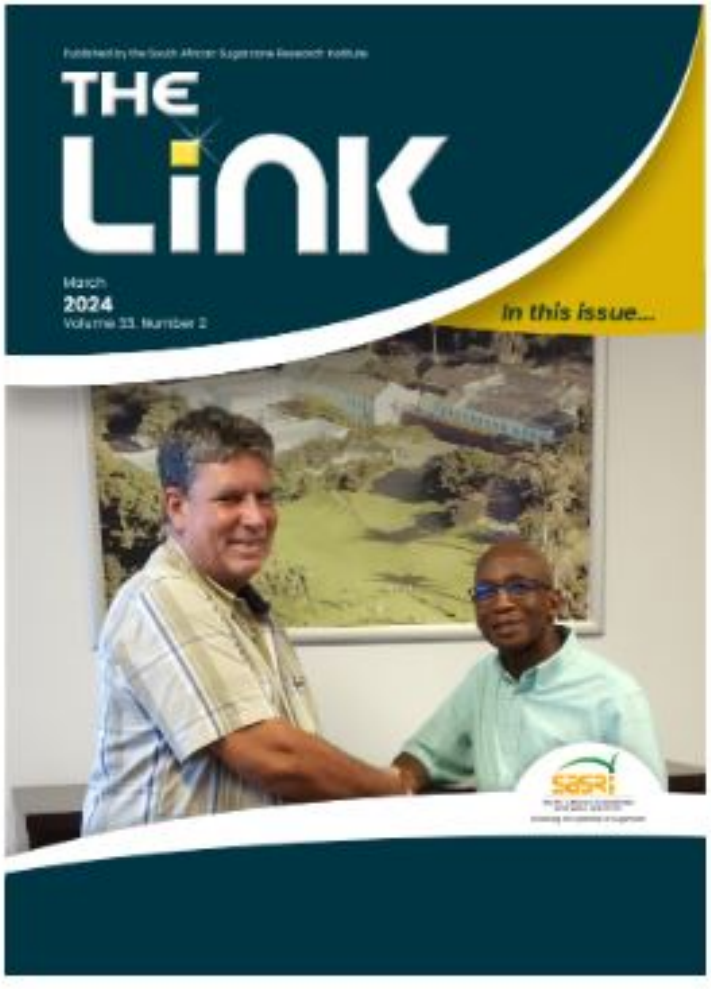

March 2024

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SASRI welcomes new Director!

Published: 14th Mar 2024

Outgoing SASRI Director, Dr Terry Stanger, recently welcomed Dr Shadrack Moephuli as the new Director. With a rich history of leadership in agriculture, including a 15-year tenure as President and CEO of the Agricultural Research Council (ARC), Dr Moephuli brings a wealth of experience to his new role.

During his time at ARC, Dr Moephuli led initiatives that resulted in significant advancements in animal vaccines, crop cultivars, and technology transfer, benefiting South Africa's agriculture sector. He also played a key role in establishing ARC as a center of excellence, fostering a culture of competitiveness, sustainability, and collaboration.

Prior to his leadership at ARC, Dr Moephuli held various roles in agricultural organisations and government, focusing on biotechnology, genetic resources, and legislation. He holds a PhD in Environmental and Biochemical causes of Reproductive Failure in Mammals from the University of Connecticut and has conducted post-doctoral research and lectured in biochemistry at universities in South Africa.

Dr Moephuli's passion for agriculture and commitment to delivering world-class solutions make him well-suited to lead SASRI. His appointment is welcomed, and his strategic contributions are eagerly anticipated in advancing the sugar industry.

Message from Dr Terry Stanger

"As I step into this new chapter of my life, I wanted to take a moment to express my gratitude to the SASRI staff and industry members for the support during my three years at SASRI.

Working alongside such talented and dedicated individuals at SASRI has been an honour and a privilege.

I wish you all well for the future and will follow your achievements with interest."

Comprehensive sugarcane farming tips for autumn

Rowan Stranack (Extension and Biorisk Manager)

Published: 14th Mar 2024

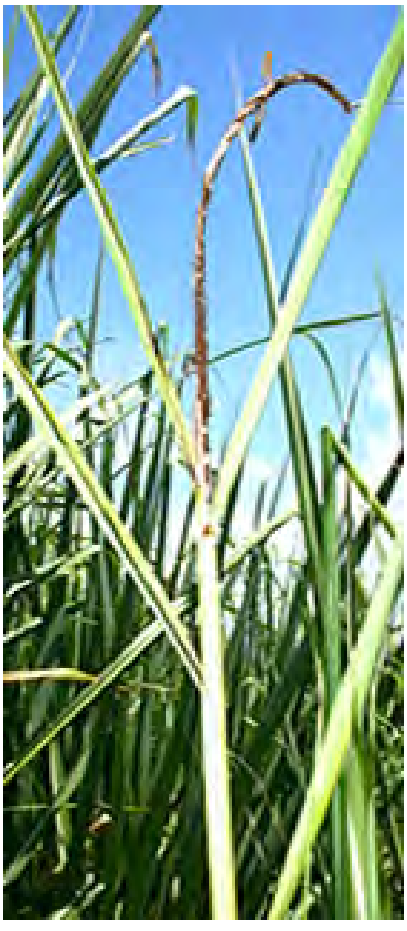
Managing pests, diseases and weeds

Yellow sugarcane aphid (YSA) is widespread across the industry right now and populations have been increasing rapidly to damaging levels. Frequent scouting and preventative spraying with registered insecticides is essential to keep the pest in check. Refer to the Thrips and YSA Manual for more detail.

You should be inspecting the oldest carryover fields to see which are worst affected by **eldana** and other issues and therefore need to be harvested at the start of the season.

Your **smut** roguing programme of commercial and seedcane fields should continue throughout summer and autumn. Consider the option of chemical roguing with glyphosate as this is a highly effective method to ensure diseased stools are killed.

Keep breaks, verges and waterways well mowed and free of **weeds**. Consider chemical mowing to save money. Pay special attention to the verges adjacent to the cane to control the encroachment of creeping grasses into cane fields.



Crop management

Your focus should now be on an accurate estimation of your crop. This has the important implication of determining your income and cash flow for the season, amongst other things. SASRI has crop estimation decision support programmes (DSPs) available on the website: StalkGro and MyCanesim can help to set benchmark yields for fields based on climate and soil. A simpler version of MyCanesim (called MyCanesim Lite) can be accessed here or a mobile-friendly version can be freely downloaded from the Google Play Store or the iStore.

Loadshedding has been a persistent problem, creating an artificial shortage of water in the irrigated areas through interrupted irrigation. Under these conditions, the need for accurate scheduling using one of the many available methods is vital. This will help establish the moisture status of different soils on your farm and where water needs to be prioritised to ensure adequate crop growth.

Autumn planting can be risky especially in the rainfed areas. The possibilities of dry soil or, as in recent years, extremely wet conditions going into winter, can result in germination failure, as occurred last year. If the current dry conditions continue in the rainfed areas, then consider the precaution of planting with water.

Now is the time to evaluate your seedcane requirements for next year so that orders can be

placed with co-operators or with the local transplant nursery. Consult your Biosecurity Officer or SASRI Extension Specialist regarding the appropriate varieties for your farm. The SASRI Variety Guide is a very useful tool for comparing varieties.

Nutrition

With the heavy summer rains which were experienced across much of the industry it is possible that leaching of nutrients has occurred. It is not too late to take leaf samples to check if this is the case. Speak to your SASRI Extension Specialist for the age and other criteria for sampling. Visit the FAS website to download submission forms.

On farms where old unplanned carryover cane has been mulched, fields should also be leaf sampled to check the nutrient status and fertiliser requirements for the remainder of their growth cycle.

Plan your soil sampling programme for the coming season with the sampling of replant fields as a priority.

It is time to plan your autumn and winter fallow green manure crops. In fields destined for seedcane nurseries the cover crop chosen should be low-growing to enable volunteers to be identified easily.

One decade since our first alert of YSA!

Michelle Binedell ***(Knowledge Manager)***

Published: 14th Mar 2024

Ten years have passed since we first alerted growers to this serious pest! Back then, we urged growers to be alert and to scout for the presence of the aphid in their fields. We also outlined an integrated approach that would be required to manage the pest.

Since the first infestation, the following developments have taken place:

- SASRI Extension and Biosecurity teams were trained in the identification of the pest, a yield loss trial was initiated, and commercial varieties were assessed for their susceptibility to YSA in variety field trials.
- Three new pesticides were registered for the treatment of YSA on sugarcane in 2016.
- The existing network of SASRI research trials was used to examine the effects of the insect and when and where it occurred.
- Grower networks were also explored during this time and growers were asked to report on YSA observations in their fields. This network has proven useful in examining the potential of alternative treatments, such as the use of Bandito®.
- Because the unpredictable and inconsistent infestations of YSA impacted the development of a scouting protocol, research was transferred to the Nakambala Estate in Zambia, and the scouting method was later adapted for local conditions.
- We also recognised that the aphid is present extensively outside the sugar industry on a range of grasses in varied habitats; for example, the Drakensberg mountains, the Highveld (Gauteng), and even the Kruger National Park – possibly the entire country.
- Since 2021, “smart agriculture” approaches are being investigated to detect infestations through aerial imaging technologies across the SASRI trial network. If successful, the design of customised sensor arrays might become possible for early detection by UAVs, which would be an enormously useful monitoring tool.
- In 2022, two grower-led and managed trials were initiated to test the role of on-farm biodiversity and soil amendments in managing YSA. The major advantage of this approach is that testing is undertaken in commercially relevant conditions in regularly infested fields.
- In 2023, two new investigations commenced, aiming at improving YSA monitoring and better understating YSA population dynamics.

So, it’s been a long 10 years…but the message to growers is consistent:

1. Scout early and often.
2. Understand and identify the factors that may pre-dispose fields or patches to early infestation.

3. Choose appropriate varieties.
4. If you know when serious infestations are likely to occur, adjust planting dates so that young cane is not exposed to YSA peaks (usually late summer/autumn).
5. Practise stringent field hygiene.
6. Manage the natural habitat through a diversity of plantings to encourage beneficials and natural predators.
7. Spray judiciously, preferably by spot-spraying incipient infestations.
8. Only use registered chemicals and spray at the right time.
9. Always alternate active ingredients at least after two applications.

Useful technical resources include:

Thrips and YSA Manual

YSA Information Sheet

Pest & Disease Guide

Also See our e-Library for numerous alerts, newsletters and articles over the years.

Soil treatment boosts sugarcane yield and pest control

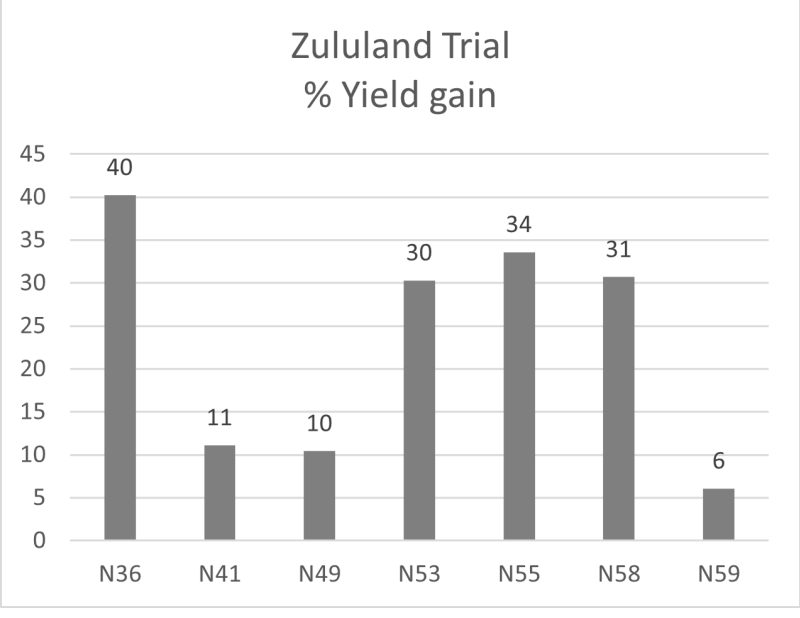
Slindile Nqayi (Assistant Research Officer) and Stuart Rutherford (Principal Scientist: Integrated Pest and Disease Management)

Published: 14th Mar 2024

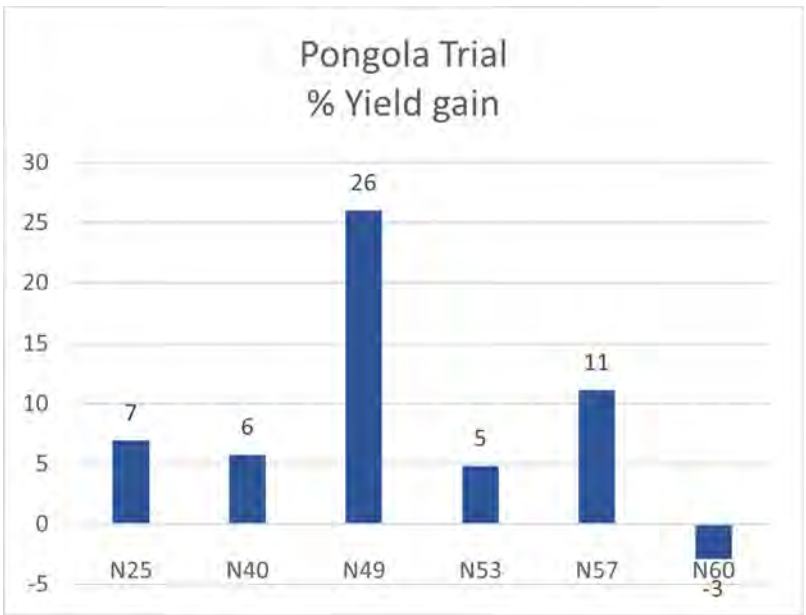
A granular soil applied chemical, Bandito®, with oxamyl and imidacloprid as active ingredients, was registered in 2019 for treating plant and ratoon sugarcane crops in South Africa for the control of nematodes, YSA and thrips.

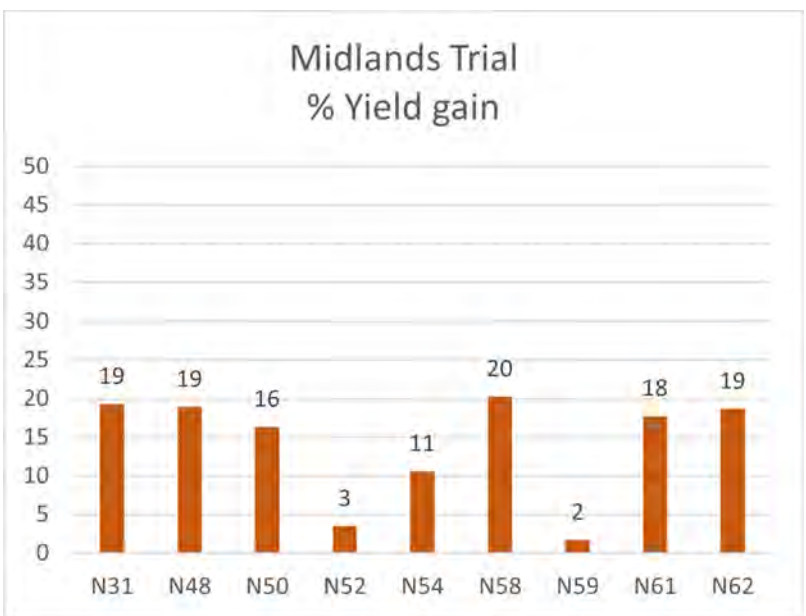
Oxamyl has both nematicidal and insecticidal properties while imidacloprid is insecticidal and has some effect on nematode movement. Both active ingredients are taken up by the plant, protecting the roots from plant parasitic nematodes and moving to the leaves to control leaf feeding pests, in this case YSA and thrips. This product not only controls these three sugarcane pests but also has been observed to have positive effects on sugarcane yield under conditions of stress.

Research trials across the sugarcane regions to determine the effects of this product on different sugarcane varieties indicate significantly improved cane yield (tc/ha) and RV yield (tRV/ha) for most varieties compared with untreated controls of the same varieties.




North Coast Trial
% Yield gain
50
45
40
35
30
25
20
15
10
5
0
19
42
10
10
31
9
12
47
N12
N51
N52
N55
N56
N58
N59
N60


Pongola Trial
% Yield gain
30
25
20
15
10
5
0
-5
7
6
26
5
11
-3
N25
N40
N49
N53
N57
N60


Midlands Trial
% Yield gain
50
45
40
35
30
25
20
15
10
5
0
19
19
16
3
11
20
2
18
19
N31
N48
N50
N52
N54
N58
N59
N61
N62

For good cane response and better pest control, application of this product should be on soils with 10% or less clay, on young cane (less than 5 months old) or in late spring. The greatest impact on nematodes was seen when the product was applied on young cane (before stalk growth). It was also observed that when the product was applied in late spring, it could control YSA for up to three months.

The trials also indicated a link between plant stress and response to the product. Plant stress was measured by looking at modelled cane yield and average cane yield of controls. Where yield of the controls was less than 80% of the modelled yield, the cane was deemed to be stressed (by pests or some other underlying stress that had impact on yield). When the cane was stressed, average response across all varieties in a trial was greater. This was the case for the North Coast and Zululand trials.

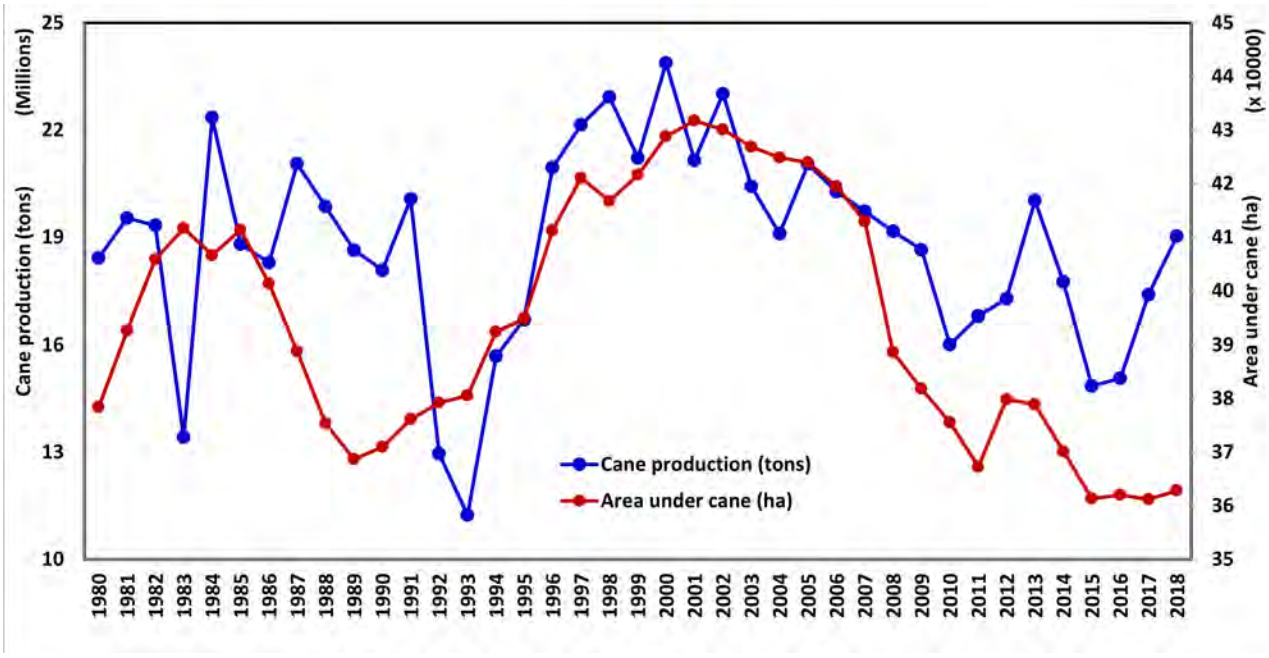
The overall results of this research provided recommendations on whether a variety should be treated. These recommendations were based on percentage yield gain. Where yield gain was 0-5% the variety does not need to be treated. For yield gains of 6-20% a variety should be tested using test strips and where yield gain is >20% the variety should be treated with the product.

Superior yields from newer varieties

Marvellous Zhou (Senior Plant Breeder)

Published: 14th Mar 2024

While the area under cane in the SA sugar industry has decreased steadily since 2007, cane production has remained relatively high. This can be attributed, in large part, to the development of new, high-yielding varieties by SASRI's plant breeding programme.



A recent study investigating genetic gains from new varieties shows the following:

- There are significant increases in cane yield, RV% and RV yield from SASRI's breeding programme.
- Since 2010, new varieties showed 8-20% greater yield than those prior to 2010; 3-6% increase in RV%, and 8-22% in RV yield.
- Planting location has a significant effect of on varietal performance. Each variety should be planted under specific conditions, to reach its optimal performance.

We hope that these results will assist with the adoption of new varieties.

When planted in the correct location and conditions, newer varieties will continue to offset the effect of reduced area under cane. Be sure to ask for advice when replanting, so that each variety can achieve its maximum potential on your farm.

Managing chemical spills in the workplace

Sindi Nzama (*Assistant Research Officer – Agrochemicals*) and Anushka Gokul (*Agrochemical Scientist*)

Published: 14th Mar 2024

In the agricultural and agrochemical environments where hazardous chemicals and oils are handled, prioritising the safety of both workers and the environment is critical. A crucial tool for minimising risk of exposure and efficient management of hazardous substance spills, is the spill kit. This ready-made collection of items is designed to contain and clean up spills while reducing further contamination and exposure of hazards.

A spill kit should only be open when a spill has occurred and should be restocked following the incident. Regular checks should be done to ensure that the contents are viable and in working condition.

Most importantly, all personnel working with hazardous substances should be provided with training to ensure that they:

- are familiar with the items in a spill kit;
- understand the purpose and how to use each item correctly;
- understand the protocols; and
- are exercising best practices when handling spillages.

Several types of spill kits are on the market and these kits are differentiated based on the type of spills they are designed to contain. Spill kits may be packaged in duffle bags, wheelie bins and even trailers. A standard spill kit will include Personal Protective Equipment (PPE) absorbent material, and hazardous waste bags.

What is in a spill kit?

- Personal protective equipment (PPE) – gloves and goggles for safety and protection.
- Containment booms/socks – an absorbent barrier placed around the spill area to contain and prevent the spill from spreading.
- Absorbent materials – items include pillows, mat pads and vermiculite – designed to absorb the spill safely and effectively.
- Dustpan and broom – used solely for chemical spills.

Waste disposal bags and sealing ties – used to hold all the contaminated products and ensure the collected spill will not spill further.

- Instructions on how to use the spill kit and an inventory list which should be used regularly to check and restock the spill kit.

Location of the spill kit

Areas that are prone to hazardous leaks and spills such as chemical stores should have a spill kit that is easily accessible to all staff. It is also vital that that the spill kit is clearly labelled. Furthermore, a spill kit should be carried in vehicles whilst transporting chemicals to provide first response in case of a spill.

Seven steps to a spill response

The SASRI Spill Response Guide outlines seven important steps to follow in the event of a spill.

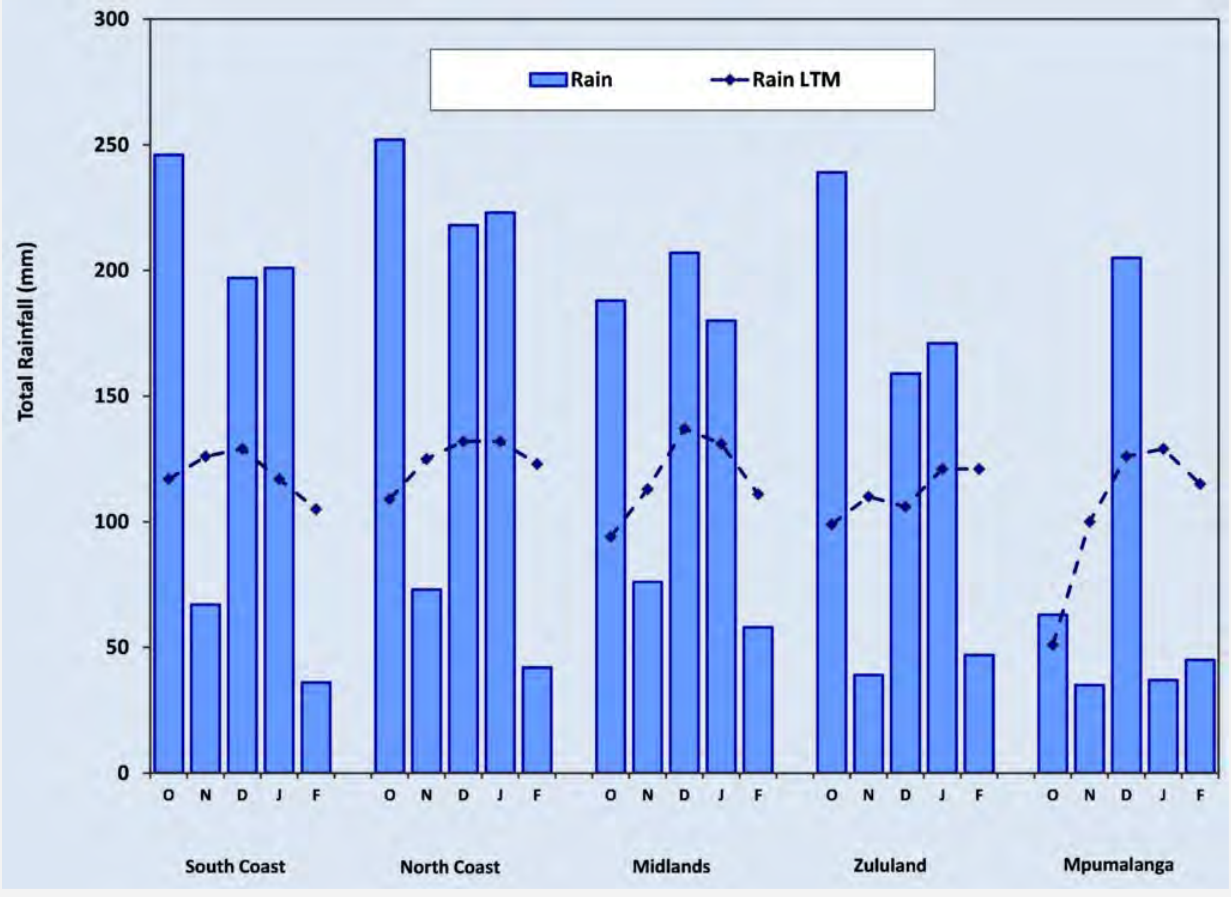
Weather

Phillemon Sithole ***(Agrometeorologist)***

Published: 14th Mar 2024

recorded in November and February. However, in the irrigated lowveld of Mpumalanga, rainfall has been well below average, in line with the anticipated low summer rainfall associated with the predominantly strong El Niño conditions this summer season.

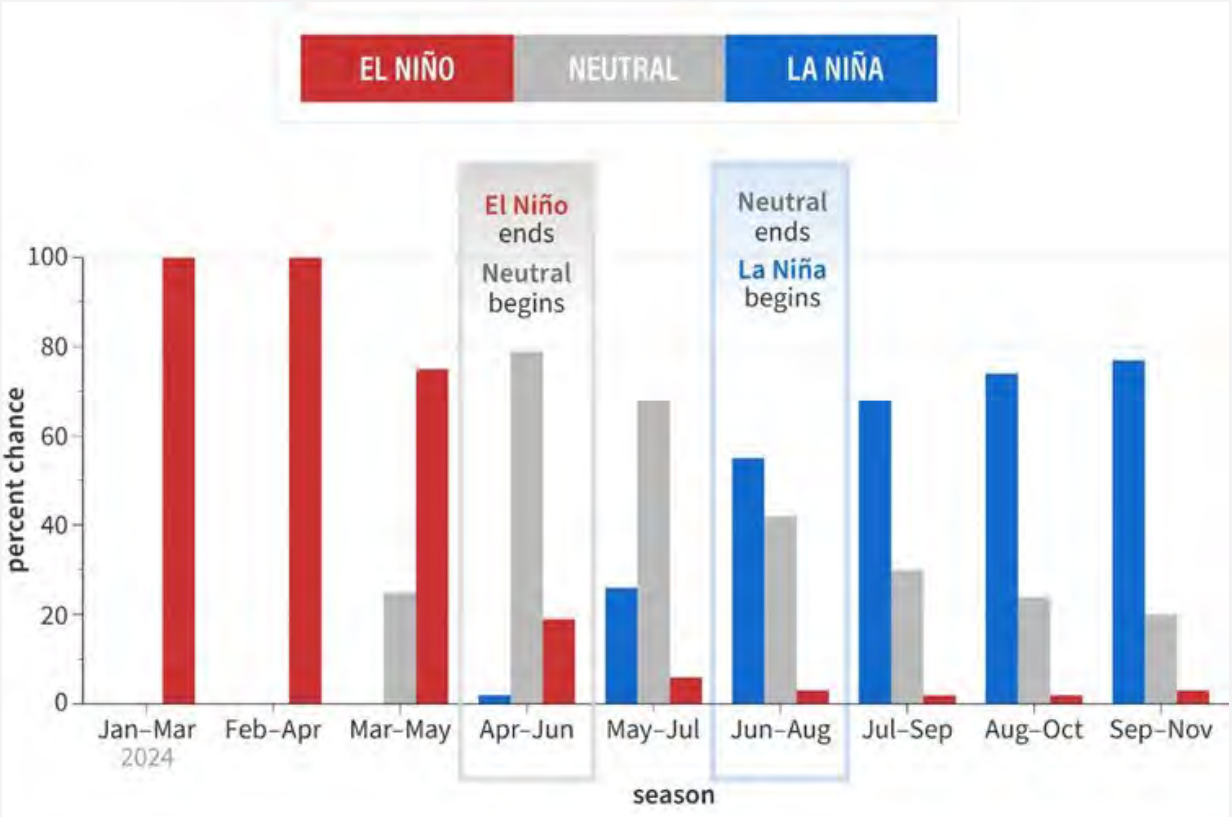
All irrigation water sources remain well replenished, no immediate water restrictions are anticipated, but load shedding continues to reduce irrigation capacity.



Regional average monthly total rainfall for October 2023 to February 2024 compared to the corresponding long-term means (LTM).

Outlook

The predominantly strong El Niño state of the El Niño-Southern Oscillation (ENSO) during the 2023/24 summer season is gradually dissipating and will likely transition to an ENSO neutral state by April to June 2024, making neutral conditions the most likely category during the winter season of 2024.



February 2024 ENSO forecast for each of the three possible categories for 2024. Source: NOAA Climate.gov

The *South African Weather Service* and the *International Research Institute for Climate and Society* predict near normal rainfall for most of Kwa-Zulu Natal during autumn (March to May) 2024, while below average rainfall is likely for Mpumalanga over the same period. Mostly above normal minimum and maximum temperatures are expected.

Please visit the SASRI WeatherWeb for the latest industry weather reports and links to up-to-date seasonal climate forecasts.