



GRAIN GUIDE 2025

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Be smart when packing for the journey ahead



PACKING FOR A JOURNEY IS ALWAYS DIFFICULT. IT IS INTERESTING HOW QUICKLY YOU FILL UP 23 KG PER PASSENGER (WHICH IS THE ALLOWANCE FOR MOST AIRLINES). PACKING FOR A JOURNEY AND MAKING PREPARATIONS FOR THE NEXT PRODUCTION SEASON APPEAR TO BE BIRDS OF A FEATHER. MEASURING AND FITTING OR PACKING AND WEIGHING (AND THEN STARTING FROM SCRATCH) ARE THE WAY TO GO IN BOTH CASES.

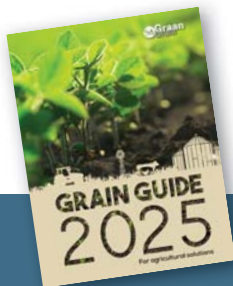
Experienced travellers truly have to plan ahead, I realise at the end of my tether – they are typically people who plan three times and pack only once. This makes you think of the calibre of producer whose planning is such that when the planters cut the ground, it does not involve a feverish scrabbling, but is rather the ignition of a well-thought-out, well-planned process. The *Grain Guide* has been compiled to take your prior planning and problem-solving to this level.

SA Graan/Grain thanks every advertiser and each member of the editorial committee who has helped to produce *Grain Guide 2025*. Over the years you have gotten to know the little guy – it is a handy travelling companion, with state-of-the-art agricultural contacts and useful suggestions to quickly shrink the distance between your need and more than one useful solution to it.

Start planning baggage space for your *Grain Guide* for your next agricultural adventure now.

All the best

Johan Smit
Managing Editor



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AGILITY IS A TEAM SPORT

GRAIN PRODUCERS MUST BE AGILE TO SURVIVE CHALLENGING PRODUCTION SEASONS LIKE THE MOST RECENT ONE. USUALLY WE SAY THAT A CHAIN IS JUST AS STRONG AS ITS WEAKEST LINK, BUT WHEN WE LOOK AT OUR FAMOUS AGILE RUGBY PLAYERS LIKE CHESLIN KOLBE AND BRYAN HABANA, WE SEE THAT THEY MOVE LIKE LIGHTNING THROUGH THE GAPS CREATED BY THE FAMOUS (AND SOMETIMES INFAMOUS) PACKS OF FORWARDS AS THEY DRAW IN THE OTHER TEAMS TO TRY AND STOP THEIR BRUTAL MOMENTUM.

In a similar fashion, grain producers can be just as agile and resilient as the other links in the agricultural value chain enable them to be, because a grain producer is the final decision-maker on his farm. He must make decisions that have wide-ranging consequences and a producer therefore has to select a team that ensures the best access to information and expert advice. Thanks to the annual *Grain Guide* from SA Graan/Grain, producers' communication process in this regard with the other links in the agricultural value chain is considerably easier.

The publication strives to make a collection of all the contacts a grain producer might need available in one central publication that a producer can easily use as an excellent aid to manage his farming practices efficiently. Thanks to this publication, producers can immediately and without any red tape gain access to the most recent contact details of a wide variety of agents, service providers and advisers. This places a collection of information on access to the most up-to-date technology in each discipline of grain farming in the palm of the producer's hand.

Grain producers in South Africa have joint challenges in an often unfriendly agricultural environment that they have to address. These include changing weather conditions, an increasing cost crunch and volatile markets. Every grain producer also has unique challenges to deal with on his farm. Thanks to the potential of the networking on the basis of the *Grain Guide*, the resilience of producers can be strengthened in this regard.

The *Grain Guide* provides producers not only with an instrument to manage their farms efficiently, but also with the knowledge to anticipate changes and navigate the complexities of modern agriculture with self-confidence. With ongoing new innovations in an industry in which success depends on both adaptability and planning for the future, access to the most recent reliable information and advice is vital.



The networking opportunities provided by the *Grain Guide* also has a deeper, underlying benefit. It promotes the conclusion of strategic alliances for the benefit of the long-term success of a grain producer. This ensures that producers do not work in isolation, but rather become part of a larger, more supportive network that utilises collective knowledge and resources. The value this offers therefore stretches further than just obtaining information and advice – it creates a community in which producers can progress in the face of change. Feel free to use your *Grain Guide* to make sure that you remain part of this community.

Dr Tobias Doyer
Chief Executive Officer: Grain SA

Grain SA meetings and events

(as at 4 October 2024)

JANUARY

- 14 Commercial Producers Trust
- 15 NAMPO Board (Pty) Ltd
- 16 PGP Board NPC
- 17 Audit & Risk Committee
- 21 Marketing Working Group
- 22 Grain SA Executive Committee
- 23 Winter Cereals Working Group
- 24 Canola/Lupine/Alternative Crops Working Group
- 24 SA *Graan/Grain* Editorial Committee

FEBRUARY

- 4 Maize Working Group
- 5 - 6 Grain SA Board – NAMPO Park
- 11 Sorghum Working Group
- 12 Sunflower and Soybean Working Group
- 18 Farmer Development Working Group
- 19 NAMPO Exhibitors Meeting
- 20 NAMPO Harvest Day Committee
- 20 Groundnuts Working Group
- 25 Production/Input Working Group
- 28 SA *Graan/Grain* Editorial Committee

MARCH

- 12 - 13 Grain SA Congress – NAMPO Park
- 18 Grain SA Board Induction (newly elected members)
- 26 Northern Barley Working Group
- 27 Southern Barley Working Group
- 28 SA *Graan/Grain* Editorial Committee

APRIL

- 14 - 16 Grain SA Executive Committee Planning session
- 25 SA *Graan/Grain* Editorial Committee

MAY

- 13 - 16 NAMPO Harvest Day – NAMPO Park
- 27 Winter Cereals Working Group
- 28 Production/Input Working Group
- 30 SA *Graan/Grain* Editorial Committee

JUNE

- 3 Grain SA Audit & Risk Committee: Risk Register
- 4 Grain SA Executive Committee
- 5 Marketing Working Group
- 20 SA *Graan/Grain* Editorial Committee
- 24 NAMPO Livestock & Exhibitors Meeting
- 24 NAMPO Harvest Day Committee
- 25 - 26 Grain SA Board meeting – NAMPO Park

JULY

- 16 Southern Barley Working Group
- 17 Northern Barley Working Group
- 23 NAMPO Board (Pty) Ltd
- 24 Commercial Producers Trust special meeting
- 25 SA *Graan/Grain* Editorial Committee
- 29 Farmer Development Working Group
- 30 PGP Board NPC

AUGUST

- 5 Groundnuts Working Group
- 7 Winter Cereals Working Group
- 8 Canola/Lupine/Alternative Crops Working Group
- 12 Maize Working Group
- 19 Sorghum Working Group
- 21 PGP Board NPC
- 22 SA *Graan/Grain* Editorial Committee
- 26 Audit & Risk Committee
- 26 Sunflower and Soybean Working Group
- 27 Commercial Producers Trust
- 28 NAMPO Board (Pty) Ltd

SEPTEMBER

- 2 Grain SA Management team
- 3 - 6 Swartland Show
- 10 - 13 NAMPO Cape
- 16 Production/Input Working Group
- 17 - 18 Grain SA Board meeting – NAMPO Park
- 19 SA *Graan/Grain* Editorial Committee
- 23 Grow for Gold
- 30 Farmer Development Working Group

OCTOBER

- 1 Day of Celebration – NAMPO Park
- 15 - 16 Agri SA Congress
- 16 - 18 NAMPO ALFA – NAMPO Park
- 21 Remuneration Committee
- 22 Grain SA Executive Committee
- 24 SA *Graan/Grain* Editorial Committee
- 28 Remuneration Committee
- 29 Grain SA Management team
- 30 Marketing Working Group
- 31 Grain Producer Awards Function

NOVEMBER

- 21 SA *Graan/Grain* Editorial Committee
- 27 - 29 OFM NAMPO Park Christmas Market



SEED

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KEEPING UP WITH SEED

ONGOING INPUT PRICE MONITORING IS ONE OF THE MOST IMPORTANT FUNCTIONS THAT GRAIN SA CARRIES OUT ON BEHALF OF ITS MEMBERS. THE MONITORING OF SEED PRICES IS A PART OF THIS. GRAIN SA ATTEMPTS TO MAKE SEED PRICES AS TRANSPARENT AS POSSIBLE AND PROMOTE COMPETITION IN THE SEED INDUSTRY SO THAT ITS MEMBERS PAY COMPETITIVE PRICES AND MAKE INFORMED DECISIONS.

Depending on the plant population, seed as production input can constitute between 10% and 17% of a maize producer's production cost account. Little focus usually falls on this input, although it has a greater effect than fuel prices in some parts of the country.

Seed input costs are an investment. Seed with better genetics that was bred for specific conditions is more expensive than ordinary cultivars, but will lead to better yield and higher resistance to diseases. This seed should be better resistant against extreme weather conditions. With these factors taken into account, specialist cultivars should therefore improve the profitability of the producer.

The breeding and technology levy that is collected by the South African Cultivar and Technology Agency (SACTA) has already achieved considerable success:

- ❑ Over the past year, 67 new soybean cultivars were registered.
- ❑ New technology was approved and is currently being commercialised. The Intacta RR2 gene is aimed at bollworm control and there should be sufficient Intacta RR2 seed available this season. Corteva's Concesta E3 technology has been approved and should be commercialised soon. Bioceres's HB4 drought-resistant gene has also been submitted to the GMO legislator.
- ❑ New seed companies have entered the market, which means greater competition. Cultivars differ and each one has unique adaptability and yield potential. According to ARC-Grain Crops in Potchefstroom, this cultivar variety makes alternatives available that can be utilised well.

1

Guidelines for cultivar planning

- ❑ Never replace a reliable cultivar with a new or unknown cultivar within one season.
- ❑ Cultivar variety spreads risk. Plant a range of cultivars that differ with respect to length of growing season and properties.
- ❑ Cultivars should adapt to a specific yield potential, but must also be able to adapt to conditions with higher and lower potential.
- ❑ Review cultivars annually.

2

Seed prices

Maize seed prices for the 2024/2025 production season rose by 6,1% on average (13,9% in 2023/2024). Sunflower seed prices on average rose by 3,7% (15,7% in 2023/2024) and grain sorghum seed prices by 7,6% (16,6% in 2023/2024).

Soybean seed prices dropped by 3,8% (they increased by 15,2% in 2023/2024). A good barometer for assessing price increases is the producer price index (PPI).

3

Guidelines for seed purchases

- ❑ Be aware that prices apply to different packaging, for example 18 kg, 20 kg or 25 kg bags or kernel packages of 60 000 to 80 000 kernels per bag. For sunflower seed there are packages with 150 000 and 180 000 kernels per bag, and for soybeans 60 000 and 140 000 kernels per bag, and 25 kg bags.
- ❑ The new cultivars are more expensive. Make sure that the cultivars have been tested independently and that their performance is proven. Do not take unnecessary risks with a new cultivar.
- ❑ Take note of the agronomic properties (adaptability, yield performance and stability), quality characteristics and disease and pest resistance of a specific cultivar before you purchase it.
- ❑ Make sure that the quality of the seed meets all the requirements (also those on the packaging), particularly with respect to uniform kernel size and kernel shape.
- ❑ When GM cultivars (Bt or RR or double-gene cultivars) are purchased, make sure that the technology fee is included in the price and that conventional maize is also purchased for the haven. Everybody handling the seed must be able to identify GM properties on seed bags and distinguish them from conventional cultivars.
- ❑ Certain seed lots are treated with substances that make a difference to the price.
- ❑ Negotiate a discount. Several companies have discount structures for bulk purchases, confirmation of order, early delivery and early payment.
- ❑ Contact seed companies and their representatives for more information on prices and packaging.



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www.agricol.co.za

4 Seed treatment

Companies do not guarantee the quality of seed if seed treatment is not done by the company itself or a registered chemical supplier (that uses equipment and processes that are ISO accredited). In the case of a chemical supplier handling the treatment, he must be able to ensure that the treatment does not affect germination. The chemicals used must also be registered in terms of Act No. 36 of 1947 and preferably be recommended by the seed company for the cultivar concerned. The treatment for Rhizobia is excluded.

It is advisable for producers to obtain information from seed companies about the Rhizobia that work the best on their cultivars. Producers who buy seed that is untreated and want to have it treated later, should preferably do this in collaboration with the seed company.

5 Guidelines for planting Bt maize

With the purchase of Bt seed, a technology agreement is signed in which a producer undertakes to plant the seed according to prescribed guidelines. One of the main guidelines includes the planting of a haven. There are two options that can be followed: a 5% planting of non-Bt seed where stalk borers may not be controlled chemically, or a 20% planting of non-Bt seed where stalk borers may be controlled chemically.

If the 5% option is exercised, each 100 ha of maize planted must comprise 5 ha of non-Bt maize and 95 ha of Bt maize. If the 20% op-

tion is exercised, each 100 ha of maize must comprise 20 ha of non-Bt maize and 80 ha of Bt maize. In addition to the required percentage of non-Bt maize, there are also specific measures that apply to the planting of a haven.

Havens must be located so that Bt maize is planted no further than 400 m from a haven. At least two outside borders of the Bt planting must be covered, it may not consist of fewer than six rows, and haven plants may not be located among Bt plants.

Maize planted in the haven must have the same growth rate as the Bt maize and they must also be planted within seven days of each other.

6 Guidelines for planting Intacta seed

A haven is very important when Intacta soybean seed is being planted to protect the technology for the future.

A portion of the field is planted not with the Bt cultivars, but with RR cultivars, so that a certain part of the African bollworm population is never exposed to the Bt technology. This is done so that there is always a population of Bt-susceptible moths to mate with Bt-resistant moths so that the next generation is Bt susceptible again. Bayer provides these guidelines:

- ☐ The minimum recommendation for this haven (non-Bt cultivar) is 20%.
- ☐ Havens must be planted within seven days from the Intacta planting.
- ☐ They must be within 400 m of the Intacta planting, in the same field.
- ☐ The haven must be treated with insecticide (excluding Bt-containing products).
- ☐ Varieties with the same growth class must be used.
- ☐ A minimum of six rows is required.
- ☐ The haven must be on the same farm, with the same growth conditions.



Limagrain Field Seeds

Who is Limagrain Field Seeds?

Limagrain Field Seeds (LGSA) is more than just a seed company. We are driven by a farmer-first approach, bringing top-quality field crop and forage seeds to South Africa and beyond! For 60 years, we have been developing an innovative range of seed varieties and we proudly deliver a multi-crop offering that meets the needs of our farmers.

A Complete Seed Solution for Every Farmer

With LGSA, farmers know that they are getting seeds specifically optimised for where they farm. We bring:

-  Top-quality genetics for maize, soybean, sunflower and wheat, along with exclusive forage and pasture varieties. Expect higher yields, resilience, and optimised performance.
-  A team of technical experts that provide guidance on crop selection, variety choices, and best farming practices, ensuring sustainable growth for our farmers.
-  Research-driven innovation with significant investment in local R&D, with dedicated research stations in Potchefstroom and Bapsfontein. We continuously improve our offerings and adapt to farming needs.

Where quality seeds meet profitable yields



Maize
Grain



Maize
Silage



Soybean



Cover crops



Wheat



Sunflower



Forage



Sorghum

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REDUCE LOSSES DUE TO INCORRECT SEED PLACEMENT

INCORRECT SEED PLACEMENT CAN BE THE CAUSE OF YIELD LOSS OF AS MUCH AS 10% FOR PRODUCERS.

Here are a few tips to limit these losses:

1 Maintain planters. Many planters are equipped with the best technology, but because of poor maintenance and wear and tear, seeds are sometimes not picked up or spaced correctly, or two seeds are planted simultaneously.

2 Make sure that the correct planter speed is used. If the planter moves too quickly, the seeds can bounce and roll or stretch the interplant spacing. This will lead to fewer plants being planted per hectare, which will lead to a lower yield.

3 Have specialists like Cerealis Precision or other agribusinesses test and repair planter bins. Let a mechanic also check the electronics before the season starts.

4 Ensure that the planter units plant at the same depth. The planting depth can differ due to wear and tear on the units.

5 Consider buying another planter to reduce pressure on the other planter(s) and to ensure that the planting is done at the right speed.

6 Test the performance of the planters beforehand and during the planting process.

7 Make sure to have the latest equipment software updates installed. Contact the local manufacturers of the tractors and equipment to make sure it is updated.



8 Test all systems before the season starts and prepare to avoid pressure in the busy season.

9 Give your planter/tractor operator refresher training on the use of the technology in the tractor.

Several articles on this topic appeared in SA Graan/Grain. Read amongst other the one on mistakes with seed placement that costs a lot without noticing on sagrainmag.co.za

Pietman Botha, SA Graan/Grain editorial team



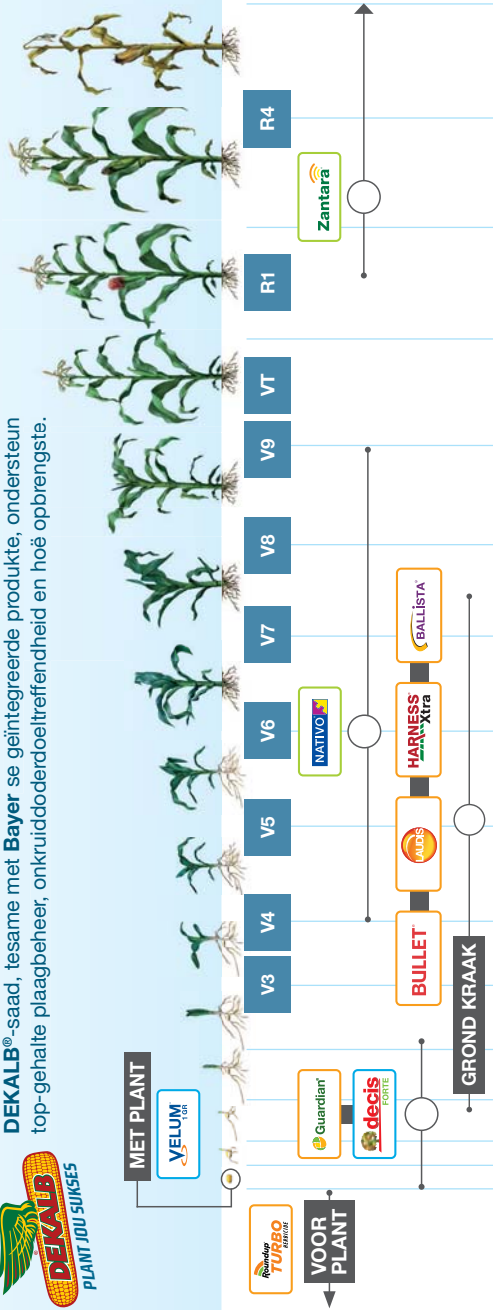
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AS3611/SAG

Important information REGARDING BIOTECH SEED

SOUTH AFRICA HAS A LONG TRACK RECORD WITH BIOTECH SEED AND PRODUCERS ACROSS THE FARMING SPECTRUM OFTEN CHOOSE THIS SEED OPTION EVEN THOUGH IT CAN BE A MAJOR CONTRIBUTOR TO THE COST OF OVERALL FARMING INPUTS. THE WIDESCALE ADOPTION OF BIOTECH MAIZE, SOYBEAN AND COTTON HAS BEEN DELIVERING BENEFITS TO PRODUCERS IN SOUTH AFRICA FOR MORE THAN TWO DECADES.

Why biotech seed?

1

The primary biotech traits have been limited to **insect resistance and herbicide tolerance**.

2

However, they have provided a direct advantage when it comes to the **management of pests and weeds**.

3

Indirectly they also **boost crop yields**, offering producers **greater flexibility with time and labour savings** as well as **reducing the need for pesticide applications** in some cases.

In part, the continued success of biotech seed adoption is due to the enabling regulatory environment in terms of the Genetically Modified Organisms Act, 1997 (GMO Act, 1997). By having an operational regulatory framework in place, South African producers had an avenue to access biotech seed very early when compared to counterparts in other African regions.

Cultivation comes at a cost

The cultivation of biotech seed varieties has become a mainstay of the agri food production system as each year, millions of producers around the world plant biotech crops for better yields, improved crop quality and the ability to use sustainable farming practices such as no-till. However, bringing these innovative new traits from the lab to producers' fields requires a considerable investment of time and resources.

An updated study by CropLife International highlights that on average it takes an investment of \$115 million and 16,5 years of research, development and regulatory approvals to deliver a new biotech trait to market. Scan the QR code to read more:



Stick to these proper stewardship practices

Considering these high investment costs and product development timelines, it is imperative that end users of biotech seed products exercise proper stewardship practices to ensure that trait technology continues to be effective and deliver expected benefits.

In this regard, the sale of every bag of biotech seed with traits such as insect resistance (for example Bt crops) and herbicide tolerance (for example glyphosate-tolerant crops) goes hand in hand with a **growers technology agreement (GTA)** or **technology use agreement (TUA)**. This is an agreement between the technology developer and the grower.

The technology agreement serves to protect the investment of technology developers by placing obligations on growers regarding the following:

- ❑ Traited seed technology cannot be sold.
- ❑ Compliance with resistance management practices and other stewardship requirements for cultivation and marketing of insect-resistant and herbicide-tolerant crops.
- ❑ Participation in monitoring programmes (for example stewardship audits) by technology developers in compliance with annual reporting obligations under the GMO Act.

In return, the agreements place responsibility on seed developers to equip growers with the necessary knowledge on best stewardship practices to be followed when cultivating traited seed. This is facilitated through the provision of technology user guides that outline the conditions and requirements for cultivation of the specific traited seed variety.

Knowledge is key

As the new production season gets into full gear, producers need to ensure that they are armed with the right information regarding which seed varieties are most suitable for their growing conditions and production needs.

While biotech seed gives our producers more tools and options, it comes with the responsibility of exercising proper stewardship in the form of resistance management and implementing good agricultural practices, thus ensuring the continued delivery of sustainable and long-term benefits to producers, the environment and food security.

The complete article appeared in SA Graan/Grain of March 2024.

Chantel Arendse, lead:
Plant Biotechnology, CropLife SA



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STRIVING TO BE THE BEST AT WHAT THEY DO – PRODUCE FOOD

DESPITE THE DROUGHT EXPERIENCED IN MOST PARTS OF THE SUMMER RAINFALL AREA, THE ENTRIES IN THE 2024 GRAIN SA GROW FOR GOLD YIELD COMPETITION SAW EXCELLENT YIELDS PER MILLIMETRE OF RAIN.

Speaking at the Grain SA Grow for Gold yield competition awards held at the Thaba Eco Hotel in Johannesburg in September 2024, Corné Louw, head: Applied Economics and Member Services at Grain SA, pointed out that this competition provides a great platform for grain producers. It gives them a chance to compete for the best yield per category, aiming to reach the genetic potential of different grain crops and most importantly, to learn from one another.

‘The competition and the challenges the producers face emphasise the importance of good quality products that can perform under various and difficult production conditions. In an industry where obstacles continue to emerge, these achievements show that applied knowledge, technological advances, and specialised cultivars are the key to sustainable growth.’

Although the competition is about best yields, it also emphasises the ability of producers to realise above-average yields in difficult years, Louw added. He shared the following statistics:

- Although the 2024 competition had 25% less entries than the previous year, the number of entries is still substantial.
- Since the start of the competition five years ago, an accumulative total of 368 entries has been received.

- Of the 72 entries received this year, there were many first entries in the competition, giving especially young producers the opportunity to measure their achievements with their peers.
- Coinciding with the fifth anniversary of the competition, a wheat category with three divisions was also introduced for the first time this year.

Yield achieved

- The maize yields of those who entered the competition were between 160% and 190% higher than the average South African maize yields.
- Soybean yields were between 130% and 210% higher than the national yield average, giving an indication of what was possible.
- In the sunflower category a new sunflower yield competition record of 4,472 t/ha was achieved.



Some of the winners at this year's Grow for Gold national yield competition.

All the results as well as interviews with the category winners are available on sagrainmag.co.za as well as the December/January edition of SA Graan/Grain.

Magda du Toit, on behalf of Grain SA

This is how to deal with POOR SEED QUALITY

EXPERIENCE IS A GOOD TEACHER. ASK PRODUCERS WHO HAVE LEARNED THE HARD WAY TO RATHER BUY SEED FROM A RECOGNISED COMPANY WITH A PROVEN TRACK RECORD IN SOUTH AFRICA. IT IS ALSO ADVISABLE TO HAVE A CONTROL TO REFER TO. THEREFORE, AVOID PLANTING ONLY ONE CULTIVAR.

If you suspect or have experienced any seed problems, follow the next steps:

Contact the seed representative and insist on an on-site investigation.

Keep a record of dates and conversations.

Gather and write down as much information as possible, take photos or videos to refer back to later.

Rhizobium and seed treatment:

- ☐ Every year problems are experienced with the action and effectiveness of Rhizobium on soybeans.
- ☐ Please make sure that your Rhizobium supplier is a reliable supplier with a track record.
- ☐ It is recommended that the seed company be consulted as to whether the specific Rhizobium will be recommended on a specific cultivar.
- ☐ A QR code to the list of available Rhizobiums follows below the article.

If the problem is not resolved, do not wait too long before considering the next steps:

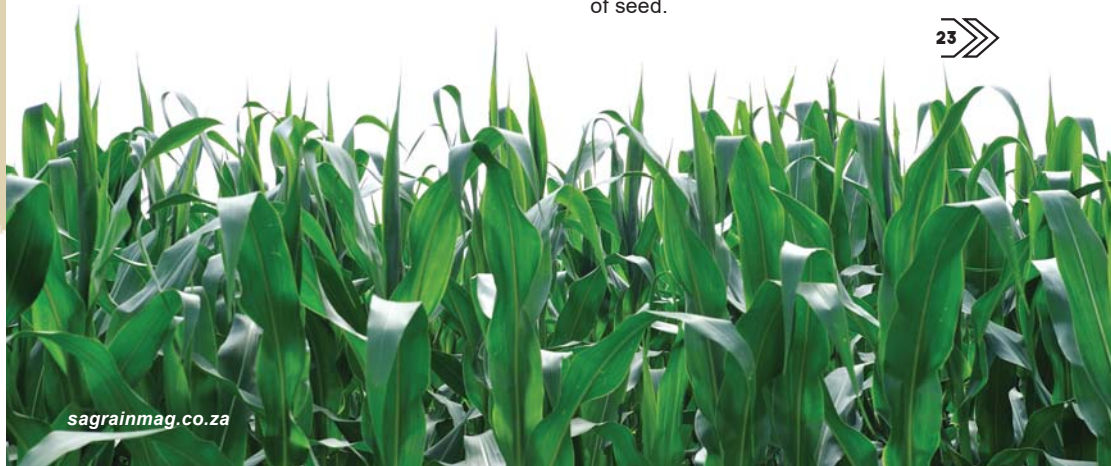
1 Contact an independent scientist to do an on-site investigation. Take it up with the Department of Agriculture if the matter is still not resolved.

2 Members of Grain SA should inform the organisation if the seed company does not provide the required attention to the relevant problems.

3 A trade control investigation will be carried out in terms of the Plant Improvement Act.

Here are the Department of Agriculture's tips:

- ☐ Only buy from registered seed suppliers.
- ☐ Producers are recommended to keep record of lot numbers and batch code numbers.
- ☐ Labels attached to seed bags should state the name of the firm, as well as the lot number, germination group and type of seed.





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Agronomy Manager	Emile van den Berg	082 806 7452
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MPUMALANGA	Gerhard Marais	082 806 7931
EASTERN FREE STATE	Des Cuff	060 957 2992
MPUMALANGA/LIMPOPO/GAUTENG	Willem du Plessis	067 427 2191
CENTRAL FREE STATE/NORTH WEST	Gert Naudé	076 431 2257
NORTH WEST	Nelis Potgieter	071 291 2612
NORTHERN CAPE/EASTERN CAPE	Kallie Knox	067 424 7877
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PRODUCT AGRONOMIST - WEST	Johan Kock	071 681 4039

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20 This is how to...

- ❑ When purchasing seed, request an analysis certificate of the quality of the seed lot concerned, issued by a registered seed laboratory. The laboratory report should not be older than three months.
- ❑ Producers are advised to retain the actual bag containing all the necessary traceable information, as well as the received invoice for reference purposes.

Producers who may have retained seed from the previous year and want to have the germination tested can find certified laboratories for this via the QR code on the left.



Laboratories



Rhizobiums

REGIONAL REPRESENTATIVES

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RAVISH RANJITH

073 251 0157

Corné Louw, head: Applied Economics
and Member Services: Grain SA

BE CAREFUL TO TREAT SEEDS YOURSELF

THE TREATMENT OF SEEDS MUST BE APPROACHED WITH CAUTION, ESPECIALLY IF IT IS DECIDED TO DO IT YOURSELF.

Own treatment may affect germination

Seed companies do not guarantee the quality of seed if the seed treatment is not done by the seed company itself, or by a registered chemical supplier. Treatment with Rhizobia is excluded.

If a chemical supplier performs the treatment, they must be able to ensure that it will not affect the germination. The chemicals used must also be registered in terms of Act 36 of 1947 and preferably be recommended by the seed company.

Rodent control remains a challenge

Producers must ensure that appropriate and responsible rodent management plans are implemented. Proven management plans – that include rodenticides – are available, therefore producers are advised to follow these management plans.

**Contact Dr Gerhard Verdoorn at
082 446 8946 or gerhard@croplife.co.za
in connection with these plans.**



For an example of a
rodent management plan,
scan the QR code.

Corné Louw, head: Applied Economics
and Member Services: Grain SA



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Producers can influence the availability of IMPROVED PLANT VARIETIES

INVESTMENT IN PLANT BREEDING AND THE DEVELOPMENT OF INNOVATIVE TECHNOLOGIES AND BREEDING TECHNIQUES THAT HELP BREEDERS DEVELOP IMPROVED CROPS, ARE TWO OF THE KEY ELEMENTS THAT ENABLE PRODUCERS TO REALISE GOOD YIELDS AND, IN THE END, ACHIEVE FOOD SECURITY GLOBALLY.

Throughout the ages, plant breeders have made use of the natural variation in plant genomes that plants use to adapt to their changing environments, in breeding programmes. Modern varieties of maize, wheat and rice are excellent examples of the end result of human selection in agricultural crops. Improvement of the most desirable agronomic and yield-enhancing traits has resulted in crop varieties that are safe, robust, nutritious, and capable of growing under a wide range of environmental conditions.

According to Dr Lukeshni Chetty, general manager at SANSOR (South African National Seed Organisation), it is crucial to continuously increase and secure food production on arable land that is available for agriculture without increasing the demand for additional resources.

“ Crops should continue to withstand changing environmental conditions, as well as disease and pest pressures in future

‘Climate change poses a major challenge, with increasing temperatures, more frequent droughts, flooding, and other extreme weather phenomena impacting agriculture globally. Reconciling sustainability with agricultural productivity in the face of climate change relies strongly on the development of resilient, high-yielding crops of superior nutritional value that can be grown more resource efficiently,’ Dr Chetty says.

‘Crops should continue to withstand changing environmental conditions, as well as disease and pest pressures in future. This is where plant breeding comes into play,’ says Dr Magdeleen Cilliers, policy and research manager at SANSOR.

‘Plant breeders have the important responsibility of ensuring new varieties of field crops and vegetables that can help producers realise the best yields possible using less inputs that can withstand abiotic stress factors such as droughts or floods. In addition, it is also important to breed crops that address consumer preferences, for example, vegetables with a better shelf life, attractive colours or less seed, or without allergens,’ Dr Cilliers points out.

‘To address food challenges and ensure producers have a choice of varieties for planting to help overcome production hurdles, we have to ensure efficient breeding programmes or investment opportunities for crops not bred in South Africa. It is important that the plant breeding industry gets sufficient funds to sustain breeding programmes and legislation to protect those programmes. Like any new invention, for example new cell phones or applications, plant breeders also need protection for their breeding inventions.’

The grain and oilseed crops industry found a novel way to fund technology and cultivar development in open-pollinated crops in South Africa. In a co-operative industry drive, the South African Cultivar and Technology Agency (SACTA) was created in 2016 to collect and administer breeding and technology levies for self-pollinated crops in South Africa.

SACTA is not linked to a specific commodity and addresses only the need to advance breeding of self-pollinated grain and oil seeds by collecting a levy at the first point of sale or delivery and by paying breeding and technology levies to seed companies and holders of plant breeder rights based on estimated market shares.



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Return on investment

It is of the utmost importance for the economy to obtain new and improved plant varieties as there is a constant demand for better quality, higher yields, better processing properties as well as increased disease, pest and drought resistance.

'We must realise that if there is no incentive for breeders or companies to invest in breeding programmes for new varieties, there will be very little progress in unlocking the genetic potential of our cultivated crops and South Africa will not have access to new and improved varieties,' Dr Cilliers adds.

“ To encourage plant breeding, plant breeders and companies must be assured of a return on their investment **”**

The costs incurred in research and development of new plant varieties and hybrids are high. It takes 12 to 14 years to breed a new variety. These long-term investments require significant amounts of financial resources and to justify the size and scope of research spending necessary to develop new varieties, breeders or companies must be able to recoup their original investment.

To encourage plant breeding, plant breeders and companies must be assured of a return on their investment. Intellectual property right (IPR) protection allows companies to generate a return on research and development investment. Strong intellectual property protection allows breeders to be rewarded for their efforts.

Intellectual property is a tool to ensure innovation takes place by encouraging plant breeders to breed improved varieties that focus on bringing economic, environmental and health benefits to the market.

Plant breeders' rights also enable plant breeders and producers to get access to high quality new varieties produced globally as not all crops and vegetables are bred in South Africa. Some of the material is brought to South Africa by multinational companies or local breeders import the breeding material licenced by companies from across the globe.

When producers exchange seed or sell seed to other producers, it creates a wave of negative consequences. According to Kobus van Huyssteen, technical manager at SANSOR, some of these consequences include the following:

- 1 A lack of breeding programmes and investments in new varieties because companies do not receive a return on their investment.
- 2 The spread of pests and diseases.
- 3 A lack of accountability as there is no complaint procedure or formal avenue to address quality disputes with farm-saved seed.
- 4 No agronomists to advise producers or to investigate cultivation issues.
- 5 Genetic drift and segregation back to parent lines especially if sources are multiplied indefinitely.
- 6 Usually, no laboratory report confirming seed quality (germination and physical purity) is available.
- 7 In cases where a laboratory report is available, the sample was not necessarily taken by someone with appropriate training and the results might not necessarily reflect the true quality of the seed lot.
- 8 Containers such as bags for storage are often re-used, increasing the chance of contamination with undesired substances.
- 9 Seed vigour can easily deteriorate if seed is handled or kept in undesirable conditions.



Producers can influence...

For many years yields of self-pollinated crops in South Africa, especially soybeans, have lagged behind that of other global production areas. Seed companies have been hesitant to release new varieties and advanced traits in South African self-pollinating crops. 'Producer's privilege' has resulted in a high percentage of farm-saved seed, which in turn has prevented seed companies from selling sufficient seed to justify their investment in breeding and technology.

The aim of the SACTA breeding and technology levy is to drive innovation in the value chain and an investment into the sustainability of the grain market in South Africa. It is aimed at driving producer profits and crop productivity. The levy is enabling breeding programmes to afford access to new sources of germplasm, bio-technology, better equipment, tools, and infrastructure and to participate in the value chain with international expertise.

According to Andrew Bennett, CEO of SACTA, an investigation into the future viability of the current soybean breeding and technology levy system conducted by the Bureau for Food and Agricultural Policy (BFAP), indicated that the levy system was a landmark breakthrough in keeping the soybean industry viable. It has ensured that producers gain access to the latest varieties and technologies.

Storage, processing and quality

Producing good quality seed that possesses the distinct genetic characteristics that define that particular cultivar is a highly specialised skill. 'To reproduce specific traits is not as simple as harvesting the seed and planting it again. Seed companies employ a range of methods and techniques to isolate material and produce genetically pure varieties,' Van Huyssteen explains.

The storage of seed after harvesting before the new planting season, is also a crucial part of on-farm production success. Purchasing quality seed with a high yield potential is a huge investment. The storage environment has a big impact on the quality and vigour of seed. Quality seed is defined as seed with the optimal moisture content, free from pathogen infestation and insect damage that can give rise to an even stand of strong, healthy seedlings under field conditions. If stored under unfavourable conditions, vigour and germination percentages can be affected negatively. When storage conditions are not adequate, seeds lose viability due to increased metabolic activity, promoting a reduction in the physiological quality of the seeds.

'Seed storage, processing and quality assurance require trained personnel, specific skills and experience, and suitable equipment to grade and treat seed. The value of seed treatment is immense and it needs to be applied by specialists with specialist equipment. These are all services rendered by seed companies and are included in the price and the final product delivered on the farm,' he points out.

It is important to note that not all plant varieties are protected under the Plant Breeders' Rights Act in South Africa and the exchange of seed of these varieties are permitted. However, it must be stressed that if producers are not reinvesting in seed germplasm, breeding companies cannot continue to develop new and improved varieties.

Seed is a living organism, and this should be kept in mind at all times. 'Inside the seed is a dormant miniature plant awaiting the opportunity to grow. The better the quality of the seed, the better chance for the seedling to have vigour and develop into a yield-giving plant. To plant poor quality seed is a lot more expensive at the end of the day as it can result in a total crop loss,' Van Huyssteen concludes.

*The complete article appeared in
SA Graan/Grain of March 2024.*

Magda du Toit, SA Graan/Grain contributor



IMPLEMENTS AND EQUIPMENT

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Enviroserv

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080 019 2783

Rapid Spill Response

spark@rapidspillresponse.com
086 111 3467

TAKE KW COSTS INTO ACCOUNT

when tractors are replaced

SOMETIMES PRODUCERS HAVE TO REPLACE TRACTORS TO IMPROVE EFFECTIVENESS AND EFFICIENCY. WITH THIS IN MIND, THE QUESTION ARISES: HOW DOES A PRODUCER SELECT A REPLACEMENT TRACTOR? SHOULD ONLY THE PRICE BE TAKEN INTO ACCOUNT? DO PRODUCERS PREFER TO LOOK AT THE FUEL CONSUMPTION? IS THE DEALER NETWORK IMPORTANT OR OTHER ASPECTS TOO?

If prices are compared, it is important to compare the costs per kilowatt (kW) in rand. There are big differences in price per kilowatt between tractors, and more so between the size of the tractors. In **Graph 1** the price comparison between 327 different tractors of between 30 kW and 650 kW is shown. The tractors are divided into two-wheel drive, four-wheel drive with open station, four-wheel drive with cabin, and then tractors with tracks that are also equipped with a cabin.

As can be expected, there are great variations in the costs per kilowatt. As is shown by the information in Graph 1, the smaller tractors are the cheapest per kilowatt, and the cost per kilowatt increases as the tractor's kilowatt increases. The average price of medium-sized four-wheel drive tractors with cabins of between 110 kW and 170 kW is in the region of R22 000/kW. The larger four-wheel drive tractors with cabins of between 170 kW and 450 kW cost about R25 000 per kilowatt. Tracked tractors cost considerably more than the other large tractors.

The price difference of R3 000/kW may not sound too big, but in the end it has a great impact. If we assume that both tractors are 150 kW, the difference is R450 000 – undoubtedly something to take into account. When smaller tractors are replaced by bigger ones, producers have to remember that a new range of implements is also on the shopping list.

Important decisions in purchasing new tractors

How do you decide which tractor to purchase? First determine what the purpose of the tractor is. Will it have to do light work or is a tractor with a bigger mass required, for example, to draw a larger transfer trailer? A different tractor would be preferable for each type of work, but a more adaptable tractor that can do all work well is better.



Ultimately, everything is about the cost of doing the work



Therefore, first determine the full set of tasks for a tractor and then calculate the cost per processing action to select the cheapest tractor for all the tasks. Ultimately, everything is about the cost of doing the work (fixed and variable costs added together). Fixed costs indicate the ownership of a machine and occur regardless of whether the machine is working or not. The variable costs of machinery arise from the use of the machinery.

Variable costs

Variable costs consist of the repairs and maintenance, as well as the fuel costs for a machine. These costs are difficult to predict, as a number of factors influence them. The skill of the driver, the working conditions, maintenance and many more influence the performance and repairs of a tractor. The more work the tractor does, the higher the repair costs will be.

A new tractor is not expected to require as much repair work as a used tractor, but compulsory services as prescribed by the manufacturer have to be carried out. The repairs to older tractors increase up to a point, and then flatten out for a few years as worn components have been replaced – and then the cycle starts all over again. Using an average repair cost per hour for tractors solves this problem to a certain extent. Currently, a norm is accepted where the repairs are determined over the life of the tractor at 120% of the purchase price of the tractor, divided by its use in hours. These norms are used in the costing tables (**Table 1** on page 32 and **Table 2** on page 37).

Repairs to implements are influenced by the type of implement, the work it does and

the wear and tear. Like those of tractors, repairs to implements are also calculated as a percentage of the purchase price across the expected life span of the implement. These norms are also indicated in the costing tables.

The calculation of fuel costs is more complicated than that of repairs. Aspects like the fuel price, power requirements, the litres used per kW-hour and the percentage of kW used together determine the fuel costs. Other aspects like the tractor operator and the soil conditions also have an impact on the fuel consumption of a tractor. The newest technology in tractors attempts to optimise fuel consumption and makes considerable savings possible. Producers who want to buy new tractors should attach an implement to the tractor and measure its actual fuel consumption.

Fixed costs

Fixed costs can be divided into non-cash and cash expenses. The non-cash expenses include aspects like depreciation and interest on the capital investment. The interest on capital is determined to indicate the opportunity cost of the machine. The cash expenses of the fixed costs usually comprise insurance and licence fees.

Depreciation is always present and refers to the loss or decrease in the value of a machine over time. The straight-line method is used to calculate depreciation across the tractor's expected life. To establish the depreciation of tractors and equipment as costs per hour, the purchase cost less the scrap value of the machine and equipment is divided by the life expectancy of the machine. The average life

expectancy of tractors is usually accepted to be 12 000 hours, and the scrap value of tractors is assumed at 10% of the purchase price. The expected lives of the different implements are indicated in the costing tables.

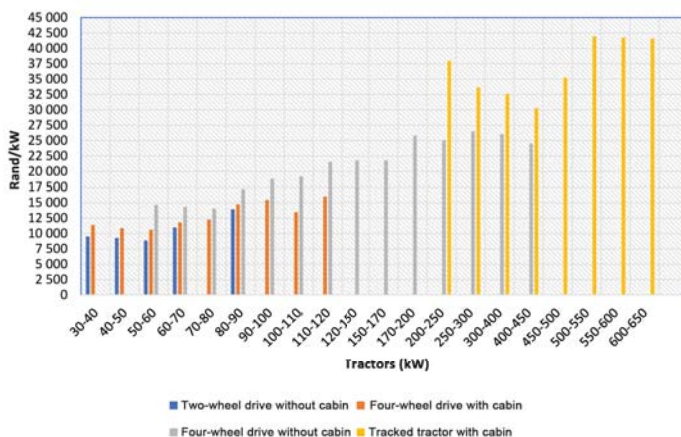
Interest expense is calculated by multiplying the average capital investment (purchase price plus scrap value divided by two) by the interest rate earned on a medium-term investment. This amount is divided by the average annual use of the machine (assumed at 1 000 hours), to determine the cost per hour.

The licence and insurance costs of machinery are a cash cost in which the age of the machine plays a role. There are different ways of calculating licence and insurance costs, but it is generally accepted that 1,75% of the average capital investment is the most common cost.

To calculate the cost per action, the costs for both the tractor and the implement are added together. The tractor and the implement both have fixed and variable costs. If the costs are not added together, it could lead to the underestimation of costs. A full example is given in Table 1 and Table 2.

For the conversion of cost per hour to cost per hectare it is important to know how many hectares per hour are tilled. This is determined by the working speed and working width of the implement, as well as the land effectiveness. When a new tractor is considered, this aspect must be inves-

1 Tractor costs per kilowatt divided up between two- and four-wheel drive open stations without a cabin, four-wheel drive with cabin and tractors with tracks.





Take kW costs into...

Table 1: The cost of a 75 kW four-wheel drive tractor that cost R1 003 906 with different implements.

Fixed costs amount to R142 per hour and running costs (fuel and repairs) amount to R388,75 per hour

ACTION	Tractor costs per hour						
	PLOUGH	RIP OVERALL	RIP ON ROW	CHISEL	DISC/ONE-WAY	WIDE-WORKING	MAIZE PLANTER
Total tractor costs per hour	531,68	531,68	531,68	531,68	531,68	531,68	531,68
Implement costs per hour							
Implement use	4 share 1,6 m	5 times 2 m	1 row 2 times tandem 1,5 m	9 times 2,7 m	28 shares 3,2 m	23 times 5,2 m	8 rows 0,9 m 5,4 m
Average new implement price	137 400	253 815	187 440	303 600	355 676	263 050	1 000 000
Total fixed costs	85,73	131,98	97,46	189,44	221,94	164,13	1 040,00
Repairs and maintenance	60,46	33,84	24,99	60,72	85,36	63,13	533,33
Total implement costs per hour	146,19	165,82	122,45	250,16	307,30	227,27	1 573,33
TOTAL ACTION COSTS PER HOUR	677,87	697,50	654,13	781,84	838,98	758,95	2 105,01
Working tempo							
Hectares tilled per day (10 hours)	9,30	10,79	8,09	13,45	19,92	30,21	30,24
Working tempo (hours/ha)	1 076	0,927	1 236	0,744	0,50	0,331	0,331
TOTAL ACTION COSTS PER HA	729,20	646,43	808,32	581,46	421,17	251,20	696,10
Litres of diesel/ha	14,52	12,51	16,68	10,04	6,78	4,47	4,46
Rand repairs/ha	173,03	124,40	154,94	119,82	93,25	54,12	209,56
Total tractor costs/ha	571,94	492,75	657,00	395,42	266,91	175,98	175,82
Total implement costs/ha	157,26	153,68	151,32	186,05	154,27	75,22	520,28

For Table 1 and Table 2: Tractor life calculated at 12 000 hours and annual use at 1 000 hours.

Scrap value of tractors and implements 10% of purchase price.

Depreciation per hour is the purchase price less the scrap value divided by the expected life.

Interest is calculated at 10,5% of the average investment divided by the hours used per year.

Tractor insurance and licences are calculated at 1,75% of the average investment divided by the hours used per year.

Repairs for tractors are use at 120% of purchase price divided by the expected life of the tractor.

Implement insurance was calculated at 1,5% of the average investment divided by the hours of use per year.

Repairs to implements were calculated at the percentage of purchase price divided by the life expectancy of the implement.



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NEW HOLLAND

WITH YOU, SEASON AFTER SEASON



32 Take kW costs into...

tigated properly. Attach the implement that is recommended, allow it to operate and measure the tilled area over the time. Determine the fuel consumption per hectare and do the sum.

To convert cost per hour to cost per hectare, the following simple formula can be used: $(R/\text{hour}) \div (\text{ha}/\text{hour}) = R/\text{ha}$. To calculate the fuel per hectare, the following formula can be used: $(\text{litres}/\text{hour}) \div (\text{ha}/\text{hour}) = \text{litres}/\text{ha}$

Table 1 and 2 contain the cost for 75 kW and 250 kW four-wheel drive tractors with hoods with different implements. These calculations are based on the above explanations.

“ Attach the implement that is recommended, allow it to operate and measure the tilled area over the time ”

Table 1 was compiled with the aid of *Guide to machinery costs* and *Meganisasiegids* and was adjusted to the average new prices for 2024. Table 1 indicates that a 75 kW tractor used 12,51 litres of diesel to deep rip a hectare. The same 75 kW tractor should use 4,46 litres of diesel to plant one hectare with a six-row planter. The total cost of tilling a hectare should be R421,07.

If the tractor is to be used to till, plough, make seedbeds and plant, it would have cost the producer R1 676,50/ha.

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Table 2, which shows the cost for a 250 kW tractor costing R6 259 547, was compiled in the same manner. It was assumed that this tractor would not generally be used for planting, but that the tractor would mainly do heavy work.

From Table 1 and Table 2 it is clear that the 75 kW tractor uses 14,5 litres of diesel to plough, whereas the large tractor would then use about 19,36 litres of diesel. The difference may look small, but over 1 000 ha it becomes significant.

Producers must determine these figures for their own farm. It would therefore be meaningful to get a demonstration unit and work with it for a while so that the actual figures can be determined.

Use experts who can determine the best combination of tractors for the farm by means of optimisation models and use the recommendations to optimise the replacement of tractors.

Various institutions publish mechanisation guides every year. For assistance with cost calculations for mechanisation, contact the agribusiness in your area, like NWK, Senwes, GWK or VKB, as well as private persons who publish cost guides.

Address further enquiries to Pietman Botha at 082 759 2991.

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Crab steer	✓		✓	✓	✓
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 **LEMKEN** THE AGROVISION COMPANY

Table 2: The cost of a 250 kW four-wheel drive tractor that cost R6 259 547 with different implements.
Fixed costs amount to R891,21 per hour and running costs (fuel and repairs) amount to R1 587,15 per hour

ACTION	Tractor costs per hour				WIDE- WORKING	RIP ON ROW
	PLOUGH	RIP OVERALL	CHISEL	DIS/ONE-WAY		
Total tractor costs per hour	2 478,36	2 478,36	2 478,36	2 478,36	2 478,36	2 478,36
Implement use	8 shares 4 m	13 times 5,2 m	23 times 7,3 m	64 shares 8,6 m	83 times 12 m	4 row 8 times tandem 6 m
Average new implement price	497 200	601 000	870 000	1 391 500	898 000	222 700
Total fixed costs	414,67	417,70	725,58	1 160,51	748,93	154,77
Repairs and maintenance	218,77	80,13	174,00	333,96	215,52	29,69
Total implement costs per hour	633,43	497,83	899,58	1 494,47	964,45	184,47
TOTAL ACTION COSTS PER HOUR	3 111,79	2 976,19	3 377,94	3 972,83	3 442,81	2 662,83
Working tempo						
Hectares tilled per day (10 hours)	23,24	33,70	42,41	57,10	79,68	34,86
Working tempo (hours/ha)	0,43	0,30	0,24	0,18	0,13	0,29
TOTAL ACTION COSTS PER HA	1 338,98	883,19	796,43	695,71	432,07	763,86
Litres of diesel/ha	19,36	13,35	10,61	7,88	5,65	12,91
Rand repairs/ha	363,48	209,53	188,61	168,10	105,61	188,08
Total tractor costs/ha	1 066,42	735,46	584,34	434,01	311,04	710,95
Total implement costs/ha	272,56	147,73	212,10	261,71	121,04	52,92

For Table 1 and Table 2: Tractor life calculated at 12 000 hours and annual use at 1 000 hours.

Scrap value of tractors and implements 10% of purchase price.

Depreciation per hour is the purchase price less the scrap value divided by the expected life.

Interest is calculated at 10,5% of the average investment divided by the hours used per year.

Tractor insurance and licences are calculated at 1,75% of the average investment divided by the hours used per year.

Repairs for tractors are use at 120% of purchase price divided by the expected life of the tractor.

Implement insurance was calculated at 1,5% of the average investment divided by the hours of use per year.

Repairs to implements were calculated at the percentage of purchase price divided by the life expectancy of the implement.

The complete article appeared in
SA Graan/Grain of August 2024.

Pietman Botha, SA Graan/Grain editorial team

The figure displays 12 monthly calendars for the year 2022, arranged in two rows of six. Each calendar is a table with a header row for the month and days of the week, and a body of rows for the days of the month. The months shown are JANUARIE, FEBRUARIE, MAART, APRIL, JULIE, AUGUSTUS, SEPTEMBER, and OKTOBER. The background of the grid is a blurred image of a field with yellow flowers.

JANUARIE						
S	M	D	W	D	V	S
				1	2	3
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

FEBRUARIE						
S	M	D	W	D	V	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

MAART						
S	M	D	W	D	V	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

APRIL						
S	M	D	W	D	V	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

JULIE						
S	M	D	W	D	V	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

AUGUSTUS						
S	M	D	W	D	V	S
				1	2	
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

SEPTEMBER						
S	M	D	W	D	V	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

OKTOBER						
S	M	D	W	D	V	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

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<https://www.deere.africa/en/finance/financing/current-offers/>

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IMPLEMENTS AND EQUIPMENT



MEI

S	M	D	W	D	V	S
				1	2	3
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18	19	20	21	22	23	24
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JUNIE

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22	23	24	25	26	27	28
29	30					

NOVEMBER

S	M	D	W	T	F	S
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2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

DECEMBER

S	M	D	W	D	V	S
		1	2	3	4	5
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

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Tips about the DIESEL REBATE

PRODUCERS ARE RECOMMENDED TO KEEP STRICT RECORDS OF THEIR DIESEL CONSUMPTION. THE CUSTOMS AND EXCISE ACT (NO. 91 OF 1964) REQUIRES, AMONG OTHER THINGS, THAT A LOGBOOK MUST BE KEPT OF HOW DIESEL WAS CONSUMED.

Practical hints

1 Claim the diesel refund according to usage and not purchases.

2 Be as specific and prescriptive as possible about the activities. 'General' is not accepted.

3 In particular, keep proper records of the activities of trucks and vehicles using tarred roads. It is further experienced that it helps to keep separate logbook for vehicles and trucks.

4 Clearly indicate private use.

5 Transporting labour does not qualify.

6 It is more about the qualifying activity than it is about use on the farm. Use on the farm can also be a non-qualifying activity. For qualifying activities consult schedule 6, part 3.

Scan this QR code for an example of logbooks (store logbook and consumption logbook) supplied by SARS.



How to register for the diesel rebate:



Application form:



Details on recording your information

1 Date on which the diesel was added.

2 Quantity of diesel added.

3 Description of the vehicle.

4 Timer or kilometre reading before and after use.

5 Reason for which diesel was consumed. (It is important to check which activities qualify for the diesel rebate – consult Schedule 6, Part 3. It also helps, to record what it is being used for).

Members of GSA who are experiencing problems with this, are welcome to call the office.

Scan the QR code and scroll down to part 3. (It is in Schedule 6, part 3).



Corné Louw, head: Applied Economics and Member Services, Grain SA

DIESEL TESTS can expose contamination

BE CAUTIOUS OF FUEL PRICES THAT SEEM TOO GOOD TO BE TRUE. FUEL DISTRIBUTORS WHO ARE NEW TO THE SCENE OFTEN OFFER EXTREMELY COMPETITIVE PRICES TO PRODUCERS. HOWEVER, MAKE SURE THAT THE QUALITY OF THIS DIESEL MEETS SPECIFICATIONS.

A mini test kit for testing diesel.



Various sources can be used to test diesel quality. Producers who suspect that there are problems with their diesel quality – especially in cases of possible paraffin contamination – can contact the South African Revenue Service (SARS) for testing. Contact Sarika Munien at 082 557 4112 or by email at smunien@sars.gov.za.

Producers who wish to test the diesel themselves, can visit the www.dieseltesting.co.za website or contact 087 575 3568 for the purchase of test instruments.

Another option is to have the diesel tested in a laboratory. The following laboratories have been used by members of Grain SA:

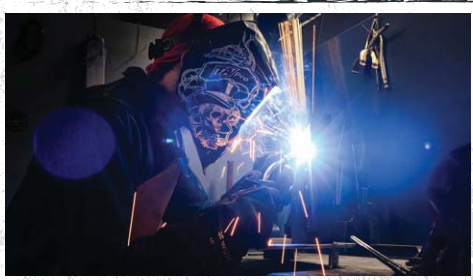
WEARCHECK
011 392 6322
www.wearcheck.co.za

TRIBOLOGY LABORATORY
012 420 2475
Philip.devaal@up.ac.za

Corné Louw, head: Applied Economics and Member Services, Grain SA

TEGNIESE-KWALIFIKASIES

- Dieselwerktuigkunde
- Elektries
- Gereedskapmaker
- Vervoer-elektries (Outo-elektries)
- Sweis
- Megatronika
- Meulmaker
- Pas-en-Draai



NIE-TEGNIESE-KWALIFIKASIES

- Data-en-Wolk
- Kubersekuriteit
- IT-Ondersteuning en -Netwerke
- ////////////////////
- Vroeëkinderyare Ontwikkeling
- Haarkappery

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Approach repair calculations in this manner

TO ACCURATELY BUDGET FOR DIESEL AND REPAIR COSTS IS CHALLENGING, BUT IMPORTANT AS IT MAKES OUT A SIGNIFICANT AMOUNT OF CROP CULTIVATION COSTS. THE QUESTION REMAINS; HOW MUCH MUST BE BUDGETED FOR DIESEL AND REPAIRS? MUST THE SAME BE BUDGETED FOR EVERY CROP?

Because crops require different types of tillage, the amount of fuel consumed per hectare differs. However, when it comes to the cost of repairs, there is a definite link between the amount of diesel consumed and the repairs required. The more diesel that is consumed, the more repairs are necessary.

Several methods can be used to determine and allocate the cost of repairs. By determining the relationship between fuel and repairs over time and analysing it meaningfully the repairs can be predicted to a reasonable extent. Fuel consumption is affected by the difference in each area and the soil, cultivation windows and topography on each farm. The brand and age of tractors will also affect the repairs. It is not necessarily true that old tractors require more repairs than new ones. Doing the maintenance and/or repairs yourself will also make a major difference to the total cost of repairs.

Keep track of the diesel consumption for the diesel rebate. Use the information and determine your diesel consumption per hectare per day. You can then use the information sensibly when planning.

Rules of thumb

There are also rules of thumb against which you can measure these repairs.

- ❑ On the eastern Highveld repairs usually cost a little more than the diesel consumption due to the higher kilowatt per hectare (roughly 1 kW/ha) and the topography of the fields. An additional 10% more than the fuel can usually be budgeted for.
- ❑ On the plains of the Free State and North-West fewer kilowatts per hectare are used (approximately 0,75 kW/ha) purely because the cultivation window is bigger. Here the type of soil also plays a role and the diesel as percentage of repairs is usually equal.

Another rule of thumb is to allocate 1% of the price of the new tractor to repairs and then allocate this to the crops according to the amount of diesel consumed per hectare per crop.

A lot of research has been conducted on the repairs to tractors and equipment. Agricultural engineers and agricultural economists compiled the following benchmarks some time ago to determine the repairs and maintenance of tractors and equipment.

The main cost drivers are:

- ❑ The average investment or the capital investment in the new tractors or equipment;
- ❑ expected lifetime of the tractors and equipment;
- ❑ expected annual use; as well as
- ❑ a repair percentage over the useful life of the tractors and equipment.

In general, the life expectancy of a tractor is twelve years, and that of most other implements ten years. A driver to a great extent determines the amount of diesel required by and the break-ages of equipment. By training these persons properly and checking on them constantly, the amount of diesel consumption and repairs can be kept to the benchmarks. With the electronic equipment installed in tractors these days good control is possible and equipment can therefore last considerably longer.

Record keeping of tractor repairs is also important. Write everything down by tractor and keep record of what breaks. This way you have control over repairs, and you can also check the drivers.

For more calculated processing costs, visit sagrainmag.co.za online.



For the full article by the author containing further information on the expected useful life of tractors and implements, the cost and working speed of four-wheel-drive tractors and a comparison between the costs of the different tractors, scan the QR code.

Pietman Botha, SA *Graan/Grain* editorial team

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This makes the combination of wind and solar energy particularly effective, as these energy sources supplement each other and ensure more constant and reliable energy provision.

1

Advantages

- ❑ **Different peaks:** Wind and solar energy reach their maximum production at different times. Solar energy is effective during the day, while wind energy is stronger at night and during winter. This ensures a more constant and reliable energy yield.
- ❑ **Higher energy availability:** By utilising solar and wind energy, the total availability of renewable energy can be increased, leading to less reliance on fossil fuels and other non-renewable energy sources.
- ❑ **Stability of energy network:** The use of both energy sources helps to improve the stability of the energy network. When one source produces less energy, the other can supplement it, which means there are fewer power outages.
- ❑ **Optimum use of space:** Instead of using large tracts of land exclusively for wind or solar energy, they can be used more effectively by installing both on the same land.
- ❑ **Cost-effectiveness:** Although the initial costs for installing both systems can be high, the long-term savings in energy and maintenance costs will justify this.
- ❑ **Lower environmental impact:** By using both solar and wind energy, the carbon footprint is reduced.
- ❑ **More resilient:** The combination of different renewable energy sources makes the supply of energy more resilient against unpredictable weather patterns and external factors.

2

Disadvantages

- ❑ **High input costs:** The initial costs for purchasing both wind turbines and solar panels are high.
- ❑ **Complex:** Integrating different renewable energy systems can be complicated. Ensuring that the systems work together efficiently requires thorough planning and sophisticated control systems.
- ❑ **Technical expertise:** The installation of a combined system requires specialist knowledge – which might not be available in remote areas.
- ❑ **Space:** Combined systems require sufficient space.
- ❑ **Variable resources:** Both solar and wind energy is variable. Solar panels can generate energy only during the day and are less efficient when it is cloudy. Wind turbines rely on the availability of wind, which can be unpredictable.
- ❑ **Storage needs:** To ensure a reliable energy supply, storage capacity (like batteries) is essential, which can increase costs and complexity.



Solar or wind?

As the wind does not necessarily blow every day, the capital outlay on wind systems is high. It is therefore advisable for producers in the interior to rather instal solar systems connected to (more and technologically advanced) batteries.

A combination of solar and wind systems can work well for megaproducers, but a solar system with connected batteries is recommended for smaller producers.

Wind source

To use wind energy effectively, the wind speed must be mainly in the following ranges:

- ❑ **Starting speed:** The minimum wind speed at which a wind turbine starts to generate power is 3 to 4 metres per second (m/s), or 11 km/h to 14 km/h.
- ❑ **Operating speed:** This is the wind speed at which the wind turbine generates its maximum rated power, 12 m/s to 15 m/s or 43 km/h to 54 km/h.
- ❑ **Cut-out speed:** The maximum wind speed at which a wind turbine is designed to operate safely is 25 m/s or 90 km/h. Above this speed the turbine will cut out to prevent damage.

Areas safe for wind turbines

These areas are favourable for erecting wind turbines: Western Cape, Overberg, Eastern Cape, Northern Cape, Eastern Free State and KwaZulu-Natal.

Costs

The costs of a small wind system can vary, depending on several factors, including the size, type of equipment, installation costs and specific location.

1

Equipment costs: These include the turbine and tower/mast. A small wind turbine costs between R40 000 and R300 000, depending on the capacity, which can vary between 1 kW and 10 kW. The tower/mast can cost between R10 000 and R50 000, depending on the height and material used.

2

Installation costs: These can amount to between R20 000 and R100 000, depending on the complexity of the installation and the need for additional infrastructure like foundations and connection to power networks.

A recent installation of a 3 kW wind charger on a 12 m high tower (turbine, controller, tower and installation costs included) by the Turbex group amounted to R163 000.

The price of a 10 kW system depends on the quality of the product that is installed. The top product, connected to a 10 kW battery and 8 kW solar panels, will cost about R240 000. This includes the cost of installation and the certificate of compliance.

Service and maintenance

Service and maintenance of solar panels are minimal. In dusty areas they can just be cleaned regularly to increase efficiency.

In contrast, a small wind charger has to be inspected visually every month and inspected and serviced extensively every six months. Regular and thorough maintenance ensures that the wind charger functions reliably and effectively and helps to reduce the cost of living of the system by preventing major repairs or replacement of components.

More information is available here:

- ❑ sawea.org.za
- ❑ renewableenergymagazine.com
- ❑ windguru.cz
- ❑ www.windsystemsmag.com
- ❑ solarenergyscout.com
- ❑ orkasolar.co.za
- ❑ motla.co.za
- ❑ fst.com

- ❑ turbexwindmills.com
- ❑ purmicsolutions.co.za
- ❑ Energetica Global – 079 492 7092

*The complete article appeared in
SA Graan/Grain of August 2024.*

Karina Muller, SA Graan/Grain contributor



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IRRIGATION requires planning and maintenance

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The right machine structure

One of the prominent physical components of a pivot system is the structure that connects the towers and through which water flows to the pivot outlets. It is important to maintain a balance between the capital expenditure of a bigger pipe diameter and the running costs of a smaller pipe selection that offers more resistance and therefore also requires more energy.

The installation of a pivot system involves much more than erecting a structure. Trenches have to be dug, electric cables and pipelines must be laid, pump rooms must be built and equipped.

Regular inspection and maintenance

Regular maintenance inspection and maintenance are recommended and are important to identify potential problems before they escalate. Among other things, this involves the following:

- ❑ Moving components like towers, motors and gearboxes require regular lubrication and mechanical maintenance.
- ❑ Pressure regulators must be checked after 10 000 hours of operation.
- ❑ Sprayers must be inspected regularly for damage to determine whether they deliver the right quantity of water to prevent over- or under-irrigation.
- ❑ Dirt, sediment and minerals can block sprayers. To prevent this, systems should be flushed regularly.
- ❑ Regular calibration of irrigation equipment is essential to ensure that all components communicate with each other flawlessly.

*The complete article
appeared in SA Graan/
Grain of October 2024.*

Mariëtta Cronjé,
SA Graan/Grain contributor

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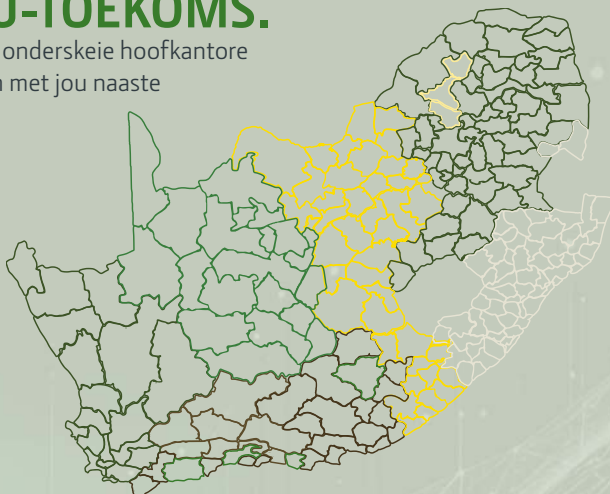




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Senwes	Noordwes, Wes-Vrystaat en Suid-Kaap Tel. 083 298 1553 www.senwes.co.za/products-and-services/equipment
JD Implemente	Suid- & Wes-Kaap Tel. 028 514 2700 www.jdimplemente.co.za
Mascor	KwaZulu-Natal & Mpumalanga Tel. 033 413 2164 www.mascor.co.za
AMC	Noord-Kaap Tel. 053 298 8281 www.amcequip.co.za
Settlers Service Station	Limpopo Tel. 014 730 0112
Trekker & Diesel	Suid-Kaap Tel. 044 272 2268

Limit RODENT DAMAGE in this way

RODENTS GNAW. THIS IS A SCIENTIFIC FACT THAT IS OFTEN OVERLOOKED. THEIR FRONT TEETH (INCISORS) NEVER STOP GROWING. THEY USE THESE TEETH TO NIBBLE AT FOOD AND THEY ALSO GNAW ANY REASONABLY HARD MATERIAL TO KEEP THE LENGTH OF THEIR TEETH STANDARD AND KEEP THEM SHARP.

The most common rodents that plague human environments are brown rats and house mice. It is almost impossible to find a farm yard where there are no mice and rats. If there is also a store, there is hardly a better place to live for brown rats and house mice. Animal feed, building materials, tractors, implements, dripping taps, wood and rubbish found in and around farm stores are like magnets for rats and mice.

“ The big damage occurs when the little pests get into the engines of vehicles and implements ”

The big damage occurs when the little pests get into the engines of vehicles and implements and damage or even bite through electric conductors (wiring). The same thing can happen to the wiring in buildings like stores and packing sheds, and this can lead to short circuits, which can cause dangerous fires.



A weekly inspection of stores is important to determine whether there are rodent infestations. When signs like droppings, the well-known unpleasant urine smell or gnaw marks are noticed, grab the rodenticides.

Farmer's friend, rodent's enemy

Owls are highly effective rat and mouse catchers. It is therefore worthwhile to attract owls to a farm yard with stores. Feel free to erect a homemade owl box against the outer wall of the storage room. JoJo Tanks also offers durable high density polyethylene owl boxes for sale. An owl box can also be erected on a 4 m high post, anywhere on the site.

1

Barn owls with chicks in a nest (sometimes as many as eight in one brood), will catch up to 60 mice a night.

2

A pair of spotted eared owls with two chicks can catch up to eight rats a night and probably more than 20 mice.

3

Speckle eared owls and even steppe buzzards hunt rodents.

4

Dogs and cats are also good rodent hunters.

5

And if you are up for it, a snake or two in the farm store will keep rodents at bay.



« Limit rodent damage...

Guidelines for safe use of rodenticides

Use rodenticides with great care to prevent owls, raptors and predators falling prey to secondary poisoning. A few golden rules for the safe and responsible use of rodenticides include:

- 1 Only registered rodenticides may be used. It is illegal to mix carbamate insecticides with food to kill rodents.
- 2 Always place rodent bait containers in places where they are totally out of the reach of dogs and children.
- 3 Reduce the danger of secondary poisoning by not using rodent bait when there are owl chicks in the nests. Also try to use rodenticides that hold little or no secondary poisoning risks for owls.
- 4 Reduce the risk of secondary poisoning by collecting dead rodents and destroying them.
- 5 Rodenticides containing coumatetralyl, difenacoum and cholecalciferol pose a very low risk of secondary poisoning to owls. Please take note that all these rodenticides, like the others that are less safe for owls, are deadly to dogs.



Rodents can cause considerable damage in stores on farms.

Types of rodenticides

- 1 Use rodenticide formulations that are extremely attractive – like **pasta bait** – in stores where food is stored, otherwise the rodents will not eat the bait. Place the wax blocks in bait holders in engines and implements while the vehicles are not in use as a permanent buffer against rodents that damage electric wiring.
- 2 A **tracking powder** that can be used in rodents' holes or pathways is also very good. Rodents pick up the tracking powder in their fur and take it everywhere when they clean themselves.
- 3 **Liquid bait** may only be supplied by dealers who have licences to sell hazardous substances and keep poison registers.

Producers who want to find out what substances will create the safest environment for owls can enquire by WhatsApp message to 082 446 8946.

The complete article first appeared in SA Graan/Grain of August 2022.

Dr Gerhard Verdoorn, operations and stewardship manager, CropLife SA



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Corné Louw, head: Applied Economics and Member Services, Grain SA

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076 833 1752

**Fertilizer Association of South Africa
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FERTILISER QUALITY:

What is in the bag?

IN 2023, 86% OF FERTILISERS SAMPLED IN THE ANNUAL FERTILISER AND LIME QUALITY MONITORING PROJECT COMPLIED WITH ALL THE QUALITY REQUIREMENTS.

The project that started in 2017, is funded and managed by the Department of Agriculture (DoA), the Fertiliser Association of South Africa (Fertasa), Grain SA and the Sasol Agricultural Trust.

The aim of the project is to establish whether the quality of liming material and fertiliser is maintained according to the regulations of the Fertiliser Act (Act No. 36 of 1947) through random sampling of at least 140 fertilisers and ten lime sources.

Fertiliser results

1 Of the 107 fertilisers, 7% were deficient in one nutrient or total nutrient content and 8% had two, three or four deficiencies.

2 Of the 94 nitrogen-containing fertilisers, 99% were compliant in respect of N.

3 Of the 66 fertilisers containing phosphorus, 91% were compliant for P and of the 64 potassium-containing fertilisers, 89% were compliant regarding K.

4 Eleven fertilisers contained calcium with 91% compliancy.

5 51 contained sulphur with 92% compliancy.

6 Five contained magnesium with 100% compliancy.

7 Seven fertilisers contained one or more of the following nutrients: boron, copper, molybdenum, manganese and iron, all in compliant quantities.

8 Of the 37 fertilisers containing zinc, 89% were compliant for Zn.

9 The Fertiliser Act stipulates that the total nutrient content (N + P + K) of a fertiliser should not deviate by more than 14 g/kg from the registered content. This applied to 77 fertilisers with 92% of them compliant.

Of the fertilisers sampled in 2023, 86% complied with all the quality requirements, in many cases with nutrient levels significantly above their registered contents. However, 14% of fertilisers – all blends – were non-compliant in one or more aspects. Zinc and potassium are notable as 11% of fertilisers containing either of them were non-compliant. Furthermore, phosphorus, sulphur, calcium and total nutrients were deficient in 8% to 9% of fertilisers containing them and those to which the total nutrients regulation was applicable. Only 1%

of nitrogen-containing fertilisers was deficient in respect of N. Few fertilisers contained boron (7), copper (1), iron (1), magnesium (5), manganese (3) and molybdenum (1), all of which were compliant.



NUMBER OF LIME PRODUCTS AND SUPPLIERS SAMPLED IN 2023 AND THE COMPLIANCE OF THESE PRODUCTS WITH REGULATORY PARAMETERS.

NUMBER OF	RAINFALL AREA		
	WINTER	SUMMER	TOTAL
Products	13	11	24
Suppliers	6	6	12
COMPLIANCE (%)			
1,7 mm-sieve	8	10	9
0,25 mm-sieve	46	27	38
0,106 mm-sieve*	-	0	0
Mg content	100	82	92
CCE	85	91	89

* Applicable to one microfine product only

Lime and gypsum results

1 54% of lime samples were taken in the winter rainfall area and 46% in the summer rainfall area.

2 Ten lime products (or 42%) were registered as dolomitic and 14 (or 58%) as calcitic. One calcitic lime was registered as microfine.

3 The compliance of these lime products with the regulatory parameters are also shown in **Table 1**.

The physical quality of most lime products is substandard as only between 8% and 46% of these products were compliant to either of the two sieve requirements. None of these products complied with both fineness requirements simultaneously. The chemical quality of lime products was relatively better with 79% compliance with both the magnesium content and CCE requirements.

The physical and chemical quality of the two gypsum products were satisfactory as it met all requirements.

1 Results from the fertiliser and lime quality monitoring project.

107	14%	22
FERTILISERS SAMPLED	DEFICIENT FERTILISERS	NUMBER OF COMPANIES

2 N-containing fertilisers.

94	1%	1	4%
FERTILISERS SAMPLED	DEFICIENT FERTILISERS	NUMBER OF DEFICIENT FERTILISERS	DEVIATION FROM SPECIFICATION

3 P-containing fertilisers.

66	1%	1	4%
FERTILISERS SAMPLED	DEFICIENT FERTILISERS	NUMBER OF DEFICIENT FERTILISERS	DEVIATION FROM SPECIFICATION

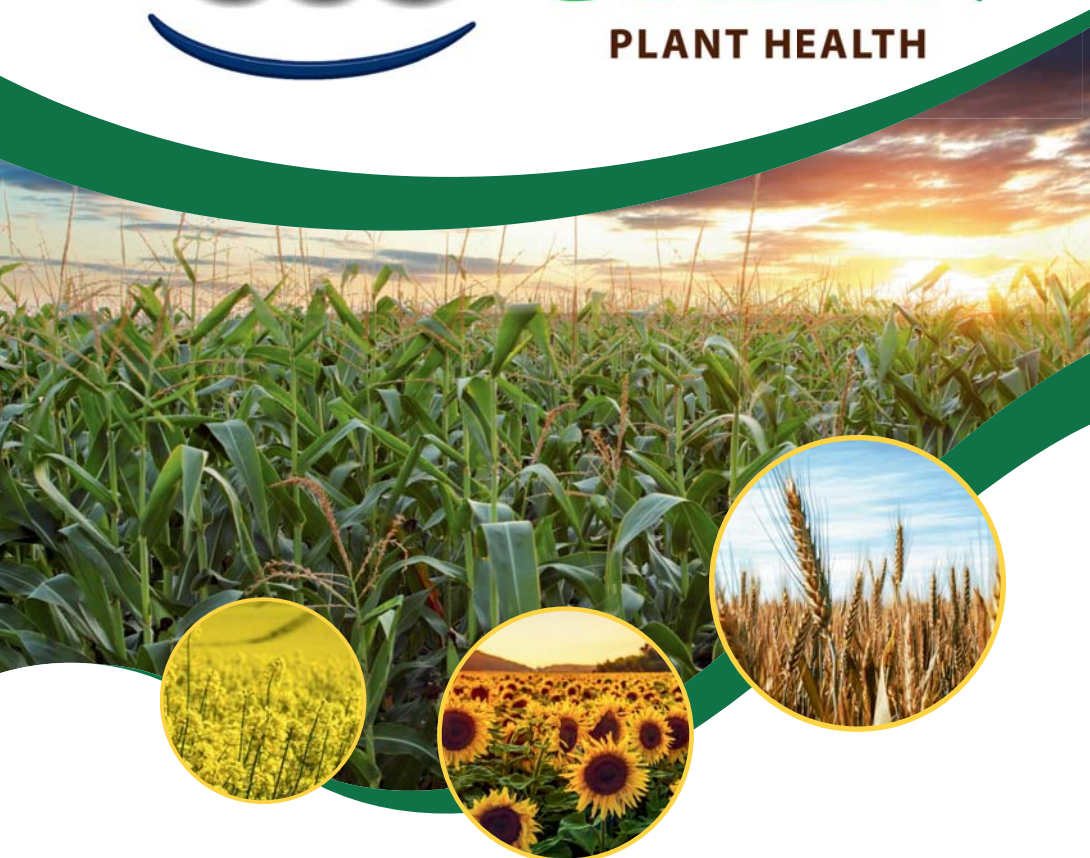
4 K-containing fertilisers.

64	11%	7	6%
FERTILISERS SAMPLED	DEFICIENT FERTILISERS	NUMBER OF DEFICIENT FERTILISERS	DEVIATION FROM SPECIFICATION

The complete article originally appeared in SA Graan/Grain of July 2024.

sagrainmag.co.za

Christiaan Vercueil,
agricultural economist, Grain SA



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Is it WISE to SAVE on FERTILISER AFTER A DROUGHT?

SEVERAL PRODUCERS HAVE FERTILISED IN ACCORDANCE WITH EXPECTED EXTRACTION FIGURES FOR NUTRIENTS, BUT BECAUSE OF DROUGHT, FEWER NUTRIENTS WERE EXTRACTED BY GRAIN OR PLANTS. TO WHAT EXTENT CAN RESIDUAL NUTRIENTS IN THE SOIL BE RELIED ON FOR THE NEXT SEASON?

The answer lies in the measured or projected nutrient status, grain and whole plant extractions and potential losses of mobile elements. Smart soil and leaf sampling before and during the season is required for improved projections and recommendations.

When threshold values are managed accurately and fertiliser is applied at each sampling point according to yield potential, poor seasons will be neutralised and scientific, accountable scaling down of fertilisation recommendations is possible. Guidelines for scaling down in fertiliser and liming are given, but expert advice may be required for cost-effective results.

1

Mobile nutrients

Mobile elements like nitrogen (N), boron (B) and molybdenum (Mo) will remain available, unless rain has caused leaching. N that was applied on the surface or through groundwater close to the surface could have volatilised.

2

Non-mobile nutrients

Nutrients like phosphorus (P), potassium (K), magnesium (Mg), zinc (Zn), manganese (Mn), copper (Cu), iron (Fe), nickel (Ni) and cobalt (Co) are less mobile. If they have not been absorbed by crops, these applied nutrients will largely still be available.

3

Band-applied nutrients

Nutrients that were concentrated in bands close to plant rows in the previous season should be more available in the next season than broadcast applications. Band placement is more effective than broadcast applications, as is proven by Ammonium-N that is slower to convert to nitrate-N and P and K, which are more available for absorption.

Producers are advised to leave residual bands untouched and plant in the same rows as in the previous year. A ripper to repair soil compaction will disturb bands, but ensure a nutrient-rich zone for plants.

Management of nutrient status in the soil

Considerable calibration research has been done in South Africa to establish threshold values for inorganic N (nitrate-N + ammonium-N (KCl), P (Bray 1) and K (AmAs) for maize, as well as for soybeans, wheat and sunflower that are planted in rotation with maize. As maize threshold values for P and K are higher than for soybeans, it is recommended that maize thresholds be maintained in crop rotation systems. Mobile elements should be analysed annually, and non-mobile elements every three to four years.

Nitrogen (N)

Urea applied on the surface can lose 40% to 50% through volatilisation as ammonia if it is not immediately incorporated or washed in, unless it has been treated with a urease inhibitor that increases yield and is prominent in suboptimal N levels and early N applications.

A few days of water on the surface can cause nitrate-N losses as atmospheric N (N_2 or N_2O).

Vertical nitrate-N and urea-N leaching applies to well-drained sandy soils and lateral leaching applies to sandy water table soils with a barrier layer. If it remains dry, with no water movement, unused nitrate-N will remain available. Treated urea or ammonia-N sources will be available for longer than ammonia-N with less leaching.

With water table soils, nutrient leaching occurs into the free water, but is often not available for absorption because roots do not develop in the free water due to an oxygen deficiency, and absorption requires oxygen.

It is recommended that inorganic N be measured at a depth of 0 cm to 60 cm before the next season and/or three weeks after planting to establish residual N and to monitor the release of N from organic matter.

Inorganic N analyses lead to large savings in N recommendations. For example, for maize production of 12 tons of maize/ha the recommendation was 200 kg N/ha on expected N grade removal. After soil analysis it was established that more than 200 kg N/ha were already in the soil and further N delivery was expected from organic matter.

The recommendation was reduced from 200 kg N/ha to 0 kg N/ha. A trial indicated that 12 tons of maize/ha were achieved with 0 kg N/ha, but yield dropped by 10% with 200 kg N/ha. Despite sufficient inorganic N in the soil, it is recommended that 20 to 40 kg N/ha be banded placed in a planting mixture. Inorganic N analyses that increase N recommendations increase both yield and profit.

Phosphorus (P)

Optimum-P (Bray 1) varies according to clay and silt content. Determine the optimum for each field or point and how far it deviates. For topsoil with 13% clay and silt the topsoil must be 38 mg P/kg for a 95% yield potential, whereas 20 mg P/kg is required for soil with 60% clay and silt. Deficiencies can be corrected by band placing more than expected P extraction in a plant mix.

Less extraction can be recommended when the analysis is more than the optimum. The amount of P that was really extracted since the last P analysis determines whether P applications can be reduced in future. Assume an optimum P of 25 mg/kg (Bray 1) is pursued and P analyses were just more than that before the previous season, then 24 kg P/ha for 8 tons of maize/ha (3 kg P/ton) would be recommended. Because of low rainfall, 5 t/ha were harvested in 2024. The application can now be reduced by 9 kg P/ha, which is only 15 kg P/ha. If P analyses were below 25 mg/kg, no reduction in P fertiliser is recommended.

Optimum threshold values for P (Mehlich 3) were not researched. When relationships with P (Bray 1) are used, they should be determined separately for each type of soil.

Potassium (K)

Reaction to K fertiliser depends on K analyses above ground and the use of underground K. In maize production areas where underground K is used, no K would be recommended if the topsoil contains more than 100 mg K/kg (AmAs). At between 80 mg K/kg and 100 mg K/kg it will only be maintained (4 kg K/ton of maize), at below 80 mg K/kg just more than the expected extraction will be given or overall corrections through broadcast applications under high-production conditions.

When the sub-soil contains less than 20 mg K/kg or root development underground is poor, no K will be recommended, with topsoil above 140 mg K/kg. At between 120 mg K/kg and 140 mg K/kg it will be maintained and at below 120 mg K/kg just more than the expected extraction will be given – or overall corrections through broadcast applications.

Below the above thresholds fertiliser should not be restricted after a dry year, but savings within maintenance limits are possible. For example, if 32 kg K/ha were applied for 8 t/ha extraction but only 5 t/ha were obtained, K fertiliser can be reduced by 12 kg/ha to 20 kg K/ha.

Optimum threshold values for K (Mehlich 3) were not researched. When relationships with K (AmAs) are used, they should be determined separately for each type of soil.

Calcium (Ca) and magnesium (Mg)

Ca and Mg supplements are sufficiently regulated when soil acidity is corrected through liming and analysed according to AmAs extractions. Ca must be >100 mg/kg, Mg >50 mg/kg in sandy soils and >100 mg/kg in other soils. If thresholds have been reached, further increased analyses through liming or other nutrients are not necessary.

Micro elements

Micro elements are just as important as macro elements. Deficiencies in essential elements can lead to yield





Is it wise to...

losses. Mo leaf sprayings in KwaZulu-Natal have increased soybean yields by up to 2 t/ha in the past. The cost of corrections to micro elements is relatively low.

Zn, Mn, Fe, and Cu must be analysed according to DTPA extractions, B with hot water extractions and M with ammonia oxalate. Deficiencies can be corrected effectively with fertiliser cover or leaf sprayings.

Soil acidity

Acid soils must be limed only if it increases yield notably. Soil acidity is determined according to pH(KCl) or pH(H₂O), but pH(KCl) is a better measure. If pH(KCl) < 5, yield can be reduced by Al and Mn toxicity. Al toxicity must be established with exchangeable acid analyses and acid saturation determined, and Mn toxicity through Mn(DTPA) analyses. Research shows that relationships between Ca, Mg and K are not related to yield, therefore liming is not justified according to these relationships.

Leaf analyses

Leaf or leaf sap analyses for corrections within a season and for the next season are recommended as an additional instrument for fertiliser management and they usually indicate deficiencies in more elements. Mobile elements can be lost, while non-mobile elements can be compacted. Changes in soil acidity close to band-placed nutrients can also affect the absorption of nutrients.

Supplementing micro element deficiencies can be done with leaf sprayings. Some macro elements can be absorbed through foliar nutrition in small quantities to stimulate growth.

Consult Dr Erik Adriaanse at
erikadri@mweb.co.za or at 079 519 7610
for specific scenarios.

The complete article appeared in
SA Graan/Grain of July 2024.

Dr Erik Adriaanse, independent consultant



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AGRICULTURAL LIME AND GYPSUM RESOURCES in South Africa

Calcite

CENTRAL				
LOCATION	NAME	COMPANY	NUMBER	OWNER (O) DISTRIBUTOR (D)
Barkly West	Ulco	LimeCrop	076 575 8476	D
Buhrmansdrif	Buhrmansdrif	Bastion Lime (Pty) Ltd	018 464 7820	O
Buhrmansdrif	Prolime Calcitop	SA Lime & Gypsum	086 010 3515	O
Buhrmansdrif	Prolime Calcite	SA Lime & Gypsum	086 010 3515	O
Buhrmansdrif	Buhrmansdrif	Kalkor	011 721 3141	D
Buhrmansdrif	Buhrmansdrif	LimeCrop	076 575 8476	D
Christiana	Britten	Bastion Lime (Pty) Ltd	018 464 7820	O
Christiana	Britten	Kalkor	011 721 3141	D
Christiana	Britten	LimeCrop	076 575 8476	D
Christiana	Britten – Grasstop 20 Calcite	Losmaat	011 721 3141	D
Daniëlskuil	Daniëlskuil	H Pistorius & Co	012 342 1075	D
Daniëlskuil	Daniëlskuil	Kalkor	011 721 3141	D
Daniëlskuil	Daniëlskuil	LimeCrop	076 575 8476	D
Hartbeespoort-dam	Sallies Calsite	SA Lime & Gypsum	086 010 3515	O
Hartbeespoort-dam	Sallies Calcitop	SA Lime & Gypsum	086 010 3515	O
Immerpan	Leo	H Pistorius & Co	012 342 1075	O
Immerpan	Inca	LimeCrop	076 575 8476	D
Immerpan	Inca	SA Lime & Gypsum	086 010 3515	D
Immerpan	Inca Calcite Bulk	H Pistorius & Co	012 342 1075	D
Mafikeng	Buhrmansdrif – Grasstop 20:80	Losmaat	011 721 3141	D
Marble Hall	Marble Hall	Afrimat Lime Company	079 107 5463	O
Marble Hall	Marble Hall	Kalkor	011 721 3141	D
Marble Hall	Marble Hall	LimeCrop	076 575 8476	D
Marble Hall	Marble Hall Calsite	SA Lime & Gypsum	086 010 3515	D
Middelburg	Pro-Gyp Calcitop	SA Lime & Gypsum	086 010 3515	O
Ngodwana	Microfine calcite	H Pistorius & Co	012 342 1075	O
Ngodwana	Ngodwana	Kalkor	011 721 3141	D
Northam	Agri-Lime	H Pistorius & Co	012 342 1075	D
Northam	Agri-Lime	Kalkor	011 721 3141	D
Northam	Northam	LimeCrop	076 575 8476	D
Northam	Northam Calcite	SA Lime & Gypsum	086 010 3515	D
Olifantsfontein	Olifantsfontein Calcitop	SA Lime & Gypsum	086 010 3515	O
Olifantsfontein	Olifantsfontein Calcite	SA Lime & Gypsum	086 010 3515	O
Olifantsfontein	Olifantsfontein Precision Calcite	SA Lime & Gypsum	086 010 3515	O
Ottoshoop	Ottoshoop Calcitop	SA Lime & Gypsum	086 010 3515	O
Ottoshoop	Prolime Precision Lime – Ottoshoop	SA Lime & Gypsum	086 010 3515	O
Port Shepstone	Idwala Kulu CAG	Kalkor	011 721 3141	D
Port Shepstone	Idwala Kulu CAG	SA Lime & Gypsum	086 010 3515	D
Port Shepstone	Rossmmin Calcite	SA Lime & Gypsum	086 010 3515	D
Roedtan	Inca	Inca Mining	015 667 0536	O



Calcite (continued)

CENTRAL				
LOCATION	NAME	COMPANY	NUMBER	OWNER (O) DISTRIBUTOR (D)
Roedtan	Inca	Kalkor	011 721 3141	D
Roedtan	Inca	H Pistorius & Co	012 342 1075	
Springs	Springs	Kalkor	011 721 3141	D
Vereeniging	Slaked calcite	Kalkor	011 721 3141	D
Witbank	Hiqu Lime	H Pistorius & Co	012 342 1075	O
Witbank	Hiqu Lime	Kalkor	011 721 3141	D
Witbank	Hiqu Lime	LimeCrop	076 575 8476	D
WESTERN CAPE				
Albertinia	Resiesbaan Calcite	SA Lime & Gypsum	086 010 3515	D
Bredasdorp	Aghydrate	LimeCrop	076 575 8476	D
Bredasdorp	Bredasdorp	LimeCrop	076 575 8476	D
Bredasdorp	Aghydrate	SA Lime & Gypsum	086 010 3515	D
Bredasdorp	Bredasdorp Calcite	SA Lime & Gypsum	086 010 3515	D
Moorreesburg	Titan Lime	LimeCrop	076 575 8476	D
Moorreesburg	Titan Calcite	SA Lime & Gypsum	086 010 3515	O
Moorreesburg	Titan Calcite 100	SA Lime & Gypsum	086 010 3515	O
Vredendal	Vredendal	Cape Lime	060 855 8587	O
Vredendal	Vredendal	Cape Lime	073 181 7551	D
Vredendal	Vredendal	LimeCrop	076 575 8476	D
Vredendal	Vredendal Calcite	SA Lime & Gypsum	086 010 3515	D

Dolomite

CENTRAL				
LOCATION	NAME	COMPANY	NUMBER	OWNER (O) DISTRIBUTOR (D)
Christiana	Britten	Bastion Lime (Pty) Ltd	018 464 7820	O
Christiana	Britten	Kalkor	011 721 3141	D
Christiana	Britten	LimeCrop	076 575 8476	D
Christiana	Britten – Grasstop 20	Losmaat	011 721 3141	D
Clayville	Burnt Dolomite Bulk	H Pistorius & Co	012 342 1075	O
Clayville	Clayville Soil Ameliorant	H Pistorius & Co	012 342 1075	O
Immerpan	Leo Dolomite	H Pistorius & Co	012 342 1075	O
Immerpan	Leo Dolomite	Kalkor	011 721 3141	D
Immerpan	Leo Dolomite	LimeCrop	076 575 8476	D
Meyerton	Henley on Klip	Afrimat Lime Company	079 107 5463	O
Meyerton	Meyerton	LimeCrop	076 575 8476	D
Meyerton	Meyerton Dolomite	SA Lime & Gypsum	086 010 3515	D
Middelburg	Calmasil	H Pistorius & Co	012 342 1075	D
Middelburg	Calmasil	Kalkor	011 721 3141	D
Middelburg	Calmasil	LimeCrop	076 575 8476	D
Middelburg	Calmasil	PBD Boeredienste	082 800 0055	O
Middelburg	Calmasil Dolomite	SA Lime & Gypsum	086 010 3515	D
Middelburg	Pro-Gyp Dolotop	SA Lime & Gypsum	086 010 3515	O
Newcastle	Ingogo Dolomite	H Pistorius & Co	012 342 1075	O
Olifantsfontein	Olifantsfontein Dolomite	LimeCrop	076 575 8476	D
Olifantsfontein	Olifantsfontein Dolomite	SA Lime & Gypsum	086 010 3515	O
Olifantsfontein	Olifantsfontein Dolotop	SA Lime & Gypsum	086 010 3515	O

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Dolomite (continued)

CENTRAL				
LOCATION	NAME	COMPANY	NUMBER	OWNER (O) DISTRIBUTOR (D)
Orkney	Vaalbrug	Kalkor	011 721 3141	D
Orkney	Vaalbrug	LimeCrop	076 575 8476	D
Orkney	Vaalbrug Greentop 20% (80/20)	Losmaat	011 721 3141	D
Orkney	Vaalbrug Greentop 40% (60/40)	Losmaat	011 721 3141	D
Orkney	Vaalbrug	PBD Boeredienste	018 011 0011	O
Orkney	Vaalbrug	H Pistorius & Co	012 342 1075	
Ottoshoop	Ottoshoop Dolomite	LimeCrop	076 575 8476	D
Ottoshoop	Ottoshoop Dolomite PLUS	SA Lime & Gypsum	086 010 3515	O
Ottoshoop	Ottoshoop Dolotop PLUS	SA Lime & Gypsum	086 010 3515	O
Port Shepstone	Idwala Kulu DAG	Kalkor	011 721 3141	D
Port Shepstone	Idwala Kulu DAG	SA Lime & Gypsum	086 010 3515	D
Port Shepstone	Rossmmin Dolomite	SA Lime & Gypsum	086 010 3515	D
Pretoria	MFD Mooiplaas Bulk	H Pistorius & Co	012 342 1075	D
Pretoria	Mooiplaas	Kalkor	011 721 3141	D
Pretoria	Mooiplaas Microfine dolomite	LimeCrop	076 575 8476	D
Pretoria	Mooiplaas Dolomite	SA Lime & Gypsum	086 010 3515	D
Springs	Dolomite Bulk	H Pistorius & Co	012 342 1075	D
Springs	Atoll	Kalkor	011 721 3141	D
Springs	Zimbiwa	Kalkor	011 721 3141	D
Springs	Atoll	LimeCrop	076 575 8476	D
Springs	Springs DOL/GYP 70/30	Losmaat	011 721 3141	D
Springs	Atoll Dolomite	SA Lime & Gypsum	086 010 3515	D
Zeerust	Marico	Bastion Lime (Pty) Ltd	018 464 7820	O
Zeerust	Marico	Kalkor	011 721 3141	D
Zeerust	Marico	LimeCrop	076 575 8476	D
Zeerust	Marico – Grasstop 80:20	Losmaat	011 721 3141	D
WESTERN CAPE				
Moorreesburg	Bridgetown	LimeCrop	076 575 8476	D
Moorreesburg	Bridgetown Dolomite	SA Lime & Gypsum	086 010 3515	D
Moorreesburg	Titan Dolomite 100	SA Lime & Gypsum	086 010 3515	O
Robertson	Langvlei	Cape Lime	023 626 3190	O
Robertson	Langvlei	LimeCrop	076 575 8476	D
Robertson	Langvlei Dolomite	SA Lime & Gypsum	086 010 3515	D
Vredendal	Vredendal	Cape Lime	060 855 8587	O
Vredendal	Vredendal	Cape Lime	073 181 7551	D
Vredendal	Vredendal	LimeCrop	076 575 8476	D
Vredendal	Vredendal Dolomite	SA Lime & Gypsum	086 010 3515	D

Magnesite

CENTRAL				
LOCATION	NAME	COMPANY	NUMBER	OWNER (O) DISTRIBUTOR (D)
Malelane	Gromag	Kalkor	011 721 3141	D

Gypsum and magnesium

CENTRAL				
LOCATION	NAME	COMPANY	NUMBER	OWNER (O) DISTRIBUTOR (D)
Buhrmansdrif	Buhrmansdrif (mixtures)	Bastion Lime (Pty) Ltd	018 464 7820	O
Christiana	Britten	Bastion Lime (Pty) Ltd	018 464 7820	O
Kanakies	Titan Gypsum	SA Lime & Gypsum	086 010 3515	O
Middelburg	Middelburg	H Pistorius & Co	012 342 1075	D
Middelburg	Middelburg	Kalkor	011 721 3141	D
Middelburg	Middelburg	LimeCrop	076 575 8476	D
Middelburg	Pro-Gyp gypsum	SA Lime & Gypsum	086 010 3515	O
Olifantsfontein	Bagged Gypsum	SA Lime & Gypsum	086 010 3515	O
Orkney	Vaalbrug	PBD Boeredienste	018 011 0011	D
Phalaborwa	Phalaborwa	H Pistorius & Co	012 342 1075	D
Phalaborwa	Phalaborwa	Kalkor	011 721 3141	D
Phalaborwa	Phalaborwa	LimeCrop	076 575 8476	D
Potchefstroom	Potchefstroom	Kalkor	011 721 3141	D
Richards Bay	Richards Bay Gypsum Bulk	H Pistorius & Co	012 342 1075	D
Richards Bay	Richards Bay Gypsum	Kalkor	011 721 3141	D
Richards Bay	Richards Bay Gypsum	LimeCrop	076 575 8476	D
Richards Bay	Richards Bay Gypsum	SA Lime & Gypsum	086 010 3515	D
Rustenburg	Phokeng	H Pistorius & Co	012 342 1075	D
Rustenburg	Phokeng	Kalkor	011 721 3141	D
Rustenburg	Phokeng	LimeCrop	076 575 8476	D
Rustenburg	Phokeng	OMV	018 464 7820	D
Rustenburg	Phokeng Gypsum	SA Lime & Gypsum	086 010 3515	D
Springs	Springs Gypsum	Kalkor	011 721 3141	D
Vereeniging	Barrage Gypsum Bulk	H Pistorius & Co	012 342 1075	O
Witbank	Alkaline Ameliorant Bulk	H Pistorius & Co	012 342 1075	O
Yzerfontein	Yzerfontein	Kalkor	011 721 3141	D
Zeerust	Marico (mixtures)	Bastion Lime (Pty) Ltd	018 464 7820	O
WESTERN CAPE				
Ceres	Kolkiesrivier	LimeCrop	076 575 8476	D
Kanakies	Titan Gypsum	SA Lime & Gypsum	086 010 3515	O
Moorreesburg	Titan Gypsum	LimeCrop	076 575 8476	D
Moorreesburg	Titan Gypsum	SA Lime & Gypsum	086 010 3515	O
Vanrhynsdorp	Vanrhynsdorp	LimeCrop	076 575 8476	D
Vanrhynsdorp	Vanrhynsdorp Gypsum	SA Lime & Gypsum	086 010 3515	D
Yzerfontein	Yzerfontein	LimeCrop	076 575 8476	D
Yzerfontein	Yzerfontein Gypsum	SA Lime & Gypsum	086 010 3515	D

Feed lime

LOCATION	NAME	COMPANY	NUMBER	OWNER (O) DISTRIBUTOR (D)
Buhrmansdrif	Buhrmansdrif	Bastion Lime (Pty) Ltd	018 464 7820	O
Buhrmansdrif	Buhrmansdrif	LimeCrop	076 575 8476	D
Buhrmansdrif	Prolime Grit 2 - 4 mm	SA Lime & Gypsum	086 010 3515	O
Buhrmansdrif	Prolime Powder	SA Lime & Gypsum	086 010 3515	O
Vredendal	Vredendal	Cape Lime	082 771 9639	O

Marguerite Pienaar, agricultural economist, Grain SA

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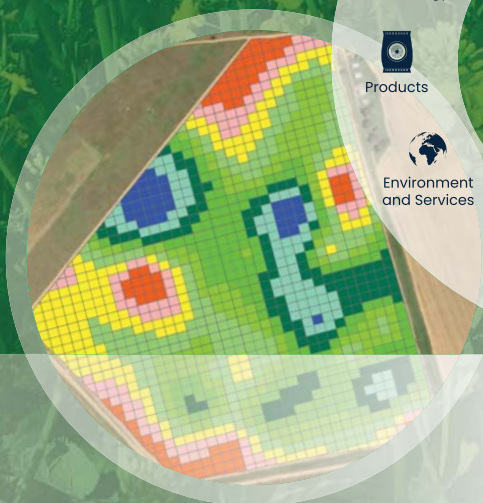
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FERTILISER IS ONE OF A GRAIN PRODUCER'S MOST EXPENSIVE AND IMPORTANT INPUTS. FOLLOW THESE STEPS IF YOU SUSPECT A PROBLEM WITH THE QUALITY OF YOUR FERTILISER:

1 Contact the fertiliser representative from whom you bought the fertiliser and insist on an investigation on site.

2 Keep a record of the dates and conversations.

3 Gather and write down as much information as possible, take photos or videos.

4 Try to keep as many sealed bags as possible in case samples have to be taken at a later stage.

5 Make sure your complaints are registered on the fertiliser company complaint system.



Producers can contact Grain SA, the Fertilizer Association of South Africa (Fertasa) or William Deale directly in this regard to take and analyse samples for quality testing. **William's contact details are 083 947 2389 or wideale@gmail.com.**

Members can take up unresolved disputes with Grain SA or lodge a complaint directly with the Registrar of Act 36 of 1947.



Corné Louw, head: Applied Economics and Member Services, Grain SA

If the problem is not resolved, follow these steps (do not wait too long):

1 Contact an independent scientist to do an on-site investigation.

2 Inform Grain SA if the fertiliser company did not give the necessary attention to the problem.

3 Producers are recommended to test their fertiliser independently.

4 It is extremely important for fertiliser samples to be taken correctly.

5 Samples must be taken in collaboration with the fertiliser company.

NPP Natural Plant Protection

Stimuleer plantgroei en voedingstofopname met verskeie Bio-Oplossings insluitend:

MAXI-N:

Vloeibare bakterieë vir die gebruik as blaarbespuiting of grondbehandeling vir algemene verbeterde plantgroei.

(Beskikbaar in 1ℓ)

Voordele:

- Stikstofbinding in nie-peulplante deur die seisoen.
- Dra by tot opname van onopgeloste voedingstowwe.
- Sekwestrering van yster deur die produksie van siderofore.

PSEUDOMONAS:

Bakteriese entstof vir die verhoogde oplosbaarheid van fosfate. Plantgroei-bevorderende mikroörganismes.

(Beskikbaar in 200 g-pakkies)

Voordele:

- Solibiliseer nie-plantbeskikbare fosfaat in die grond na bruikbare vorm vir opname.
- Bevorder die produksie van groeibevorderings-hormone.
- Dien as 'n oksideermiddel wat die teenwoordigheid van nuttige plantensieme en suurstof verbeter.

EXTRASOL:

Bakteriese inokulant om plantgroei te stimuleer.

(Beskikbaar in 1ℓ)

Voordele:

- Verhoog die lengte en biomassa van wortels en blare.
- Mikrobiese antagonisme teen plantpatogene.
- Verbeter potensiele opbrengs.

MAXI-N | Reg. No.: M92, Act. 36 of 1947 | ACTIVE INGREDIENT: *Azospirillum brasilense*, $1,0 \times 10^7$ cfu per ml | FERTILIZER GROUP: 3 | READ ATTACHED PACKAGED LEAFLET BEFORE USE AND KEEP OUT OF REACH OF CHILDREN AND ANIMALS | Hazard statements: Not classified as hazardous according to GHS.

EXTRASOL | Reg. No. M151, Act. 36 of 1947 | FERTILIZER GROUP: 3 | ACTIVE INGREDIENT: EXTRASOL contains *Bacillus subtilis* and *Bacillus amyloliquefaciens* subsp. *plantarum* strains at minimum of 1×10^7 viable cells per ml | READ ATTACHED PACKAGED LEAFLET BEFORE USE AND KEEP OUT OF REACH OF CHILDREN AND ANIMALS | Hazard statements: Not classified as hazardous according to GHS

PSEUDOMONAS | Reg. No. M46 Act No. 36 of 1947 | ACTIVE INGREDIENT: Live bacteria (*Pseudomonas* species) minimum 1×10^7 viable cells per gram. | FERTILIZER GROUP: 3 | READ ATTACHED PACKAGED LEAFLET BEFORE USE AND KEEP OUT OF REACH OF CHILDREN AND ANIMALS | Hazard statements: None- Not classified as hazardous according to GHS.

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N FERTILISER IN MAIZE

– delta yield can work

FERTILISER RECOMMENDATIONS – PARTICULARLY REGARDING NITROGEN (N) – ARE MAINLY DETERMINED THROUGH THE TARGET YIELD APPROACH, WHICH LATELY HAS ALSO INCLUDED THE SUFFICIENCY APPROACH AND ALSO THE DELTA YIELD APPROACH.

Target yield approach

The general approach currently followed with N fertilisation is to deduce the quantity of N to be fertilised from the expected yield or yield target. According to this method, 15 kg/ha are applied for every 1 t/ha of yield that is expected.

The soil texture influences the N delivery capacity of the soil and the clay percentage of the soil plays an important role. Soils with a high clay percentage deliver more N than sandy soils and this must be taken into account in recommendations. By analysing the soil nitrogen, a more accurate recommendation can be made.

Delta yield approach

Delta yield is the yield of maize at the economic optimum less the yield of an adjacent control field of maize that has received no N.

Apart from the location, type of soil and whether it is dryland or production under irrigation, the delta yield shows a very good relationship with the optimum N fertiliser requirement. The result is that one formula or table applies across the entire maize production area, without the soil texture or other factors having to be taken into account. In fact, according to the Agricultural Research Council (ARC), it seems as if this formula is universal and not limited to

South Africa, as it corresponds very well with what has been found in the USA.

Delta yield method

The delta yield method is simple and requires only control strips or fields. No N fertiliser must be applied to about 1,6% of a maize field, but only the recommended P (phosphorus), K (potassium) and other nutrients. This control section (or zero-N section) can be a few full-length rows of maize, or a number of adjacent rows for a limited length, for example four rows of 20 m. Control sections must be spread across a field and their position must be varied from one year to the next. The rest of the field must be fertilised with N as usual to achieve the economically optimum yield. By harvest time the yield of the control sections is determined, as is that of the fertilised sections. The difference in yield between the fertilised section and the control sections is the delta yield.

The N fertiliser requirement of the maize can be determined from the table. The delta yield must be determined across seasons per soil type (or per field if the soil is reasonably homogeneous) and for a particular crop system, and the average must be calculated over time. In this way the N fertiliser requirement can also be refined over time.



THE NITROGEN FERTILISER REQUIREMENT FOR MAIZE ACCORDING TO THE DELTA YIELD METHOD AS PUBLISHED IN THE ARC MAIZE INFORMATION GUIDE, 2017.

DELTA YIELD	N REQUIREMENT (KG/HA)	DELTA YIELD	N REQUIREMENT (KG/HA)
250	28	3 500	136
500	42	4 000	147
750	54	4 500	158
1 000	64	5 000	169
1 250	73	5 500	179
1 500	82	6 000	188
1 750	90	6 500	197
2 000	97	7 000	206
2 500	111	7 500	215
3 000	124	8 000	224

« N fertiliser in maize...

Advantages

Apart from the fact that the delta yield method is promising because it could be more accurate than the traditional methods, it also holds other benefits:

1

The yield of the control is a measurement of the amount of crop-available N in the soil in terms of the grain yield.

2

It therefore becomes superfluous to take soil samples to establish N content and the possible errors accompanying this are eliminated.

Manual

The Fertilizer Association of South Africa (Fertasa) regularly publishes a fertiliser manual that includes most of the researched information. This publication is essential to producers in particular, and helps to make fertiliser decisions a little easier.

This method can also be used very successfully by study groups to establish trends in an area. By involving everyone in the process, the whole area can benefit.

**For more information, contact
Pietman Botha at 082 759 2991.**

*The complete article appeared in
SA Graan/Grain of July 2024.*

Pietman Botha, SA Graan/Grain editorial team

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PEST CONTROL

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Registrar: Act No. 36 of 1947

MalutaM@nda.agric.za
012 319 7303

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NEMATODE PESTS

– a PERSISTENT challenge

DISEASES AND PESTS – PARTICULARLY NEMATODES – THREATEN SUMMER CROPS. NEMATODES BECOME ACTIVE AS TEMPERATURES RISE AND SOIL MOISTURE INCREASES, LEADING TO THE EMERGENCE OF NEMATODE PESTS. THESE PESTS THRIVE IN MOIST, WARM CONDITIONS, ATTACKING PLANT ROOTS AND CAUSING SIGNIFICANT DAMAGE AND YIELD LOSSES, ESPECIALLY FOR SOYBEAN PRODUCERS.

Key nematode pests

Root-knot nematode infestations have been severe in recent soybean growing seasons, with affected plants showing stunted growth, yellowing and even death. Nematodes impair a plant's ability to absorb water and nutrients, severely reducing productivity. Understanding nematode problems and implementing timely management strategies are crucial for sustainable agriculture.

Nematode populations can survive winter by infesting weeds, such as the John Deere-

bossie ('radiator bossie') in SA which hosts root-knot nematodes during colder months.

As temperatures rise, the pests resume their life cycle and rapidly reproduce, e.g. a single root-knot nematode female can produce about 1 800 eggs in 20 to 30 days, leading to exponential population growth under optimal conditions. This is especially concerning before soybean planting, as high nematode densities can cause extensive crop damage.

Management strategies

1

Assessment and monitoring

Regular monitoring and assessment are critical for managing nematode pests. By identifying the nematode species and their densities, producers can implement targeted management strategies. Samples of soil and plant roots should be taken close to harvest for accurate analysis. Experts and accredited laboratories help producers interpret results and make informed decisions.

2

Nematicides

Nematicides are commonly used to reduce nematode populations. Protecting soybeans from the seedling stage is crucial and registered nematicides should be applied according to guidelines. Nematicides should, however, be used in combination with other strategies for long-term control.

3

Good agricultural practices

Producers should adopt an integrated approach that includes crop rotation, maintaining good soil health as well as applying sustainable agricultural practices like reduced or no-tillage and permanent soil cover.

These methods help preserve natural resources while controlling pests. Conservation and regenerative agriculture practices improve soil health and build resilience against pests, including nematodes.

Enhancing soil health creates a favourable environment for predators that naturally control nematodes. Nematode predators exist in local soils, but their populations are generally low due to their longer life cycles. Increasing soil organic matter and microbial diversity helps mitigate nematode damage to crops.





Nematode pests...



4

Rotational and cover crops

Using genotypes of rotational and cover crops that are poor hosts for nematode pests can significantly reduce nematode populations. However, recovering soil health through conservation or regenerative practices takes time and should be done under the guidance of experienced professionals.

Soybean roots from a field in the Bothaville area (Free State province) severely infected with root-knot nematodes, limiting optimal water and nutrient uptake.

Raising awareness

Local producers need to stay informed about nematode issues in soybean-based systems involving other crops like maize, sunflower and potatoes. Prevention is key and knowledge about beneficial and harmful nematodes can help producers to manage these pests effectively. Beneficial nematodes support eco-system services that promote sustainable crop production.

Effective nematode management involves consistent monitoring, timely weed control, crop rotation, resistant crop varieties, and good soil health practices. These strategies can reduce nematode damage, improve crop productivity and contribute to food security.

The complete article appeared in SA Graan/Grain of September 2024.

Dr Driekie Fourie, lead of technical products, Syntenga



IN GOEIE HANDE ...

In wie se hande plaas jy die toekoms van jou boerdery?

Ons verstaan die uitdagings waarvoor jy as boer te staan kom. So ook verstaan ons die belangrikheid van 'n vennoot wat hierdie struikelblokke saam met jou aanpak.

By AECI Plant Health kan jy gemoedsrus hê dat jou gewasadviseur hierdie pad saam met jou stap. Jou adviseur is 'n vennoot op jou plaas wat tegniese ondersteuning en vinnige toegang tot die regte produkte bied om sodoende jou risiko's te verminder en jou help om meer produktief en winsgewendheid te boer.

Neem hande met AECI en ervaar die voordeel van 'n spanmaat wat saam met jou bou aan die toekoms van jou plaas.

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Kontak vandag nog jou gewasadviseur.



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E: planthealth@aeciworld

W: www.aeciph.com



www.aeciworld.com

STOP MIGRATING PESTS

QUELEAS AND LOCUSTS ARE MAJOR PESTS OF AGRICULTURE THAT CAN CAUSE SUBSTANTIAL DAMAGE TO PASTURES AND CROPS. THE DEPARTMENT OF AGRICULTURE IS RESPONSIBLE FOR THE CONTROL OF QUELEAS AND LOCUSTS. THEY ARE DECLARED PESTS ACCORDING TO THE AGRICULTURAL PESTS ACT (ACT NO. 36 OF 1983).

Through targeted control measures and habitat management, which include cooperative control efforts involving producers, funding by government, and information emanating from research institutions have effectively reduced the quelea's impact on small grains.

Before an official of the department can do a physical inspection in the case where queleas have been reported, the following procedures/steps must be followed by the complainant:

1 The actual sleeping or breeding area of the specific flock of queleas causing the damage must be correctly identified. The area can only be identified early in the evening, as the queleas will not be at their respective nests during the day. Breeding flocks will have nests and they can be used to identify the breeding area during the day.

2 If the area identified is not the property of the complainant, the complainant must obtain permission for access and possible control actions from the landowner concerned.

The complainant contacts one of the resource conservation inspectors (see contacts below) with the above information and report the queleas. An appointment will be made to inspect the sleeping or breeding area with the complainant.

What are transboundary pests?

Transboundary pests are defined as pests which are capable of spreading across geographic boundaries, facilitated by a range of factors such as climate, globalisation of trade, and agricultural practices. These pests can result in significant crop damage, causing substantial economic losses and threatening food security. In grain production, the most important transboundary pests include:

- ❑ **Fall armyworm (*Spodoptera frugiperda*):**
This invasive species has spread rapidly across the Americas, Africa, Asia, and Australia, negatively impacting maize and other grain crop production.
- ❑ **Red-billed quelea (*Quelea quelea*):**
Known as Africa's most abundant bird species, quelea flocks can destroy grain crops, particularly in the sub-Saharan region.
- ❑ **Russian wheat aphid (*Diuraphis noxia*):**
This species has the potential to cause serious damage to wheat crops, thereby impacting yield and quality.
- ❑ **Stored-grain pests such as weevils (*Prostephanus* spp.):** These post-harvest species are not only of cosmetic importance, but can also degrade the quality of stored grain destined for export.

Contact details for queleas

QUELEAS

John Tladi

Deputy Director: Migrating Pests
060 973 2366

Khuliso Gangashe

Assistant Director
067 410 6103

Colin Burke

082 859 5158

Prudence Majozi

066 299 5348

Luka Geertsema

066 299 5365

Vincent Makhari

066 279 9648

LOCUSTS

Vuyokazi Jongwana

Migrating Pests Officer: De Aar
084 760 8176

ARMY WORMS

John Tladi

Deputy Director: Migrating Pests
060 973 2366



« Stop migrating...

Strategies

In order to mitigate risks associated with transboundary pests in grain production, several strategies may be employed:

1

Early detection and monitoring:

Regular surveillance programmes and monitoring networks can help identify pest outbreaks early.

2

Integrated pest management (IPM):

This approach includes using all suitable techniques or strategies to keep pests below thresholds that cause unacceptable crop loss, as determined through monitoring protocols.

3

Regional collaboration: Collaboration between neighbouring countries and regional organisations enhances pest surveillance and control efforts.

4

Research and innovation: Investing in research on pest biology, behaviour, and ecology supports the development of innovative pest management solutions.

5

Public awareness and education:

Raising awareness among stakeholders regarding the risks associated with transboundary pests promotes compliance with regulations while education campaigns empower producers and communities to recognise and report potential pest threats.

The complete article appeared in the September 2024 issue of SA Graan/Grain.

Corné Louw, head: Applied Economics and Member Services, Grain SA



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"For the Lord your God will bless you

*in all your harvest and in all the work of your hands,
and your joy will be complete."*
~ Deut 16:15



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herbicide**

HERBICIDE



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herbicide (850g pyroxasulfone) is a residual, soil
applied, pre-emergent
herbicide for broad-spec-
trum grass weed control.**

Pyroxasulfone disrupts the synthesis of very-long-chain fatty acids which are critical for healthy plant growth. Winger 850 WG uptake is through the roots of germinating weed seeds. Apply WINGER as a broadcast application prior to planting and incorporate by planter with press wheels. Incorporation of WINGER must be done within three (3) days of application.

- **PROVEN:** Pyroxasulfone has established itself as a reliable herbicide for the control of annual grasses in wheat.
- **QUALITY FORMULATION:** UPL controls the manufacturing process, so we deliver a quality easy-to-use formulation.
- **HIGH-LOAD SAVINGS:** The high-strength solid formulation means lower volumes are handled compared to using liquid formulations.
- **PACKAGED TO SUIT YOUR NEEDS:** Available in convenient packaging sizes 1,25kg = 10ha.
- **LOW USE RATE:** One low rate application of 125g/Ha controls important weeds such as annual (Italian) ryegrass, Japanese brome, little seeded canary grass, winter grass and rats tail fescue.
- **COMPATIBLE:** Winger is compatible with a range of crop protection products. Please consult the product label.



SCAN FOR MORE INFORMATION



AVAILABLE IN: 1,25 Kg

WINGER Reg No. L11619 Act No 36 of 1947 | HRAC GROUP CODE: 15 | READ ATTACHED PACKAGED LEAFLET BEFORE USE AND KEEP OUT OF REACH OF CHILDREN AND ANIMALS | WARNING | HAZARD STATEMENTS: Harmful in contact with skin. May be harmful if inhaled. May cause damage to organs through prolonged or repeated exposure. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects. | ACTIVE INGREDIENT: Pyroxasulfone (Isoxazoline) 850 g/kg | REGISTRATION HOLDER: UPL South Africa (Pty) Ltd. Co. Reg. No.: 2009/01971-5/07 7 Sunbury Office Park, Off Douglas Saunders Drive, La Lucia Ridge, South Africa, 4019. Tel: 031 514 5600

UPL South Africa
7 Sunbury Office Park
Off Douglas Saunders Drive
La Lucia Ridge
4300
031 514 5600
www.upl-ltd.com/za



PEST CONTROL

Vir die *Liefde* van landbou

Om te sê jy “hou van” landbou
sê heeltemal te min ...

“Hou van” is om in die lande te wees
wanneer die weer gunstig is, die grond
uit hom laat groei, en die werk maklik
voel ... “Lief wees” is om met dagbreek
reeds in die velde te wees ongeag die
weer, die lande of die werk. Boerdery
is **nie ’n keuse nie, dis ’n roeping.**
Dis die grootste taak ter wêreld.

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Skandeer hier om
meer te leer oor
BASF se produkte



Helpful tips when PURCHASING INPUTS

THE RISK OF USING UNTESTED INPUT RESOURCES AND THE BUYING OF INPUT RESOURCES FROM UNKNOWN DISTRIBUTORS ARE TRAPS INTO WHICH PRODUCERS FALL EVERY SEASON. HERE ARE A FEW VALUABLE TIPS FOR PURCHASING INPUTS.

1

Very important suggestions for purchasing and using inputs

- ❑ Make sure that the supplier is a recognised company with a proven record.
- ❑ Ensure as far as possible that all recommendations are provided in writing and store it safely.
- ❑ Try to keep a record of all purchases as far as possible.
- ❑ Check the quality of the input resource.
- ❑ Seed treatment should be done by the seed company itself or with certified seed treatment equipment.

2

Negotiating prices

- ❑ Make sure that you pay the best market-oriented price.
- ❑ Obtain as many quotations as possible and do not simply accept the first and best price.
- ❑ Ask your neighbour what he paid for the input.
- ❑ Purchase inputs jointly.
- ❑ Members are free to contact Grain SA with regards to input price trends.

Tips when purchasing soil amendments, foliar nutrition and organic substances

Producers should note that some of these input resources have not been properly tested or registered in terms of Act 36 of 1947.

When considering using such an input resource, you should therefore note the following:

- ❑ Make sure it has been registered in terms of Act 36 of 1947.
- ❑ Insist on long-term statistics and preferably independent local test results.
- ❑ Never use such an input resource on a large scale immediately.
- ❑ Rather use small-scale strip trials that can be evaluated statistically.
- ❑ Determine whether it is cost effective to use the input resource.

TOP TIP

As a rule, use small control sites to test new input resources before using them on a large scale.

It provides additional peace of mind if a company from which you make purchases is a member of an umbrella organisation, for example for seed – SANSOR; for fertiliser – Fertasa; for agrochemicals – Croplife, and for agricultural machinery, SAAMA.

3

When purchasing agrochemicals

- ❑ Make sure that the chemical is registered for the purpose for which it is being used under Act 36 of 1947. If the purpose for use is not specified on the label, it is illegal to use.
- ❑ Make sure that the owner of the chemical is a member of CropLife.
- ❑ Make sure that the distribution company is a member of Croplife and that the agent is qualified.
- ❑ Make sure your complaint is registered on the company's complaint system.
- ❑ Regardless of whether you know what the problem is, just register a complaint and let the input companies come and take a look.

4

Rhizobia bacteria

- ❑ It is important to use only registered (L registration in terms of Act 36 of 1947) chemicals.
- ❑ The product concerned must also preferably be recommended by the company whose seed is being planted.
- ❑ Do not use new products on a large scale.

Corné Louw, head: Applied Economics and Member Services, Grain SA



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Best practice to curb HERBICIDE-RESISTANT WEEDS

AS THE WINTER GROWING SEASON APPROACHES, WINTER GRAIN PRODUCERS SHOULD REVIEW CURRENT HERBICIDE-RESISTANT WEED MANAGEMENT STRATEGIES. THE INTERNATIONAL HERBICIDE-RESISTANT WEED DATABASE (WEEDSCIENCE.ORG) SHOWS THAT WHEAT PRODUCTION SYSTEMS HAVE THE HIGHEST NUMBER OF HERBICIDE-RESISTANT WEED SPECIES.

Globally, 84 weed species commonly found in wheat have developed herbicide resistance, followed by 65 in maize and 53 in soybean.

Locally, the following grasses have developed resistance to HRAC groups 1 and 2 in wheat:

- ❑ wild oats (*Avena fatua*; **Photo 1**),
- ❑ ryegrass (*Lolium rigidum*; **Photo 2**),
- ❑ wild radish (*Raphanus raphanistrum*; **Photo 3**),
- ❑ small canary grass (*Phalaris minor*; **Photo 4**) and
- ❑ chickweed (*Stellaria media*)

Problematic broadleaf weeds include:

- ❑ wild buckwheat (*Fallopia convolvulus*; **Photo 5**),
- ❑ white goosefoot (*Chenopodium album*) and
- ❑ common pigweed (*Amaranthus hybridus*).



Wild oats



Ryegrass



Wild radish

Basic principles for managing these weeds need to be revisited.

Integrated weed management (IWM) combines agricultural (crop rotation, row widths, seed selection), mechanical (cultivation), and chemical (timing, residual effects) strategies to control weeds. Over-reliance on herbicides has led to superweeds. For more on this topic, see “*n Lewe met weerstandige onkruid*” by clicking on the QR code.



Understanding the mode of action of herbicides

Producers should understand HRAC groups, which classify herbicides by their mode of action – the specific area in the plant targeted by the herbicide. Different HRAC groups impact plants in different ways.

Accurate identification of problematic weeds is crucial, as different herbicides

target different weeds. Choose products carefully. If herbicide-resistant ryegrass is a problem, avoid HRAC groups 1, 2, 9, and 22, depending on resistance. Select herbicides from other HRAC groups and consult product labels. Heavily infested fields should be rotated with different crops for at least three years. Clean equipment thoroughly to avoid spreading contamination.

Important steps

1

Rotate herbicides

As a first defence, rotate herbicides from various HRAC groups. Using herbicides with multiple sites of action will delay resistance. This can be done by applying tank mixes or choosing products with prepackaged HRAC group combinations.

2

Pre-emergent herbicides

With herbicide-resistant weed species rising by about ten biotypes annually, pre-emergence herbicides will be crucial. Using pre-emergent herbicides like trifluralin (HRAC 3) or HRAC 15 actives (such as triallate) will help control resistant ryegrass (see respective labels as reference).

Pre-emergent herbicides need about 15 mm of rainfall or irrigation to activate, and timing can be challenging. Trifluralin has residual effects of up to 18 months, depending on the crop (Table 2), and clay percentage affects the required active ingredient. Successful control provides weeks of weed-free conditions, allowing wheat to develop a canopy that suppresses grass growth (see respective labels as reference).

3

Crop rotation

Crop rotation is crucial for using herbicides from different groups, preventing herbicide-resistant weeds. Producers should also note that some herbicides can impact subsequent crops, with details provided on the product label (see respective labels as reference).



Small canary grass



Wild buckwheat

Resistance defined

Resistance is the inherited ability of a plant to survive and reproduce after exposure to a normally lethal herbicide dose. If a label rate application fails to control a weed species, herbicide resistance may have developed.

**Producers are welcome to contact
Dr Craven with any additional enquiries
at 018 299 6100.**

*The complete article appeared in
SA Graan/Grain of March 2024.*

Dr Maryke Craven, ARC-
Grain Crops, Potchefstroom

ons almal moet eet

Om slim te boer beteken:

Om insekte, onkruid en siekte effektief te beheer.
Om grond en water ten volle en volhoubaar te benut
en soveel as moontlik kos te produseer.

Want ons almal moet eet.



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The answer to EFFECTIVE CUTWORM CONTROL is timely weed management

CUTWORM HAS BECOME ONE OF THE MOST IMPORTANT PESTS OF MAIZE IN SOUTH AFRICA OVER THE PAST FOUR YEARS. DURING THE PREVIOUS MAIZE PLANTING SEASON, CUTWORM LARVAE DESTROYED THOUSANDS OF HECTARES OF MAIZE SEEDLINGS, NECESSITATING REPEATED APPLICATIONS OF INSECTICIDES, FOLLOWED BY REPLANTING OF SEED IN MANY CASES.

Link between weeds and cutworm presence

Since moths lay their eggs on weeds and are active throughout the winter, it is generally accepted that an abundance of winter weeds may enhance cutworm infestations. Abundant autumn rains may also lead to increased cutworm populations during the following spring because of increased winter weed populations.

Control

There are two different approaches to cutworm management:

1

One strategy is to apply insecticides prior to and after planting when damage is observed.

2

The other is to kill cutworm larvae by removing their weedy host plants long before planting.

Preventing cutworms from damaging crops

Pre-planting weed management is key to cutworm control and is the most effective strategy to control cutworms. Where practically possible, fields must be cultivated at least 35 days before planting and kept free of weeds and volunteer plants until planting. This will deprive the small cutworms present in the fields from food, causing them to die of starvation. If no volunteer plants or weeds are present in fields at the beginning of spring, no food plants are available for moths to lay their eggs, eliminating the risk of damage to small seedlings by cutworms.

Chemical control of cutworm

The efficacy of insecticides for control of cutworm larvae is affected by many factors:

1

The number and size of the cutworms present in the field,

2

the moisture levels of the soil, as well as

3

the ecology and biology of the pest.



Damage caused by small cutworm larvae or other soil pests.

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Posbus 143, Isando, 1600.





Weeds with a rosette growth form provide protection and food for larvae.

Small cutworms are more susceptible to insecticides compared to fully grown larvae. Large cutworms surface at night to feed above ground. It is therefore important to apply pesticides during late afternoon if possible. It is preferable that the soil surface be moist during insecticide application, since larvae tend to remain below the soil surface when it is very dry. Since not all cutworms will surface on a single night, it may take several days before the full effect of the insecticide is achieved.

A cutworm damaging a maize seedling.



Registered insecticides generally have long enough residual periods to be active when moulting cutworms start feeding again.

Conclusion

The interaction between environmental factors such as rainfall and temperature, weeds and cutworms determine the occurrence and prevalence of cutworms in fields. Seedlings are damaged by cutworm larvae that overwintered in fields.

The most important control measure for effective cutworm control is therefore to ensure that fields are free of weeds for a period of at least 35 days prior to planting. It will cause overwintering larvae in these fields to starve. Good, timely weed control is therefore the answer to effective early season cutworm control.

The complete article appeared in SA Graan/Grain of September 2024.

Prof Johnnie van den Berg and
prof Hannalene du Plessis,
IPM programme, Unit for Environmental Sciences
and Management, North-West University

REPORT CHEMICALS NOT MAKING THE GRADE

IF YOU SUSPECT OR EXPERIENCE PROBLEMS WITH THE QUALITY OF AGROCHEMICALS, TAKE THE FOLLOWING STEPS:

1 Contact the representative as soon as possible and insist on an investigation on site.

2 Keep a record of dates and conversations.

3 Gather and write down as much information as possible, take photos or make videos.

4 Make sure your complaint is registered on the company's complaint system.

5 Regardless of whether you know what the problem is, just register a complaint and let the input companies come and have a look.

As far as Rhizobium bacteria are concerned, it is important that only registered (Act No. 36 of 1947) vaccines should be used. The specific product should also preferably be recommended by the relevant seed company whose seed is planted. Do not use new products on a large scale.

Producers who want to have their vaccine tested to make sure it is viable can contact the ARC-PPRI (Roodeplaat) for this:

Poppie Mthimunye
MthimunyeP@arc.agric.za

Dr Ahmed Hassen
HassenA@arc.agric.za

Francina Bopape
PhalaneF@arc.agric.za
012 808 8138



If you are unable to resolve the problem with the company, do the following (do not wait too long before doing so):

1 Contact an independent scientist to do an investigation on site.

2 Members should inform Grain SA if the chemical company does not attend to the problem as required.

The quality of agrochemicals (active ingredients) can be tested at the Southern African Grain Laboratory (SAGL):

**Francé Mulder or
Wiana Louw**
Crop Protection Division – SAGL
Info.cpd@sagl.co.za
+27 (0) 12 807 4019/2011
+27 (0) 82 415 9905

Corné Louw, head: Applied Economics
and Member Services, Grain SA



IRRIGATION

CONTACTS

Department of Water and Sanitation

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080 020 0200

Water Research Commission

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012 330 0340

Water Institute of Southern Africa

clientcare@wisa.org.za
086 111 9472

Green Scorpions Hotline

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080 020 5005

**South African Institute for Agricultural Engineers
(SAIAE)**

admin@saiae.co.za
078 889 8925

South African Irrigation Institute (SABI)

info@sabi.co.za
021 580 8220



AGRONOMIC and ECONOMIC CHALLENGES that are CONCERNING

IRRIGATION PRODUCERS HAVE UNIQUE CHALLENGES AND A HOLISTIC APPROACH TO PROBLEM-SOLVING IS REQUIRED FOR SURVIVAL. THE COMBINATION OF HIGH AGRONOMIC COSTS AND THE OLD PROBLEM OF RISING COSTS IS ALWAYS PART OF THE PURSUIT OF SUSTAINABILITY. IN RECENT YEARS THE STRUGGLE HAS INTENSIFIED BECAUSE OF THE DEPRECIATION OF THE RAND AND VARYING INPUT COSTS.

Graph 1 and 2 (from the ProFarmer platform - <https://info.profarmer.co.za>) show the production costs for maize and wheat from 2019 to 2024. These costs have increased significantly over the five-year period – the input costs for maize (Graph 1) and wheat (Graph 2) are 51% and 46% higher respectively, while margins are 25% and 30% lower. This is concerning, as producers now have to spend much more to produce their crops, while they earn considerably less than five years ago.

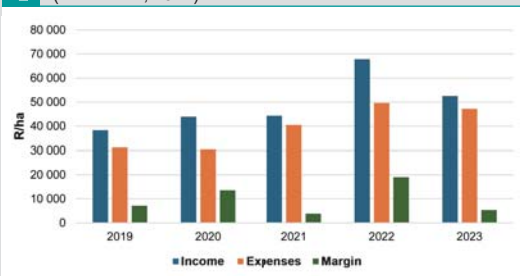
Over the same five-year period the rand weakened by 28% against the US dollar, which had an effect on producers, as most of the inputs in the global markets are priced in dollar. The price of a tractor of 125 kW has increased by 47% since 2020, for example, mainly because of the depreciation of the rand. Although a weaker rand leads to better grain prices, the increasing input costs are far ahead of the improved grain prices.

Land and water management

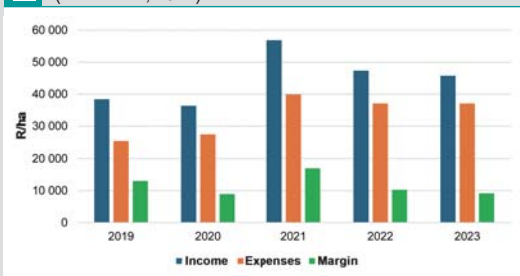
To irrigation producers, two resources are invaluable, namely land and water. The physical and chemical status of land under irrigation must be monitored regularly and the data plotted over time to ensure that the resource is managed sustainably.

Soil health and the effect of this on soil-borne diseases, nematodes and also the immune system of crops become increasingly important when optimal yields are pursued. More targeted chemical controls will have to be applied, as the current broadcast applications pose major risks, particularly under irrigation conditions.

1 Maize irrigation production 2019 to 2023.
(ProFarmer, 2024)



2 Wheat irrigation production 2019 to 2023.
(ProFarmer, 2024)



The chemical residue of follow-up crops can have a significant negative consequence if they are not completely broken down before new plants grow. When chemicals like herbicides are applied, water quality, dosages and rotation of crops should be taken into account.

Soil biology and the building up of organic matter content are extremely important for maintaining soil health and balance. Minimum tillage, with the ideal crop rotations, will therefore always be preferred.

Water availability and quality remain major risks for irrigation. Poor water quality can cause toxic elements in export products, which pose a significant threat.

Electricity costs and sustainable supply are also critical factors for timeous water supply. The electricity costs for irrigation producers in the central irrigation area have risen by 84% since 2015, representing an annual increase of 10,5%. The only way of controlling these costs is effective irrigation scheduling, which means that water is applied at critical times and over-irrigation is avoided.

As root development under irrigation conditions is less deep than in dryland conditions, the 'tank' (volume of soil) from which the plant uses water is smaller.

Power failures increase the risk of stress conditions because of water shortages. Producers therefore consider sustainable electricity solutions, particularly in high-value crops like potatoes and onions, but generating your own energy is capital intensive.

Climate

Climate remains one of the biggest factors affecting yields and recent seasons have not saved irrigation producers from variable weather. Since 2018 the wheat yields have shown a declining trend, while maize has shown a slowly rising trend, as is indicated in the graphs.

Extreme weather like excessive heat, cold or rain can have a negative impact on crops. Excessive rain under irrigation can cause anaerobic conditions that have a negative effect on root health and nutrient absorption, particularly when soils are not well drained. These strange weather patterns can result in higher levels of mycotoxins.

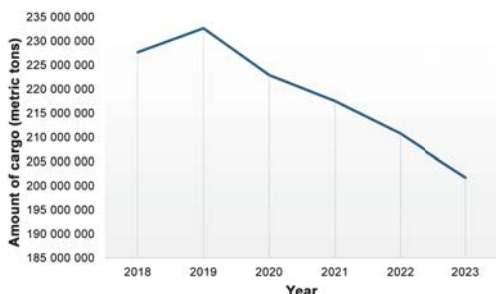
Cultivar selection

Cultivar development remains one of the most important inputs for yield increases. Seed companies face the challenge of breeding cultivars that deliver higher yields with acceptable quality to relieve the economic pressure. Maize yields show a rising trend over years, but wheat yields unfortunately do not display the same trend.

Another challenge for producers is varying commodity prices that exercise a major influ-

3

Total load.
(Transnet, 2024)



ence on crop selection. This often leads to poor crop rotation, causing problems like soil-borne diseases. Weeds – particularly grasses – have become such a problem that certain fields can no longer be planted with wheat. An effective weed control strategy is essential, but responsible chemical control is critical.

Infrastructure and transport

Because irrigation crops are often high-value products that are exported, well-maintained infrastructure like roads and ports is essential. Delays at export ports cause great risks, particularly for producers who have to transport their products across long distances, like those in the Northern Cape. The deterioration of infrastructure because of poor maintenance is concerning, but a task force has been appointed to address the transport crisis. See **Graph 3** – Transnet's own port figures.

Finally, crop production practices must be optimised for every farm. This requires long-term data to make strategic decisions on factors that affect crop yields.

The successful irrigation producer will follow a holistic approach, giving attention to detail and surrounding himself with experts with the right ethical values, passion and local experience.

*The complete article appeared in
SA Graan/Grain of October 2024.*

Dup Haarhoff and Lardus Basson,
Agricultural Services, GWK

Basic principles for effective PRECISION IRRIGATION

IN A WATER-SCARCE COUNTRY LIKE SOUTH AFRICA IT IS ESSENTIAL FOR EVERY DROP OF WATER TO BE USED EFFECTIVELY. THE AIM OF EFFECTIVE IRRIGATION MANAGEMENT IS TO LIMIT UNPRODUCTIVE WATER LOSSES THAT ARE LARGELY CAUSED BY EVAPORATION AND OVER-IRRIGATION.

Various factors influence water management:

1

Crop choice – When a summer grain like maize is cultivated under irrigation, evapotranspiration and total water used are relatively high compared to crops like wheat, which are cultivated in a colder period.

2

Growth stage of the crop – At the beginning of the season, the plants still have few leaves and less water is needed, but later in the growth season the water need will increase as the foliage cover increases. The growth stage of the plant also determines the root depth, which indicates the soil volume from which the water can be absorbed.

Later in the season the plant's roots have developed further and grow deeper. Heavier irrigation with bigger intervals is recommended now. It remains important for the permissible withdrawal quantity not to be exceeded.

3

Water quality, topography and soil type – Water quality plays a role in the choice of irrigation system and the type of filtration system that is used. The topography of the environment will affect the planning of the fields and the irrigation system. It is important to contact an expert irrigation designer to install a proper drainage system to avoid soil erosion and the damming of water. The soil type determines the amount of plant-available water that can be held by a soil profile, while the amount of available groundwater is mainly determined by the texture class of the soil and the profile or root depth.

4

Climate and prevailing weather conditions – The temperature, wind speed, solar radiation and relative humidity affect the evaporation demand and consequently the water needs of the crop.

5

The type of system – The type of irrigation system will determine the irrigation schedule to a certain extent. With a pivot, applications twice a week can satisfy the water needs of the crop, while more regular smaller applications with a drip system will work better on certain crops. The type of system also determines the amount of water to be consumed. Overhead sprinkler irrigation normally leads to more evaporation than a drip irrigation system.



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Important management practices

Timing – In order to schedule effectively, the producer must know how much water the crop uses during each growth stage so that the right amount of water can be applied. If irrigation is not applied at the right time, the crop can be inhibited and yield can be reduced. Water application at the wrong time can cause valuable nutrients to leach from the root zone, which can raise production costs and harm the yield.

Measuring is knowing – The water content of soil can be established directly through sampling with the aid of a soil auger or profile hole. The groundwater status can also be measured with instruments like tensiometers or capacity sensors. Capacity sensors measure the groundwater content constantly and show the water content on a graph.

Variable irrigation – When this technology is used, the producer can irrigate according to his ground maps. With variable irrigation sprayer heads on the pivot can open and

close individually. A GPS system on the pivot and programming of a VRI smart panel make this possible.

Varying speed – Varying speed can help to apply water precisely. Speed can be controlled on the pivot, but with a GPS system the speed can be adjusted automatically.

Varying zones – On the basis of soil maps and evaluations, fields can be divided into zones that are each managed differently on the basis of the potential and needs of that section. This principle can also be taken through in irrigation by dividing pivots into zones or quarters. With the right programming on the panel of the pivot, different water and fertiliser applications can be done per segment.

The complete article appeared in SA Graan/Grain of October 2024.

Magda du Toit, SA Graan/Grain contributor

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How to COMMUNICATE on FARMS during POWER CUTS

CELL-PHONE RECEPTION IN THE RURAL AREAS IN PARTICULAR HAS DETERIORATED SIGNIFICANTLY DUE TO SOUTH AFRICA'S POWER CRISIS. IN ADDITION TO VANDALISM, WHERE CELL-PHONE TOWERS ARE VANDALISED DURING LOAD-SHEDDING SLOTS, POOR MAINTENANCE OF THE ELECTRICITY INFRASTRUCTURE LEADS TO FURTHER FRUSTRATION AND SAFETY RISKS. IN SOME CASES FARMS ARE WITHOUT ELECTRICITY FOR EIGHT HOURS OR EVEN LONGER BEFORE REPAIRS ARE COMPLETED.

1

Simplex radio frequency systems

The theft of copper cables, service delivery that is not always up to standard and poor cell-phone reception in remote areas cause a strong need in rural areas for a more revolutionary, alternative way of communicating.

A survey by Free State Agriculture (FSA) found that 60% of respondents have been affected by crime during load-shedding periods. During visits by members of Agri Western Cape to producers who had gone through the trauma of a farm attack it became clear that reliable and effective communication is essential during emergencies – particularly in rural areas where agricultural communities are left defenceless by the current power crisis in the country.

Because rural safety is a priority to Agri Western Cape, various opinions were obtained after these visits to look at solutions to means of communication that do not rely on a power supply or cell-phone signals. It quickly became clear that the registration of a simplex radio frequency was the most efficient step. In this way the producer and his family or farmworkers can have contact with other producers in the area under any circumstances.

The registration of a simplex radio frequency system by agricultural organisations appears to provide a good solution. Such a system works quite simply and does not depend on electricity or a cell-phone system. All that is required is a high-frequency radio, regardless of make or model. As soon as the radio has been tuned to the registered channel, the user can communicate with other producers on the same channel in the area (within a certain radius).

The system has limitations, like the reach, which differs from area to area because of environmental factors and topography. Mountainous parts will offer a smaller reach than the Karoo, for example, where the area is flat. Producers therefore have to test where the dead patches are and compile a reaction plan accordingly to erect amplifiers.

With load-shedding schedules changing without warning, it is important to plan ahead and to ensure that the radio is always at hand. Make sure that alternative energy systems are available to recharge the radios, for instance solar panels, an inverter or a generator. A mobile unit like a crank generator or even an extra backup battery kept in the pickup is a good idea.

A relay network placed in strategic locations can help the frequency to function continuously.

2

Signal amplification

In order to improve signal reception so that cell phones can still be used during power cuts, another option is to invest in signal amplifiers/signal repeaters.

Bianca Thorburn, director of marketing at Bolton Technical Africa, says they have seen an increase in the number of clients contacting them for solutions. The company's cell-phone amplifiers are designed to assist people who struggle to stay connected because of poor or non-existent cellular coverage. If the signal from one cell-phone tower drops, the directional antennae or amplifiers receive a signal from an alternative tower on a grid that is not undergoing load-shedding. Thus an uninterrupted signal is ensured.

Will GENOME EDITING replace conventional plant breeding?

WHAT IF WE COULD CURE CANCER? USE A PAIR OF SCISSORS TO CUT OUT THAT CANCER-CAUSING GENE? WELL, MAYBE WE CAN.

A genetic system called CRISPR-Cas9 was developed that allows us to edit gene sequences. The CRISPR-Cas9 system is derived from bacteria and uses the bacterium's unique ability to make a cut in a gene sequence, which can be repaired in a few different ways. Firstly, it can leave it up to the host organism's own machinery to repair. Secondly, it can make a specific replacement.

1

Genome editing

All our genetic information (DNA) is collectively called our genomes, and when we know where the problem is (such as the BRCA gene, which increases the odds for breast cancer), we can treat it. With CRISPR-Cas9, we could potentially change the unique sequence from cancer-causing to non-cancerous. It will still take many more years for us to easily and simply edit human genomes to prevent illnesses, but the potential is immense.

Our genomes are made up of genes, which are made up of building blocks called base pairs. Only four exist (A, C, G, and T), and the millions of possible ways these base pairs are arranged make not only species, but also individuals, unique.

Genome editing refers to a process wherein specific base pairs are changed (e.g. from A to T) to change the gene's function. Genome sequencing determines how the base pairs are arranged, and this opened the door for determining gene function.

2

Genome editing versus genetic modification

Genetically modified organisms (GMOs) are different to genome-edited (or gene-edited) plants, since genetic modification entails transfer of a gene from one species to another. For example, resistance to the herbicide glyphosate is conferred to many crops (such as maize and soybean) via bacterial genes, and these crops are then referred to as Roundup Ready. Genome editing can be a short cut to conventional breeding, by targeting a gene within a specific host (thus no gene transfer from another species).

3

New breeding techniques

CRISPR-Cas9 is not the only genome editing system: a suite of similar systems exists that in the plant world is collectively called new breeding techniques (NBTs). These techniques are short cuts that decrease the time needed for conventional plant breeding. Very simply, genome editing works like 'cut and replace'.

The world is excited about the prospect of using techniques that produce the same outcome as conventional breeding, but just much quicker.

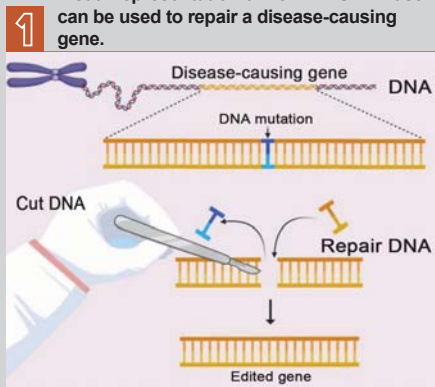
Are all NBTs equal? No. In the broadest sense, new breeding techniques can deliver products that are i) indistinguishable from products obtained from conventional breeding (non-GMO); or ii) products that cannot be obtained via conventional breeding (i.e. can then be classified as GMO).

4 NBT crops

At the time of writing this article, we were not aware of any genome-edited grain crops produced using an NBT being grown commercially anywhere in the world. In Brazil, research into a drought-tolerant soybean variety is taking place. A gene was identified that senses water shortages and when shut off, makes the plant more tolerant to drought conditions. The yield may not be comparable to plants grown under ideal conditions but will fare better than the same plants under drought conditions.

Genome editing is expected to complement conventional breeding. While conventional breeding takes several years, it can be used to improve traits already in a gene pool, while genome editing can be used for specific and precise changes.

Visual representation of how CRISPR-Cas9 can be used to repair a disease-causing gene.



5 Risks

Regulations will still be put in place to monitor how new techniques and technologies are used. Across the world, countries are putting appropriate regulations in place to ensure responsible use of these new technologies.

Dr Miekie Human, research and policy officer, Grain SA

99 How to communicate...

2

Cell-phone amplifiers are a threefold system that helps to amplify the signal that is received and distribute it through a broadcast antenna. If multiple antennae are deployed, cell-phone towers that are on different load-shedding schedules can be targeted to ensure an uninterrupted signal. The amplifiers use very little power (5 V; 3 A) and can be connected to an uninterrupted power supply (UPS) for an uninterrupted, strong signal during load-shedding. They are easy to install and a cheaper option than other network devices.

There are even signal amplifiers for vehicles available that can amplify the 2G, 3G and 4G voice and data signal in any vehicle. The unique design displaces any excessive heat and increases output performance.

3

Satellite internet

A more expensive option that offers reliable high-speed connectivity is satellite internet. Paratus South Africa, an independent internet supplier that is part of the Paratus group and has more than 4 000 satellite terminals across Africa promises reliable service, regardless of where you live in South Africa. With the increasing concern about farm security, they already deliver an important service to communities in remote areas.

The network quality and access are not affected by load-shedding because the satellite does not depend on a terrestrial infrastructure. You do need a power source for the modem and router. One of the disadvantages of satellite internet is that there can be a delay of a few milliseconds on the line, but this should not hamper communication during an emergency call.

The complete article appeared in
SA Graan/Grain of February 2024.

Louise Kunz, SA Graan/Grain contributor



GAUTENG

MG Midrand	MG Rivonia	Audi Centre Braamfontein
Audi Centre Hatfield	Audi Centre Rivonia	BYD Woodmead
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GWM Hatfield	GWM Menlyn	GWM Midrand
GWM Sandton	GWM Woodmead	Hatfield Truck & Bus Pretoria
Isuzu Woodmead	Mahindra Fourways	Mahindra Woodmead
Mazda Fourways	Mazda Midrand	Mazda Woodmead
Omoda Jaecoo Fourways	Omoda Jaecoo Hatfield	Omoda Jaecoo Woodmead
Suzuki Fourways	VW Braamfontein	VW Bryanston
VW Commercial Melrose	VW Commercial Pretoria	VW Melrose
VW Northcliff	VW Pretoria	VW Rivonia

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Technology for better data management increasingly part of farming

THE USE OF DATA MANAGEMENT INSTRUMENTS IN FARMING IS STANDARD PRACTICE TODAY. IT IS WELL KNOWN THAT THE USE OF THIS TECHNOLOGY LEADS TO IMPROVED EFFICIENCY, PRODUCTIVITY AND SUSTAINABILITY. YET THERE ARE MANY PRODUCERS WHO STILL LACK ACCESS TO OR KNOWLEDGE ON THE DIFFERENT DATA MANAGEMENT SOLUTIONS THAT ARE AVAILABLE TO THEM.

Data management aids in agriculture provide producers with valuable resources to facilitate decision-making. These instruments include a variety of technology-based solutions:

1

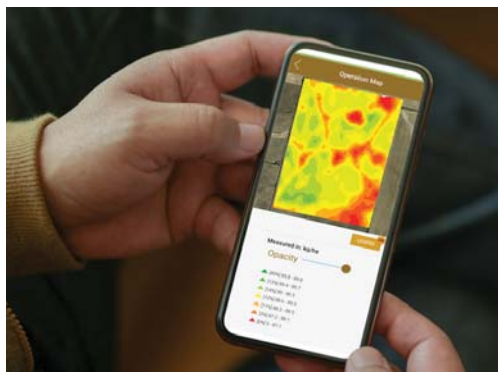
Precision agriculture systems use data from sensors, GPS technology and other sources to optimise inputs, monitor crop health and increase yield potential.

2

Farm management software helps with the organisation and analysis of data relating to finances, stock and operations. This facilitates administrative tasks for producers.

By integrating data management instruments into their operations, South African producers can improve efficiency, sustainability and profitability in an increasingly competitive agricultural landscape.

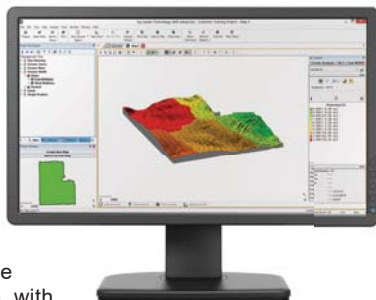
According to Brendan Jacobs, head of Agribusiness at Standard Bank, producers invest in technology and data management aids to an increasing extent. According to him, success in farming is strongly based on the acquisition of data and the ability to use information. 'As producers become more aware of the challenges their businesses face, there is a need to gather information on available technology. This was illustrated by the NAMPO Harvest Day in 2024, with



agCommander® is a data management programme that can be used on your internet browser, your tablet (iPad or Android) and/or your smartphone (iPhone, Android).

the theme of "Agriculture in a digital era", which attracted a record number of visitors,' he added.

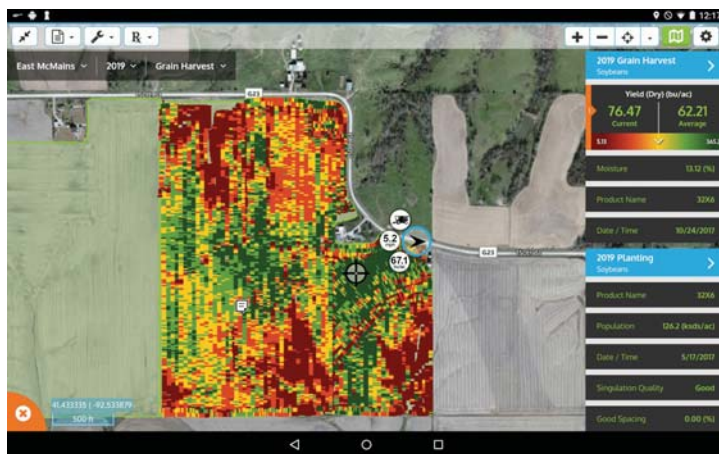
The data management aids used by South African producers are divergent and vary from simple spreadsheet applications to sophisticated farm management software adapted to unique needs. Despite the availability of these instruments, there are questions about aspects like data security, standardisation and accessibility.



An example of SMS's terrain analysis maps.

Photo: Pure Precision Farming





AgFiniti Farming app

Challenges

South African producers are faced by a number of challenges in accepting and implementing data management aids.

1

The **high costs** involved in acquiring and maintaining such equipment appear to be unaffordable to most smallholder producers in the country.

2

Limited access to technology and internet connectivity in rural areas exacerbates this issue and hampers producers' ability to use data management aids effectively.

With the FieldView app a producer can compare analyses for multiple years as well as different geospatial layers across various seasons.



CLIMATE
FIELDVIEW

The complete article appeared in
SA Graan/Grain of August 2024.

sagrainmag.co.za

3

Issues relating to **data privacy and security** cause considerable concern among producers. There are fears that – if shared in an unregulated manner – detailed data on crop yields, soil conditions, animal health and farming techniques can provide third parties with a comprehensive image of the operations on a farm.

4

A further challenge is the **time it takes to learn a programme**. However, Francois van Staden from Pure Precision Farming feels that if you can read, you can use the software. He also mentions that most of the software involves easy-to-use decision-making instruments that assist producers in making the most of every hectare.

Despite the challenges, data programmes play a decisive role in modern agriculture by empowering producers with the tools and information they need to make data-driven decisions, increase productivity and manage their land in a sustainable manner.

Valerie Cilliers, editor, SA Graan/Grain

FIVE TECHNOLOGIES REVOLUTIONISING AGRICULTURE IN '24 AND BEYOND

THE IMPLEMENTATION OF SMART FARMING TECHNOLOGIES HELPS PRODUCERS AND GROWERS TO ACHIEVE THE HIGHEST POTENTIAL IN THEIR FARMING ACTIVITIES – IF YOUR FARMING ISN'T GETTING SMARTER, YOU'RE GETTING LEFT BEHIND. THIS ARTICLE LOOKS AT FIVE TECHNOLOGICAL DEVICES SET TO REVOLUTIONISE AGRICULTURE IN 2024 AND BEYOND.

1

Smart soil health measurement tools

PES Technologies has developed a tool that turns soil testing into a five-minute process. Instead of soil samples being sent off for testing in a laboratory, the PES device (see photo below) works as a point-of-care diagnostics machine in the field. The device is handheld and battery powered, and controlled using a smartphone app. It reports on a comprehensive range of biological, chemical, and physical soil health indicators, including microbial biomass and soil organic matter content. You can analyse soil samples right then and there in the field without any sample preparation.

2

Cloud-based data platforms

Cloud-based platforms like Continuum Ag's TopSoil Tool are able to aggregate soil health data and deliver unbiased recommendations to provide producers with direction and freedom to make agronomic decisions that drive higher yield and higher profit along with environmental sustainability. Producers can create custom recommendation algorithms that factor in existing soil biology and assess opportunities to improve regenerative farm management.

Producers can use the data to review:

- ☐ test results,
- ☐ soil organic carbon levels,
- ☐ biological activity, and
- ☐ plant-available nutrients, as well as
- ☐ create scouting reports and track as-applied data while in the field.

3

Handheld bio-nutrient spectrometer

The next technology device is one for producers and consumers: a bio-nutrient spectrometer is a hand-held device that can be used to measure the nutrient density in food and crops, along with carbon in the soil. Spectroscopy technology can discern the makeup of materials using a non-invasive flash of light. Buyers will be able to use the device to test crops before purchase. The widespread adoption of this kind of technology should also shift the drivers governing crop production – if retailers have the ability to demand a certain quality from their suppliers, growers will be incentivised to improve the quality of their produce (which can only be achieved with regenerated, healthy soils).



The hand-held and battery-powered PES device turns soil testing into a five-minute process.



« Five technologies...

4 Satellite crop monitoring

The main advantage of aerial satellite imagery is its ability to provide a bird's eye view of your farm, helping you gain big data to manage multiple fields, cut costs on resources and make reliable decisions. Images from above can be colour-synthesised to identify crop growth, soil erosion, pest infestations, nutrient deficiencies, diseases or irrigation issues. Producers can also use zoning to create VRA (variable rate application) maps for differentiated seed planting and fertilising.

5 Drone imagery

Where satellite-based data group crops together and aggregate the results, drone-powered farm insights can provide a higher level of detail. In fact, drone-based data are superior to on-foot inspections since drones can use thermal and multispectral imagery to deliver data at a level unseen to the naked eye. High-resolution drones are thus the recommended data source for the purposes of precision farming for specialty crops. Combined with artificial intelligence (AI) analysis, drone imagery can provide actionable data on plant health in near real-time so that producers can optimise and protect their yields.

The complete article appeared in
SA Graan/Grain of August 2024.

Justin Platt, founder & CEO,
Zylem and RegenZ



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FINANCING AND ESG: WHAT DOES THE FUTURE HOLD?

ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) CONSIDERATIONS ARE INCREASINGLY SHAPING GLOBAL BUSINESS PRACTICES. GROWING AWARENESS OF THE IMPACT OF PRODUCTION AND LIFESTYLES, COMBINED WITH EXTREME WEATHER EVENTS, HAS MADE ESG A PRIORITY FOR CONSUMERS, INVESTORS, AND REGULATORS. THIS IS REFLECTED IN INVESTMENT AND POLICY AGENDAS WORLDWIDE.

The financing sector is embracing these changes. In 2019, the United Nations introduced the Principles for Responsible Banking (PRB), which more than 100 banks have signed. These principles require signatories to align their strategies with the Sustainable Development Goals and the Paris Climate Agreement. Absa, a signatory, has committed to disclosing its environmental impact to society.

Agricultural financing

As a PRB signatory, Absa aims to cut its carbon emissions by 50% by 2030 and achieve carbon neutrality by 2050. To accomplish this, a distinction is made between direct emissions from operations (scope 1 and 2) and financed emissions (scope 3). In agriculture, scope 3 emissions relate to carbon emitted through the agricultural production practices that we finance. Sources of emission can broadly be broken down into five categories:

- 1 Emissions from energy use – specifically related to fossil fuels.
- 2 Change in land use.
- 3 Emissions from synthetic fertiliser use.
- 4 For livestock, esoteric emissions from animals.
- 5 Emissions from waste management.

Measuring and reporting on these emissions will become necessary for agricultural producers, though the tools are still in development.

Financiers are exploring digital and automation technologies to access emission data and producers are encouraged to adopt systems for

capturing and validating this information. Service providers like SIZA and Blue North are leading the way in carbon footprint measurement in South African agriculture, especially in the fruit and wine industries.

Unlocking opportunities

Access to carbon footprint data can unlock new opportunities for agricultural producers, such as:

- ❑ Green financing products with favourable rates for climate mitigation of adaptation projects, with assurances of green classification.
- ❑ Carbon trading as an additional revenue stream, requiring carbon measurement over time.
- ❑ Retained market access, as international trade will increasingly depend on environmental disclosures, particularly under policies like the EU's Green Deal.

Beyond carbon

Sustainability is not just about reducing carbon emissions. While often referred to as "carbon tunnel vision," true sustainability encompasses a broad range of ecological and social issues. Agricultural producers, as custodians of natural resources, have a unique opportunity to unlock value through sustainability. Measurement of key environmental variables, beyond just carbon, will become crucial to the future of the sector.

The complete article appeared in SA Grain/Grain of May 2024.

Marlene Louw, senior agricultural economist, Absa Group

FAMILY FARMING

– take this view of finances

ONE OF THE PROBLEMS THAT HAS CAUSED MANY FAMILY FARMS TO COLLAPSE IS THE MANAGEMENT, MISMANAGEMENT OR LACK OF FINANCES.

Although each farming operation and family has a unique way of handling the financial aspect of their business, there are sound principles to be followed to approach the finances of the farm in a responsible manner.

1

Distinction between farming operation and personal activities

- The farming operation must make provision for salaries, directors' fees and profit-sharing to be distributed to the owners and employees of the operation.
- The family members (whether owners or employees) must be certain of the funds available to them for personal expenditure.

2

Decision-making on finances and bank accounts

- Important questions to ask, think through and discuss:
 - Who has the right to see bank accounts, make payments and manage the accounts?
 - How are payments approved?
- A sound principle is to provide a guideline when owners, family members or management may make decisions on finances and what the role and responsibility of each person involve.
- The legal entity in which the farming operation is managed (company, trust, sole trader or close corporation) also influences the decision-making right.
- From a credit point of view it is further advised that a personal portfolio be built up that is not linked directly to the operation.
- From the beginning, discussions of remuneration packages and future distributions from the farming operation should be set out clearly.

3

Record-keeping

- In addition to annual financial statements compiled by the accountants, the business must compile management figures every month to circulate to the family, owners and management.
- The actual expenditure must be compared to budgeted figures to see where the deviations were so that corrections can be made in the next period.
- Every family member, manager and owner of the family farming operation must keep records of the division for which they are responsible.
- The deviations between the budgeted and actual figures are the discussion points at a management or financial meeting.
- Handle the financial record-keeping in a way that makes reporting simple and summative, but that can allow scrutiny of details of transactions when questions about certain amounts arise.

Considerable conflict and infighting in family farming operations have been caused by uncertainty and suspicion. It is therefore important for the person/persons who are responsible for the financial management of the farming operation to handle it in a transparent and accountable manner.

*The complete article appeared in
SA Graan/Grain of May 2024.*

Yolandi Kruger, agricultural
adviser, Dunamus Agri Advisory

INFORMATION AT THE TIP OF YOUR FINGERS

Global web links for information and prices

- Australian wheat and feed barley prices:
<https://www.asx.com.au/markets/trade-our-derivatives-market/derivatives-market-prices/grain-derivatives>
- CBOT term prices:
<https://www.cmegroup.com/markets/agriculture.html#products>
- Dow Jones Industrial General Index:
<http://www.google.com/finance?client=ob&q=INDEXDJX:DJI>
- FAO Global Information and Early Warning System:
<http://www.fao.org/GIEWS/english/index.htm>
- World Agricultural Supply and Demand Report (WASDE):
<http://www.usda.gov/oce/commodity/wasde/>
- FAO Food Price Index:
<http://www.fao.org/worldfoodsituation/foodpricesindex/en/>
- Grain market information:
<https://www.farmprogress.com/markets-quotes/marketing/market-reports>
- USDA weekly crop progress report:
<https://usda.library.cornell.edu/concern/publications/8336h188j>
- AgWeb: <https://www.agweb.com/markets/>
- World Grain.com: <http://www.world-grain.com/>
- Shipping news: <https://www.hellenicshippingnews.com/>
- News now:
<http://www.newsnow.co.uk/h/Industry+Sectors/Agriculture/Agricultural+Commodities>
- Bloomberg markets:
<https://www.bloomberg.com/markets/commodities/futures/agriculture>

Local web links for information and prices

- Grain SA: <https://www.grainsa.co.za/pages/industry-reports/market-reports>
- SAGIS: www.sagis.org.za
- SAGL: www.sagl.co.za
- Protein Research Foundation: <https://www.proteinresearch.net/>
- NAMC supply and demand reports: <https://www.namc.co.za/category/research-publications/supply-demand-estimates/>

Weather forecasts

- Weather outlook: <http://www.wxmaps.org/pix/prec10.html>
- Weather outlook and rainfall data: <http://www.rmd.co.za/>
- Weather outlook: Ventusky: <https://www.ventusky.com/?p=-26.3;26.1;5&l=rain-3h>
- SA Weather Service: <http://www.weathersa.co.za/>
- Accuweather News: <https://www.accuweather.com/en/za/south-africa-weather>

Economic information

- Finance 24: <http://www.fin24.com/#ticker>
- Business Day: <http://www.businesslive.co.za/bd/>
- Financial Mail: <http://www.financialmail.co.za/>
- Moneyweb: <https://www.moneyweb.co.za/>
- Reuters: <http://www.reuters.com/>
- Gold and Brent crude oil price: <http://www.fin24.com/Markets/>

Uncovered.

An OMBUD at your SERVICE

IF YOU, AS A PRODUCER OR CONSUMER, HAVE RECEIVED UNFAIR TREATMENT – OR HAVE LODGED A COMPLAINT BUT RECEIVED A COLD SHOULDER FROM A SERVICE PROVIDER – AN OMBUDSMAN IS MOST LIKELY THE NEXT PLACE TO TURN TO.

- ❑ The **Ombudsman for Short-Term Insurance** is an independent body, and the services are provided free to the public. The ombudsman may be able to assist you if your insurer refuses to pay, e.g. for damage to your vehicle. You must complain to the insurance company first and only if you are unable to resolve the dispute with your insurers, then you can refer the matter to their offices. The Ombudsman's decisions are binding on the insurance company. Visit www.nfosa.co.za
- ❑ The **Ombudsman for Long-term Insurance** mediates in disputes between insurers and policy holders (life assurance). See www.nfosa.co.za
- ❑ The **Ombudsman for Banking Services:** www.nfosa.co.za
- ❑ **Credit Ombudsman:** www.nfosa.co.za
- ❑ For investment problems, talk to the **Financial Sector Conduct Authority**. Their website is www.fsca.co.za
- ❑ **National Consumer Commission:** <https://thencc.org.za/>
- ❑ The **Fiduciary Institute of South Africa (FISA)** is a self-regulating body for matters such as wills, trusts and estate planning. See www.fisa.net.za
- ❑ If there is something bothering you about your medical scheme, the **Council for Medical Schemes** is the place to go to for help. Visit www.medicalschemes.com.
- ❑ **Pension Funds Adjudicator:** www.pfa.org.za

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insurance.

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KEEPING YOUR FARMING OPERATION SUSTAINABLE

THERE IS NO DOUBT ABOUT THE ECONOMIC CONTRIBUTION OF AGRICULTURE TO FOOD SECURITY AND JOB CREATION IN SOUTH AFRICA. YET THE AGRICULTURAL SECTOR IS CONSTANTLY FACED BY CHALLENGES.

Challenges leave producers with great uncertainty about their agricultural prospects, particularly with the existing pressure of high debt. Operating capital reserves are exhausted, and in most cases external financial assistance is required. Predictions further indicate that economic growth rates will still be under pressure for the foreseeable future. Short-term solutions are therefore not the answer.

Uncertain times: What now?

1

Be realistic:

It is important for producers to assess their current position realistically. Here are a few hints for different scenarios:

- ☐ In cases where the financial burden exceeds the farm's repayment ability, capital can be obtained from non-financing sources like the sale of unnecessary or luxury assets.
- ☐ Another option would be to involve a capital partner, which would help to reduce high interest rates.
- ☐ However, in extreme cases it might be necessary to restructure the business.

2

Effective administration:

- ☐ Proper financial administration and record-keeping are extremely important to apply effective cost control.
- ☐ Careful planning and realistic projections of income and expenditure are essential to be prepared.
- ☐ Possible challenges can be identified timeously in this way.

3

Visit the bank:

Banks offer various options to assist producers in uncertain times, for example, extended payment plans for term debt and asset financing, bridging of operating capital shortages and possible moratoriums with deferred capital payments where you pay only interest. However, this should be done proactively because options are limited when debt has fallen in arrears.



« Keeping your farming...

4

Investigate profit margins:

- Primary producers are mainly price takers and carry all the risk. Hedging is possible, but often provides limited protection. Producers therefore have to analyse the sustainability and profit margins of the business and consider and examine alternatives.
- Involvement in the value chain and the integration of limited resources can ensure greater security and profit margins.

5

Cooperation agreements:

Cooperation agreements can ensure a low risk profile.

- These considerations imply major strategic movements that must be defined in a well-considered and comprehensive business plan.
- Well-formulated and clear objectives are essential to any business plan. They offer guidance in daily operational decision-making and financial planning.

Note that the above option must be understood within the financing framework.

“

Well-formulated and clear objectives are essential to any business plan”

The National Credit Act

The National Credit Act probably plays the most important role when agricultural credit is granted, as most of the primary agribusinesses are run in the producer's individual capacity. The Act applies to all individuals, and in some cases to trusts and legal entities too.

Financers have to comply with strict requirements with respect to the payment ability of applicants. Non-compliance with the requirements can lead to material losses for banks. That is why banks rely on historical information and projections. Applicants must therefore ensure that their information is accurate and realistic.

sagrainmag.co.za

Banks in South Africa are furthermore regulated by important frameworks: the Banks Act of 1990, which regulates companies that accept and holds deposits from the public, and Basel III (international regulations), which focuses on capital sufficiency and the liquidity of banks. These frameworks create the financing environment within which banks must function.

Entities

1

Sustainability and the continuity of farms across generations are vital. Poor planning or the wrong legal structures in the business can hamper this.

2

Decisions must always be made within the bigger framework of estate duty and capital gains tax. With proper financial planning, significant tax obligations can be avoided without core assets having to be sold, which could threaten the survival of the farming operation.

3

It is important to get advice from accredited financial planners and auditors.

Remember

1

One financing solution will not necessarily work for all businesses. Circumstances, assets, management ability and the potential of businesses differ.

2

A sound principle is to talk to your financing partner sooner rather than later to make sure your affairs are in order.

3

As long as businesses are adaptable, sustainability and a legacy are possible.

The complete article appeared in SA Graan/Grain of August 2024.

Gloudie Boshoff, accounts manager and
Stephan Smith, agricultural manager,
Nedbank Commercial Banking in the Free State



Omskep risiko in volhoubare welvaart

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GRAIN SA

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Together, stronger than a single voice

GRAIN SA IS A VOLUNTARY INDUSTRY ORGANISATION THAT PROVIDES COMMODITY-STRATEGIC SUPPORT AND SERVICES TO THE GRAIN AND OILSEEDS PRODUCERS OF SOUTH AFRICA.

The corporate identity of the organisation and the motto 'We are' imply that together, the members of the organisation are stronger than a single voice. This united voice resonates the authenticity and relevance of the collective and is evidence of the dynamics of grain and oilseed production in South Africa.

Commodities that are represented include maize, wheat, soybeans, canola, sunflower, sorghum, barley and groundnuts. The organisation was established on 19 June 1999 with the merging of four former industry organisations, namely NAMPO (maize), NOPO (soybeans, sunflower and groundnuts), the WPO (grain, barley and oats) and the SPO (grain sorghum).

Vision

To influence the macro- and micro-economic environments in order to make sustainable and profitable local grain production and development possible.

Mission

To ensure and nurture a credible and sustainable, voluntary and inclusive organisation for grain producers that gives impetus to approved strategic actions and includes meaningful partnerships and relationships with role players.

Culture and values

The creation of an empowering caring environment for passionate, dedicated and expert teams to grow and enjoy serving the organisation and influencing and delivering value for the wider food value chain. We strive to inculcate trust and build relationships through respectful interaction and open, honest and effective communication. We value continuous, sincere and honest teamwork that leads to sustained, impactful results.

Core strategic objectives

- Influencing economic sustainability.
- Growing and supporting developing grain producers to become commercially sustainable.
- Increasing the involvement of the younger generation of producers.
- Growing a wider membership base.
- Establishing and maintaining key value chain relationships.
- Promoting efficient and effective communication.

Group of entities

Since the restructuring of the organisation in 2024, the Grain SA group of entities comprises the following:

1

Grain SA NPO, with the focus on the marketing of the interests of grain and oilseeds producers. Grain SA NPO is the holding entity of the group of entities.

2

Phahama Grain Phakama NPC, with the focus on training, development and the commercialisation of developing producers.

3

Nampo (Pty) Ltd, which focuses on managing commercial projects in the Grain SA group of entities, including events like the functions of NAMPO and the *SA Graan/Grain* magazine.

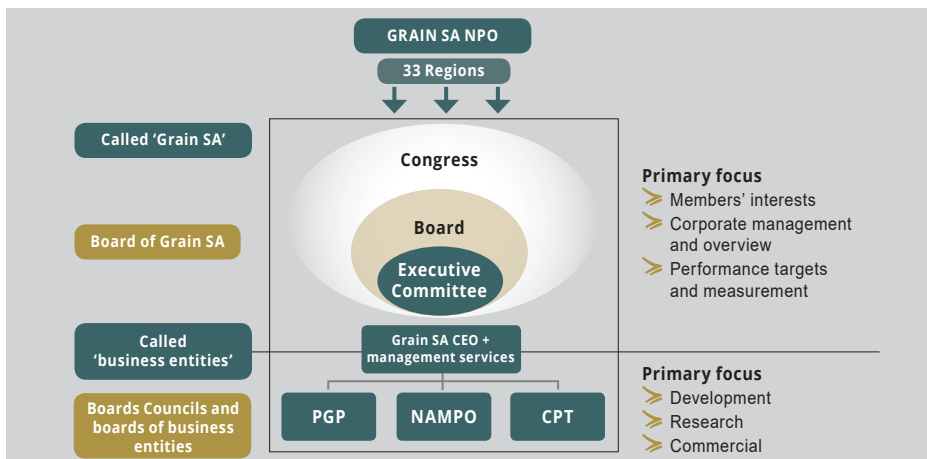
4

The Commercial Producers Trust, with a focus on research to the benefit of the grain and oilseeds industry.

Member services

Grain SA represents its members in 33 regions in South Africa where grain and oilseeds are cultivated commercially. Each region is represented by an elected member (nominated and elected for a term of office during Congress) on the Board – see **page 122 - 127** for a breakdown of the Board. Board members also use the regional and branch structures of the organisation to serve members.

The Board elects an Executive Committee (Exco) from its ranks. It comprises a chairperson, two vice-chairpersons and additional members. The Exco exercises all competencies of the Board between sessions of the Board and Congress. Working groups are appointed by the Board to assist the leadership in carrying out their duties. The chairpersons of the Grain SA specialist working groups and committees, as well as the members of the Exco, appear on **p. 121**.



Staff team

Strategically the staff corps focuses on six main focus areas to ensure that objectives are achieved. The chief executive officer is supported by a core leader for each focus area, namely:

1

Nampo, Marketing and Research Coordination

The department focuses on the effective management of the NAMPO brand and NAMPO Park. While the NAMPO Harvest Day is a cornerstone of the sustainability of the organisation, the brand is further promoted by NAMPO Cape and the NAMPO ALFA Expo.

Successful media and producer liaison is an essential function that is carried out. Communication must be effective so that the media and the public realise the importance of grain producers. The publication of the *SA Graan/Grain* magazine is another key marketing activity.

Levies are the foundation of Grain SA – without them the organisation is not sustainable and also cannot support producers. To retain autonomy, a voluntary levy is collected on all grain and oilseeds produced.

The effective coordination of grain research links up with the establishment of research consortiums that improve the productivity, profitability and sustainability of grain and oilseeds producers and is to the benefit of the industry. The research team is also involved in the coordination of national cultivar assessments for maize and sorghum.

2

Applied economics and member services

This department plays a key role in influencing the macro and micro environment in order to keep grain and oilseeds producers profitable and sustainable on their farms and promote a sound policy environment in the market and input environments. The administration of and service to the different specialist working groups of the organisation are another core focus point.



3 Finance and IT

The objectives of the team involve unqualified audit opinions and acceptable fact-finding reports on all Grain SA's external projects. Internal control measures and good corporate control enable the department to achieve these objectives.

We ensure that all recordings and processing are relevant, accurate and complete, supporting key individuals and teams with informed decision-making. The team also ensures that all service providers achieve in line with contracts and budgets. Optimum utilisation of IT systems in the organisation is also driven in the department.

4 Phahama Grain Phakama NPC

Active grain producers are assisted in cultivating grain profitably by using the best available technologies and practices for sustainability. A well-established team consists of regional development managers, mentors and administrative staff to support producers purposefully on their way to commercialisation.

Producers are served in four groups: subsistence farmers, small farmers, potential commercial producers and new-era commercial producers. PGP NPC focuses exclusively on developing agriculture and supporting producers across different sizes of farming enterprises – from subsistence farmers to new-era commercial producers.

5 Company Secretariat

This department manages the institutional environment of the Grain SA group of entities in order to ensure compliance and good management. Guidance is given to Board members and other governance structures and it is a contact point for legal affairs of the group.

The coordination of Congress, strategic support to the CEO and the implementation of strategic objectives also form part of the key focus areas.

6 Human Resources and Corporate Services

The principal focus is to position Grain SA as a preferred employer – not only in agriculture, but in the labour market as a whole. A full spectrum of human resources functions as well as corporate services is provided to the organisation.

Representation

Grain SA members should also take cognisance of the platforms below in the extended grain family, where the leadership and/or staff of Grain SA represent and promote the interests of the grain producer:

Trusts

Maize Trust, Oil and Protein Seeds Development Trust (OPDT), Sorghum Trust, Winter Cereals Trust, Sasol Agricultural Trust, South African Winter Grain Industry Trust (SAWCIT)/ South African Winter Cereal Industry Agency NPO (SAWCIA), Commercial Producers Trust, Western Cape Agriculture Research Trust

Forums

Oilseeds Forum, Sorghum Forum, Wheat Forum, Maize Forum

Advisory committees/technical committees (research)

Oilseeds advisory committee (Oilseeds Trust), technical committees for winter cereals (Winter Cereals Trust/SAWCIA)

Organised agriculture

Agri SA (board, commodity chamber, centres of excellence, nine provincial units), TAU SA

Industry-related boards

Southern African Grain Laboratory (SAGL), Safex technical committee, Safex advisory committee, South African cultivar & technology agency (SACTA), AAMP, PRF Soybean Working Group, PRF Canola Working Group, National Grain Research Programme (NGRP), Agricultural Academic Board Reitz High School, Alenti governing body

EXECUTIVE COMMITTEE, WORKING GROUPS and CHAIRPERSONS



DEREK MATHEWS

Chairperson of Grain SA
Executive Committee
Maize Working Group
Commercial Producers Trust



RICHARD KRIGE

Vice-chairperson of Grain SA
Executive Committee member
Winter Cereals Working Group
Winter Cereals Research Committee
Marketing Working Group
Remuneration Committee



JEREMIA MATHEBULA

Vice-chairperson of Grain SA
Executive Committee member
Farmer Development Working
Group of PGP NPC



DANIE MINNAAR

Executive Committee member
NAMPO Harvest Day Com-
mittee of Nampo (Pty) Ltd



JACO BREYTENBACH

Executive Committee member
Editorial Working Group



WILLEM GROOTHOF

Executive Committee member
Sorghum Working Group



RAMOSO PHOLO

Executive Committee member



DR TOBIAS DOYER

Chairperson of
Nampo (Pty) Ltd
Chairperson of PGP NPC



RYK PRETORIUS

Sunflower and Soybean
Working Group



ANDRÉ KIRSTEN

Production/Input Working Group
Lupin-/Alternative Crops
Working Group



GERT PRETORIUS

Groundnut Working Group



KOOS BLANCKENBERG

Canola Working Group



JOSE DE KOCK

National Barley Industry
Committee; Southern
Barley Industry Committee



WILLIE BOTHA

Northern Barley Industry
Committee



STEPHAN BARAC

Audit and Risk Committee
(Independent)

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1**GERT PRETORIUS**
buckreef.gertjie@gmail.comREGION
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4**FRANCOIS GELDENHUYS**
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5**WILL GROBLER**
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MTHIMKULU



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REGION
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THOBANI NTONGA
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tnthonga@lotogreensco.co.za



Representative:
Agricultural Development
PATRICK STUURMAN
stuurmanpatrick5@gmail.com



NOTE

Region **30** was dissolved
after the members reached
commercial status and
joined adjacent regions.



Membership is within reach

GRAIN SA IS AN AUTONOMOUS AND VOLUNTARY INDUSTRY ORGANISATION WHICH ACTS COLLECTIVELY IN THE INTEREST OF THE ECONOMIC PROSPERITY OF THE GRAIN PRODUCERS OF SOUTH AFRICA. IT IS THE COMBINED VOICE OF GRAIN PRODUCERS THAT ADDRESSES INDUSTRY MATTERS AND ISSUES WITH AUTHORITIES AND OTHER ROLE-PLAYERS IN THE INDUSTRY.

How is membership obtained?

Complete the authorization form on the Grain SA website or scan the following QR code:



As soon as Grain SA has received the authorisation form, it is handed to the collection agent concerned to deduct the levy whereafter the producer is registered on the system as a member.

Linked members: If more than one person is involved in a farming operation, such persons can function as linked members.

Who can become a member of Grain SA?

Natural persons, trusts, and any legal entities that:

- 1** produce grain for marketing; and
- 2** pay the prescribed membership fee and commodity levy to Grain SA; and
- 3** endorse the objectives of Grain SA.

COLLECTION AGENTS



Are you unsure in which region you are?

Refer to the information about the Board members on p. 122 - 127 or contact Grain SA's head office at 086 004 7246. You can also send an email to lombard@grainsa.co.za

Grain SA member marketers

For enquiries or specific information contact our marketers:

LOMBARD VAN DYK

(Western Free State, North-West and Northern Cape)
082 806 9401

lombard@grainsa.co.za



WERNER VOS

(Mpumalanga region)
063 851 8178

werner@grainsa.co.za



MJ SWART

(Western Cape)
072 090 7997

mj@grainsa.co.za



PATRICIA ZIMU

(Developing agricultural regions)
086 004 7246
073 255 9673

patricia@grainsa.co.za



MARGUERITE PIENAAR

(Eastern Freestate)
078 057 1742

marguerite@grainsa.co.za



GRAIN SA'S ACCOUNT DETAILS ARE AS FOLLOWS:

ACCOUNT HOLDER:

GRAIN SOUTH AFRICA NPO

BANK: **FNB**

ACCOUNT NUMBER: **62864206430**

BRANCH CODE: **230145**

How is the levy collected?

The commodity levy is collected in two ways:

1

Collection agents

Grain SA has concluded agreements with agricultural businesses and other grain off-takers in terms of which these institutions, for an agency fee of 5%, collect the commodity levy for Grain SA as collection agents. This makes it easy for producers to ensure that their commodity levy is paid over.

The levy per ton is collected on all grains at the first point of delivery and the collection agent will only deduct the levy as long as the member agrees to this.

2

Direct payment

- A member can pay the commodity levy to Grain SA by means of a direct deposit at the bank or an electronic transfer.
- Members who make direct or electronic deposits must email the proof of payment plus the member's details to Patricia Zimu at patricia@grainsa.co.za.

GSA group's own magazine

AS THE OFFICIAL GRAIN SA MAGAZINE, SA *Graan/Grain* OFFERS READERS THE LATEST AGRICULTURAL INFORMATION BASED ON RELEVANT RESEARCH, TECHNOLOGY, PRODUCTION TECHNIQUES AND EXPERTISE.

The Grain SA editorial committee which includes scientists, agricultural economists, producers and professional journalists ensures that the most relevant themes and article proposals are identified monthly. This enables the magazine to publish articles that keep readers up to date on the most important matters concerning the production of grains and oilseed.

SA *Graan/Grain* publishes a NAMPO Harvest Day, NAMPO Cape and NAMPO ALFA special edition in the course of the year. Results of cultivar evaluation for winter grains (March) and summer grains (October) as well as the Grain Guide are also made available annually. The monthly issues and inserts are printed and posted and are also available digitally on sagrainmag.co.za.

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To make sure that we cover every aspect of grain and oilseeds farming, we focus on specific themes every month:

FEBRUARY	Mini focus on groundnuts Mini focus on canola
MARCH	Focus on seed Mini focus on weed control in winter cereals Cultivar insert (winter grains)
APRIL	Focus on NAMPO Harvest Day
MAY	Mini focus on financial services and money matters
JUNE	Review on NAMPO Harvest Day Focus on integrated farming Mini focus tertiary institutions
JULY	Focus on fertiliser Mini focus on lime
AUGUST	Focus on implements and equipment NAMPO Cape insert
SEPTEMBER	Focus on integrated pest control Mini focus on soybeans Spotlight on sorghum NAMPO Alfa insert
OCTOBER	Focus on irrigation Focus on social responsibility Cultivar insert (summer grains)
NOVEMBER	Spotlight on cover crops Grain Producer awards
DECEMBER/ JANUARY	Focus on Grow for Gold Spotlight on winter grains Grain Guide



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Contacts GENERAL

ORGANISED AGRICULTURE

INSTITUTION	EMAIL	NUMBER
African Farmers Association of South Africa (AFASA)	info@afasa.org.za	012 943 7290
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Agri Gauteng	info@agrigauteng.com	012 643 3400
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Department of Forestry, Fisheries and the Environment	MinisterG@dffe.gov.za	012 399 9000
Department of Environmental Affairs	callcentre@dffe.gov.za	086 111 2468
Department of Health	minister@health.gov.za	012 395 8086
Department of Labour	dol.customercare@labour.gov.za	012 309 4000
Department of Mineral Resources	samradonline@dmr.gov.za	012 444 3000
Department of Science and Innovation	webmaster@dst.gov.za	012 843 6300
Department of Tourism	callcentre@tourism.gov.za	012 444 6577
Department of Trade, Industry and Competition	contactus@thedtic.gov.za	086 184 3384
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Independent Police Investigative Directorate (IPID)	complaints@ipid.gov.za	012 399 0000
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Mpumalanga provincial government	molelekoan@mpg.gov.za	013 766 2076
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National Crop Estimates Committee (NCEC)	ronab@dalrdd.gov.za	012 319 8032
North West provincial government (Bokone Bophirima)	premier.ncpg.gov.za	018 388 4968
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ARC-Natural Resources and Engineers	AdriL@arc.agric.za	012 310 2500
ARC-Small Grain, Bethlehem	ritchiee@arc.agric.za	058 307 3402
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Sorghum Forum (SF)	petru@agrimanage.co.za	012 807 3958
Sorghum Trust	beatrix@agrimanage.co.za	012 807 3958
Wheat Forum (WF)	beatrix@agrimanage.co.za	012 807 3958
Winter Cereal Trust	thato@wctrust.co.za	012 007 1200



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OTHER

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Arbitration Foundation of South Africa (AFSA)	info@arbitration.co.za	011 320 0600
Bureau for Food and Agricultural Policy (BFAP)	dalene@bfap.co.za	082 550 2808
JSE (Safex)	info@jse.co.za	011 520 7000
National Chamber of Milling (NCM)	info@grainmilling.org.za	012 663 1660
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SA Soy Food Association (SSA)	info@ssa.org.za	012 807 7600
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Southern African Grain Laboratory (SAGL)	info@sagl.co.za	012 807 4019

EMERGENCY NUMBERS

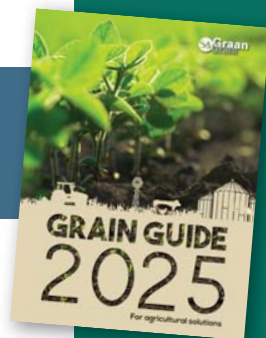
INSTITUTION	EMAIL	NUMBER
Fire		
Fire Protection Association of South Africa (FPASA)	reception@fpasa.co.za	011 397 1619

EDUCATION

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University of Pretoria	ssc@up.ac.za	012 420 3111
University of Stellenbosch	info@sun.ac.za	021 808 9111
University of Venda	info@univen.ac.za	015 962 8000
University of KwaZulu-Natal	education@ukzn.ac.za	031 260 1111
University of Zululand	info@unizulu.ac.za	035 902 6000
University of South Africa	edu-enquiries@unisa.ac.za	080 000 1870

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