sugar industry, the maximum allowable water rate is 200 litres/ha. In tests carried out by SASRI on a venturi sprinkler unit, 1 231 litres/ ha of water was applied over 3 sprinkler rotations, six times the maximum allowable volume of water!

(Note: it was assumed that a minimum of 3 rotations are required to uniformly apply the ripener to the leaf canopy surrounding each sprinkler position).

Most centre pivots, even at fastest speed setting, will apply ten times the maximum allowable water volume for chemical ripeners. A secondary lateral with low flow micro sprayers was also evaluated via a desktop analysis. The combination of the fastest available centre pivot speeds and lowest flow rate available for micro sprayers still exceed the water volume constraints by substantial amounts (as much as 20 times the water volume at the inner most towers!).

In summary, it is illegal to apply chemical ripeners via overhead irrigation systems. The water volume limit will be exceeded leading to excessive chemical loading on the environment and serious occupational health and safety hazards for people on the farms.



KAN RYPMAKERS AANGEWEND WORD DEUR MIDDEL VAN OORHOOFSEBESPROEIinG?

Aangesien rypmakers gewoonlik deur lugbespuiting aangewend word, het boere die vraag gevra; wat is die lewensvatbaarheid om dit deur middel van oorhoofsebesproeiïng aan te wend? (Laeveld RD&E werkswinkel, 2018)

Terwyl hierdie opsie baie belowend klink is dit egter onwettig as gevolg van ernstige menslike gesondheids- en omgewingsrisiko's.

Die gebruik van landbouchemikalieë, insluitend chemiese rypmakers, word streng deur die produketiket beheer. Wetlike aspekte waaraan die gebruiker moet voldoen word gespesifiseer. Die grootste problem met rypmaker aanwending deur oorhoofsebesproeiïng is die oorskreiding van die maksimum wetlike toegelate volume water vir die aanwending van rypmakers. Dit lei tot besmetting van waterbronne deur afloop en infiltrasie van grondwater. Verder bestaan die moontlikheid van swak resultate as gevolg van beperkte produk kontaktyd op die blare wat beperk word weens die verhoogde water volume.

Die maksimum toelaatbare water volume vir enige rypmakers in die suikerindustrie is 200 liter/ha. In 'n toets wat deur SASRI gedoen is met 'n venturisprinkler eenheid, is bevind dat 1 231 liter/ha water oor drie rotasies, ses maal die maksimum toegelate volume water gebruik! (Daar is aangeneem dat 'n minimum van drie rotasies benodig is om uniforme bedekking van die blare rondom elke besproeiïngskop te verkry). Die meeste spilpunte sal selfs teen hul hoogste moontlike spoed verstelling, nogsteeds tien maal die toelaatbare water volume vir chemise rypmakers toedien. 'n Sekondêre, laterale lae vloei sisteem met mikrospreiers is deur middel van 'n lessenaarstudie uitgevoer. Die kombinasie van die vinnigste spilpunt spoed met die laagste volume mikrospreiers het steeds die maksimum toelaatbare water volume oorskrei. (Tot soveel as 20 maal op die middelste torings!).

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Om saam te vat, dit is onwettig om chemise rypmakers met behulp van oorhoofse besproeiïngssisteme toe te dien. Die toelaatbare water volume sal oorskrei word wat sal lei tot oordadige aanwending van chemikalië op die omgewing en ernstige gesondheid- en veiligheidsrisiko's vir werknemers inhou.



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Land Restitution Farming Success

🖉 Norman Mkhabela (SSG Extension Specialist: Pongola)

"Managing a sugarcane farm seemed like such a far-fetched dream that I never thought I would ever realise. The only experience I had for years is that of a disfranchised farm labourer, without a voice in the management affairs of the farm."

Brian Thabede, Managing Director: Bongani BZ PTY Limited

The Mahlalela Community Trust in Pongola was a recipient of three tracts of land after successful land restitution claims. Because the land was returned without financial or mentorship support, the Trust leased out two of the properties (which were sugarcane farms) to local commercial sugarcane farmers. The third property has been earmarked for other commercial ventures.

With a view to becoming more directly involved in sugarcane farming, the Trust contacted the South African Sugar Association (SASA). They were advised to identify committed and hardworking youth from the area who would be allowed to attend training courses in sugarcane agriculture at no cost to the Trust. Two individuals were identified and after they successfully completed the Senior Certificate Course in Sugarcane Agriculture, the lessor of one of their farms agreed to take them on as Manager Trainees. That mentorship provided further training and exposure to various agronomic practices such as planting, fertiliser application, weed control, ratoon management, harvesting, irrigation and soil management.

In late 2017, the Trust sought the advice of the local SASRI Extension Specialist, Norman Mkhabela, with whom they discussed their intention of taking over the farm when the lease ended the following year. Mr Mkhabela undertook to continue the mentorship programme for the two trainees. This took the form of weekly training meetings and study group sessions with specific activities and targets in areas such as general farm management, financial management, pest and disease control, weed control and SUSFARMS[®]. Through the use SASRI's Programme Planner, the trainees were introduced to a systematic method of planning for better results.

Bongani BZ PTY Ltd is a managing company set up by the Trust to manage the farming venture. Monthly meetings were arranged with the Directors of the entity for the purposes of monitoring and evaluation. Managing Director, Brian Thabede continues the story:



Mr Brian Thabethe - Secretary for Mahlalela Trust

"In the light of the fact that Mahlalela Trust did not have sufficient financial resources to manage the farm, the SASRI Extension Specialist advised us to forge business relationships with input suppliers such as LTK, Omnia and Bayer. The overwhelming support from these companies was amazing. We intend continuing the business relationship for many years to come."

Ms L.K Simelane, the Farm Manager for Bongani BZ shares some of the recipes for their current success:

"Through interaction with SASRI Extension and Biosecurity, the pest and diseases (P&D) teams visited the farm to conduct random inspection of pests and scout for diseases such as smut and RSD. With the predominant variety on our farm being an old variety (N41), it was necessary to monitor the crop constantly to ensure that it remained pest- and disease-free. This has led to an increase in profit margins this year."

The Bongani BZ farming operation is a success story indeed and a testimony to what can be achieved with integrated support and advice. Results from their second year of operation already show an increase in productivity: the farm now yields over 1 600 tons at an average of 93.6 tons per hectare!

Provided there is the required support framework, it is logical to conclude that land restitution will succeed and result in productive commercial ventures. A comprehensive mentorship programme coupled with willing mentees is all that is required for success. The Mahlalela Community Trust is a case in point.



Ms Lungile Simelane with Mr Brian Thabethe

Pur*Est***®** Update now available!

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During 2016, SASRI released the **PurEst**[®] App on both iOS and Android platforms. **PurEst**[®] is a mobile application tool that allows the grower to rapidly estimate crop maturity (whole-stalk juice purity) to assist in chemical ripening decision-making on the farm. **PurEst**[®] can also assist with drying-off and harvesting decisions by estimating stalk moisture % and RV% so that growers can manage and prioritise fields that are ready for harvest.

PULEST

An update of **Pur***Est***®** has just been released on both iOS and Android platforms. The new features are:

- Late-season quality maintenance functionality. Besides providing chemical ripening recommendations to improve cane quality during periods of the South African milling season when quality is low, the application now also caters for late-season quality maintenance, where certain chemical products can be used to maintain high cane quality (achieved during the winter) in crops going to be harvested in the late-season (October – December). This function is automatically activated for fields tested during the months of August – October.
- Variety response table. The application now also houses a list showing the recommended ripener treatments per variety. This list will be updated as required to incorporate the latest findings derived from SASRI ripener evaluation field trials.
- **Guidelines for testing sugarcane fields.** The user guide inside the application now contains a section with guidelines on how best to sample sugarcane stalks for refractometer testing, based on the size, shape and uniformity of fields.

If you already have **Pur***Est***®** installed on your phone, ensure that you update to the latest version.

For new users, download the app via the Apple iStore or Google Play Store.



Riekert van Heerden(Senior Scientist: Sugarcane Physiology)



There is a wealth of information, including publications, available on the SASRI website. Go to WWW.Sasri.org.za

(Online Desktop tools available on our website)

CANESIM

MyCanesim

This decision support tool can be very useful in estimating and assessing the yield potential of the soils on your farm. Consult your SASRI Extension Specialist for assistance with the inputs.

CANESIM Crop

Forecasting

The CANESIM crop forecasting system produces monthly forecasts of yield for the current season for 48 climate zones and 14 mill supply areas. It is available to registered users.

WeatherWeb

WeatherWeb is a SASRI database of several automatic and manual weather stations across the sugar industry as well as a real-time weather tool. This information can be extracted in the form of maps, graphs or reports. Various levels of customisation can be applied to your selections.



StalkGro

A SASRI web application that estimates monthly cane and sucrose yield increments for a particular homogenous climate zone by using information about the crop's irrigation status, TAM, crop cycle and harvest month.

Mobile Apps

SASRI has produced a series of mobile applications for your smartphones and tablets that can be downloaded from the Apple App Store or Google Play store.



This is a smartphone app version of MyCanesim. It is a sugarcane simulation tool linked to the Canesim model and the full online SASRI weather database for simulating crop growth and water use for limited sets of inputs. Applications include cane yield, cane quality and water use benchmarking and limited yield forecasting.

SOUTH AFRICAN SUGARCA RESEARCH INSTITUTE

Pur*Est*®

PurEst[®] estimates whole-stalk juice purity from Brix readings taken with a handheld refractometer. PurEst[®] provides practical ripener recommendations based on the known juice purity efficacy thresholds of various ripener chemicals.
PurEst[®] can also assist with harvesting decisions by estimating RV and stalk moisture, enabling growers to prioritise fields according to harvest readiness. The latest update caters for late season cane quality maintenance.

FertiCalc

FertiCalc helps calculate the distance that a given amount of fertiliser must cover in order to achieve the recommended rate per hectare. Whether you use the tin-and-string method, or wish to calibrate the flow-rate of a knapsack fertiliser applicator or some other application equipment, FertiCalc will simplify the process.

RustCalc

Growers often comment that they require a certain tonnage or percent increase in tons cane to cover the cost of fungicide application. This tool provides this information, taking into account the cost and application rates of the three fungicides registered for use against the different rusts that occur in our industry. Outputs include total cost for the area being treated and yield increases required to break even.



NEATHER

L Phillemon Sithole (Agrometeorologist) Abraham Singels (Principal Agronomist)

Review

The first half of the 2018/19 summer rainfall (October to December) was generally drier than normal with most parts of the industry receiving well below average rainfall, which resulted in an industry average of 72% of the long term mean (LTM). Better rainfall was received in the second half (January to March) when most areas received near-normal to above normal rainfall (Fig. 1) with an industry average of 102% of LTM. Extremely high rainfall (over 300 mm in some cases) was received between the 21-23 April in the South Coast region and in Durban and surrounding areas in the North Coast resulting in localised flooding, widespread infrastructural damage and the sad loss of at least 85 lives in the affected areas.

Irrigation water supplies were stable, except from the Goedertrouw dam in Zululand which remained severely restricted.

Outlook

The El Niño-Southern Oscillation (ENSO) is currently in a weak El Niño phase which is expected to last through winter. This will have little impact on rainfall over eastern South Africa. The South African Weather Service and European Centre for Medium-Range Weather Forecasts predict below normal rainfall and higher than normal temperatures during the 2019 winter months (May to July) while the International Research Institute for Climate and Society predicts normal rainfall and normal temperatures.





Please visit the Weatherweb available via the SASRI website: www.sasri.org.za for links to up-to- date seasonal climate forecasts and also for the latest rainfall and other weather data.

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