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PULA IMVULA

GROWING FOOD • PEOPLE • PROSPERITY

GRAIN SA MAGAZINE FOR DEVELOPING FARMERS

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PULA IMVULA

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Photo: ARC-Grain Crops.

A Word From...

Johan Kriel

ANOTHER INTERESTING PLANTING SEASON HAS AGAIN KEPT THE WHOLE GRAIN INDUSTRY ON ITS TOES. THE RAINS CAME EARLY AND CONTINUED FOR A LONG TIME.

Soil preparation was challenging, and tractors and oxen alike had their work cut out for them in the muddy conditions. Opposite conditions were experienced during December and January with a severe heatwave that also caused a scare.

With that said, our programme always teaches that farmers need to prepare their lands early, keep them clean from weeds, focus on reserving soil moisture as far as possible and to always stay within the optimal planting window.

Well, this season had other plans in mind and showed us just how challenging farming can be as well as the importance of being adaptable. Even the largest commercial farmers indicated that this was one of the longest and most difficult planting seasons that they have ever experienced. Luckily crops are resilient, and most of the crops recovered very well.

Here is something to think about: Knowledge, experience and innovative thinking = adaptability, irrespective of scale. A farmer needs to be adaptable to change to be able to survive in unforeseen circumstances.

To acquire these traits as a farmer it is imperative that you build your knowledge base through training, the gathering of information, critical thinking and forging solid partnerships.

I am almost certain that many of you felt helpless when you could not get into your lands to plant or to do weed control. It is important to know that everyone was in the same boat and felt exactly the same. Always remember that if you do not have immediate neighbours who are innovative and resilient, there are always people such as Grain SA, input suppliers, representatives and agribusinesses who work with many farmers in your area and who can advise you on what the best thing is to do in your circumstances.

Stay strong and we wish you an abundant harvest!

– Johan Kriel is the regional development manager for the western Free State region.

Keep a close eye on WINTER WEEDS

THE CONTROL OF WINTER WEEDS IS NOT A LUXURY BUT A NECESSITY. IN SPRING, FIELDS MUST BE CLEAN AND WINTER WEEDS MUST NOT BE A PROBLEM. THESE WEEDS ARE ADAPTED TO WINTER CONDITIONS AND HAVE THE ABILITY TO SURVIVE AND GROW IN THESE DRY PERIODS. IT ALSO HAS THE ABILITY TO USE WATER EFFICIENTLY AND GROW UNCONTROLLABLE AFTER THE FIRST SUMMER RAINS.

Unfortunately, many farmers fall in the trap of not controlling winter weeds. They assume that the plough, rippers or animals will control winter weeds, but unfortunately cultivation doesn't control this problem. The result is fields where the winter weeds are out of control and eventually use a lot of moisture, and the farmer then ends up with fields that are too dry to plant. This leads to yield losses, an increased risk and phone calls from the bank manager.

Farmers must remember to manage the moisture in the soil, as this is one of the most important elements of grain production.

In the winter weeds do not normally grow above the ground but their roots grow rapidly under the ground. With a well-developed root system, winter weeds can utilise the moisture of the first rain and this leads to rapid growth. The growth will utilise the moisture effectively, with the result of fields being too dry to cultivate or plant.

Conyza spp. is a common winter weed that needs to be controlled. It includes the following:

- Fleabane (*skraalhans*) – **photo 1A and B**.
- *Senecio consanguineus* or ragwort (*radiatorbossie*) – **photo 2A and B**.
- *Argemone ochroleuca* or Mexican poppy (white-flowered blue thistle) – **photo 3**.

HOW TO CONTROL WINTER WEEDS

Normally a shallow tillage or diss action as early as possible as well as herbicide application to younger, smaller plants during late March or early April can do the trick to control winter weeds. It must be stressed that the winter weeds must still be young – for instance, the *Conyza spp.* must still be in the rosette stage for herbicides to work properly.

In maize fields the application of herbicides can be difficult. Normally an aeroplane or a 'high boy' is needed. The problem is that the herbicide is not necessarily registered for this practice, which makes it very difficult to spray winter weeds with great success. The lower temperatures during June, July and August also have a bad influences on herbicides. This means the use of implements is a good option in a conventional production system.

When shallow cultivators are used, farmers must make sure that tines are spaced in such a way that there is enough overlapping to prevent gaps where the winter weeds are not worked out. The faster the fields are cultivated after harvesting, the better winter weeds are controlled.

Using herbicides

If a farmer wants to use herbicides to control sedges in particular, scientific studies mostly support the use of glyphosate in mixtures with other herbicides, with different effects regarding the alternation or rotation of herbicides in the management of resistance development. Label instructions show that 2,4D can be sprayed in combination with glyphosate or atrazine. But be warned about the residual effect of atrazine on subsequent crops.

According to Dr Maryke Craven, senior researcher at the ARC-Grain Crops, Paraquat, a non-selective weed herbicide, can also be used. Ensure that the weeds are fully wetted with at least 300 litres of water per hectare. The use of glyphosate will also help with the control of ragwort (*radiatorbossie*) and Mexican poppy (white-flowered blue thistle). Just make sure that you consult your herbicide representative to make the best decision for winter weed control.

1A

Young* Conyza *plants.

1B

A flowering fleabane bush.

2A

A seedling of the ragwort plant.

2B

An adult ragwort bush.

3

A flowering* argemone *(Mexican poppy) or white-flowered blue thistle plant.

Source: http://t1.gstatic.com/licensed-image?q=tbn:ANd9GcT_RRbG1s-ny-wluQ86FSypGFTJaKGNAc7PpZBbsHK0rO2bfay5C4utn03Gr4dZKmWML_7_eKB-n0u3itLdg

Crop rotation

Crop rotation can also help a lot with winter weed control. Sunflower and soybeans give the farmer the option to go into the fields earlier. These crops don't have as much stubble as maize and therefore the control is more effective. The fields can also be used for grazing and the spreading of lime can also be done.

Combatting winter weeds is a necessity that farmers must manage carefully. Discuss it with your herbicide representative in advance, so that a plan can be made to find the best options to control weed. Take all the planned cultivation actions into consideration to find the best solution.

If you decide to do it chemically, make sure that the sprayer is calibrated correctly. Follow the recommendations on the label carefully and ensure that enough water is applied. The golden rule is to spray winter weeds when they are young. Don't wait too long, because it is very difficult to control when the weeds are mature. ■

PIETMAN BOTHA, INDEPENDENT AGRICULTURAL CONSULTANT

How to operate in CHALLENGING TIMES

THE GRAIN SA CONGRESS TOOK PLACE AT NAMPO PARK ON 8 AND 9 MARCH THIS YEAR. THE THEME FOR 2023 WAS: 'ADAPTABILITY IN AN ENVIRONMENT OF HIGH RISKS AND UNCERTAINTY'. THE AIM OF THIS THEME WAS TO GIVE PRODUCERS GUIDANCE ABOUT HOW TO OPERATE IN A CONSTANTLY CHANGING ENVIRONMENT.

A SEASON OF GRACE

In the chairman's report, Derek Mathews (chairman) and Grain SA's CEO, Dr Pieter Taljaard, touched on the challenges of 2022, together with the confirmation that although the year was unstable and often unpredictable, it has transformed into a season of grace. Although South African grain producers were still dealing with the impact of the global pandemic and the adverse effects of the ongoing war in Ukraine, high output prices mercifully balanced the scale of the economy. Agriculture was able to show its strength and, together with mining, permeate the economy.

Both Mathews and Dr Taljaard emphasised that during the 'abnormal' time, the government and consumers came to a deeper realisation of the value of an agricultural sector that provides food security. Therefore it was in many ways a blessed year.

Mathews also looked at the previous year's highlights which included, among other things, the dedication of the Executive and the staff employed by grain producers in their pursuit of achieving the goals of the organisation. Further highlights included the new soybean seed varieties and technology that offers good prospects as well as the renewed focus on Sclerotinia. The continued development in cultivars and breeding in the maize and wheat industries were discussed and the establishment of a diagnostic clinic and biosecurity hub was welcomed.

The availability of canola seed was highlighted as a top priority along with the diesel rebate, as its abolition would have significant consequences for grain producers. The export markets for soybeans were presented as another success story and excitement about the alternative location differential for soybeans from the year 2023 was palpable.

In follow-up, Dr Taljaard underlined the strategic focus areas of the organisation: More profitability and sustainability; the sustainability of developing farmers; involvement and input from younger members; a broader member base; core value chain relationships and effective communication.

RESILIENCE IS THE ANSWER

The keynote speaker, Sam Rolland, director of sub-Saharan Africa of the Economist Intelligence Corporate Network, examined global trends in food security in his keynote address. Rolland confirmed that the world economy is currently at a crossroads, with volatility and uncertainty on the horizon for the next five to ten years.

In conclusion, he added that food security will be a major driver of economic risk, that smart farming practices will increase yields and that the international environmental policy will encourage the use of less fertiliser. He urged the organisation to accelerate actions and the use of smart technology and take the lead as the government will not be able to keep up.

Grain SA chairman Derek Mathews was re-elected unopposed. He will be supported by re-elected vice-chairmen, Jeremia Mathebula and Richard Krige.

Region 31 farmers with the two regional development managers from the Free State to capture the moment: David Thamae, Johan Kriel, Petrus Tsotetsi, Jacques Roux and Maseli Letuka, executive member for region 31.

LEARN FROM EXPERTS AND CO-PRODUCERS

Panel discussions during Congress focused on drawing on the knowledge of experts and co-producers. The panel of experts, led by Dr Taljaard, consisted of Erik de Vries (CEO of Agri Technovation) who discussed new technology for grain production; Gerhard Diedericks (independent insurance expert) who talked about new opportunities in group insurance for grain and oilseed production; and Monique le Roux (CSIR) who touched on loadshedding solutions and the national grid.

Maleshoane Mokgoetsi from region 28 poses a question to the panel on day 1 of Congress.

Two of Grain SA's research team members: Dr Godfrey Kgatle (intern research coordinator) and Stefan Links (research coordinator).

Region 28 delegates capture the moment.

Liana Stroebel with two members from region 30 – Patricia Duna and Ivan Cloete.

The Grain SA Farmer Development team: Dr Sandile Ngcamphalala (Farmer Development lead, left) and Liana Stroebel (development: Training and Operations manager) with the various regional development managers: Luke Collier, Jerry Mthombothi, Graeme Engelbrecht, Johan Kriel, Jacques Roux, Jurie Mentz and Du Toit van der Westhuizen.

Patrick Stuurman (previous executive member for region 33) and Ramoso Pholo (executive member for region 28) on their way to register for Congress.

Photos by Lizel Snyman.

Congress is a wonderful opportunity to connect with fellow farmers and catch up with friends.

Are these the shortest and tallest attendees? Mario Ruiters from Santam with Giovanni Pariziaello, a producer from Brazil who took part in the panel discussion on day 1.

Representatives from the DALRRD with dr Sandile Ngcamphalala (second from the right) – Mbulaheni Thomas Mutengwe, Malose Johannes Fache and Billy Makhafola.

Three of the issues in grain production that were consequently discussed were technology and the optimal use of collected data, risks that increase in the industry precisely because of how the industry is changing as well as the power crisis and what the possibilities are for grain producers to connect alternative power generation to the national network.

The producer panel, led by Corné Louw (Applied Economics and Member Services Lead at Grain SA) consisted of Giovanni Pariziaello (producer from Brazil), André Brink (2022 Grain Producer of the Year) and AC van Wyk (summer grain producer from Bultfontein and the 2017 Grain Producer of the Year). The discussion focused on how these producers managed their businesses through high-risk situations and what lessons they learned from them. With an increase in events that no producer can plan for, the input from the panel was invaluable.

THE ROAD AHEAD

Grain SA thanks all its members, partners, role-players and sponsors who contributed to a successful 2023 Congress. In the coming year we will work together to take organised agriculture back to what is important to our members – the focus on farming. ■

ALZENA GOMES, PUBLIC RELATIONS OFFICER, GRAIN SA

The keynote speaker at the 2023 Congress, Sam Rolland.

A packed Fanie Ferreira Hall at NAMPO Park, near Bothaville.

Thobani Ntonga was elected as executive member for region 33, following Patrick Stuurman's election as additional member for Farmer Development on the Executive.

Interactive participation of Congress attendees was encouraged. The use of electronic voting processes ensured constructive feedback after each session.

MANAGE your debts wisely

BORROWING MONEY IS SOMETHING MOST OF US MUST DO ON OCCASION, PARTICULARLY IN AGRICULTURE. HOWEVER, KEEP IN MIND THAT A LOAN MUST BE PAID BACK, MOST LIKELY WITH INTEREST.

A loan is the money you receive from a financial institution in exchange for a commitment to repay the principal amount with interest. Lenders take the risk of a possible default; therefore, they charge a fee to offset this risk – and this fee is known as the interest.

In a **secured loan**, you need to pledge collateral to get the loan. So, if you default or do not pay back the loan, the lender has a right to take possession of the asset that had been pledged as collateral. An **unsecured loan** does not ask for collateral. If you do not pay back the unsecured loan, the lender has no right to take anything in return. An **agribusiness loan** can assist to purchase a property, plant a crop (with an inputs production loan), buy new machinery and equipment, upgrade breeding stock, overcome cashflow shortages and fulfil a range of other funding needs.

When you borrow money, you must know you have taken on a commitment to repay it – so manage every cent responsibly. Develop and follow an affordable budget. Understand your ability to service debt.

Make sure you are getting a competitive and reasonable interest rate. Read and understand the documents you are signing. Understand the actual cost of borrowing. Understand what it means to give your property as security for a loan and the repercussions of failing to honour your financial obligations. There are many situations in which people borrow money and are not even aware they have pledged their personal property as collateral for the loan.

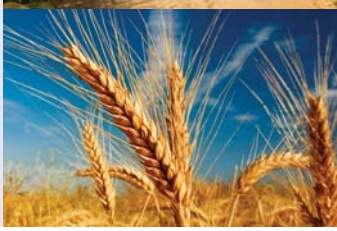
Paying back your loan on time is important, as it can affect your loan liability and your credit history. Your debt repayment history shows other banks and lenders that you have either paid on time or not. Missing loan repayment dates has a negative impact on your credit health. Paying on time will help you to build a positive credit history, which is increasing your chances of being approved for a loan with a lower interest rate. ■

JENNY MATHEWS,
MANAGEMENT AND DEVELOPMENT SPECIALIST AND EDUCATOR

WORDS OF WISDOM

"At the very heart of agriculture is the drive to feed the world."

~ BEN POTTER
senior editor of the online agricultural magazine, *Farm Futures*



Do CA practices increase MYCOTOXINS in maize?

CONSERVATION AGRICULTURE (CA) IS A SYSTEMATIC APPROACH THAT DISCOURAGES SOIL DISTURBANCE BY INTEGRATING ZERO TILLAGE, PERMANENT SOIL COVER AND CROP ROTATION TO ESTABLISH A BALANCED, SUSTAINABLE AGRO-ECOSYSTEM. THIS APPROACH ENSURES THE EFFICIENCY OF CROPPING SYSTEMS BY ENHANCING THE QUALITY OF THE SOIL THROUGH AN INCREASE IN ORGANIC CARBON, SOIL BULK DENSITY, NITROGEN, MICROBIAL DIVERSITY AND SOIL MOISTURE CONSERVATION.

When environmental conditions are favourable, a lack of crop rotation under no-till may have an impact on mycotoxigenic *Fusarium* spp. infections and resultant mycotoxin production in grain. The fungi that produce mycotoxins in grain are broadly placed into two groups: those that invade before harvest, commonly called field fungi, and those that occur only after harvest, called storage fungi. Examples of economically important toxigenic field fungi of maize are *Fusarium verticillioides* (**Photo 1**) and *Fusarium graminearum* (**Photo 2**).

These fungi can produce mycotoxins called fumonisins (*F. verticillioides*), deoxynivalenol and nivalenol (*F. graminearum*). Furthermore, *F. graminearum* can produce an estrogenic metabolite called zearalenone. Fungal infection and colonisation of grain may lead to poor grain quality, whereas mycotoxins may have a negative health impact on humans and animals.

There is a perception among grain producers that CA systems increase ear rots and mycotoxins in maize grain. Therefore, the ARC-Grain Crops conducted a study (funded by the Maize Trust) to see what is happening at CA farm level.

SAMPLES FROM FARMS

Samples from commercial production areas

28 maize grain samples (2019/2020 season) and 25 samples (2020/2021 season) intended for human and animal consumption were collected from four commercial producers (in Kroonstad, Makwassie, Ottosdal and Reitz) in the north-eastern production area in South Africa. Each producer used different CA practices suitable for their specific local production systems. These samples varied over locality and season.

Monoculture maize fields planted to CA principles were selected as controls. Ear rots such as *F. verticillioides* and *F. graminearum* were quantified, using qPCR analyses. Multiple mycotoxins such as fumonisin (FUM), deoxynivalenol (DON), 15-acetyl DON (15-A DON), ochratoxin, zearalenone (ZEA), T-2 toxin, HT-2 toxin and diplodiatoxin (DT) were analysed by the Southern African Grain Laboratory (SAGL) using a LC-MS/MS method.

Samples from small-scale production areas (KwaZulu-Natal)

A total of 37 maize grain samples were collected from eleven small-scale farmers (Mayizekane [3 farmers], Eqeleni, Stulwane, Ezibomvini, Vimbukhalo, Spring Valley, Emabunzini, Ndunwana and Madzikane) situated throughout the KwaZulu-Natal small-scale production area in South Africa during the 2019/2020 season. These farmers are all part of the Mahlathini Development Foundation, which aims to increase the use of CA (no-till) among small-scale farmers. Each farmer used differing CA practices (monoculture maize, cowpea/maize rotation and/or dry bean/maize rotation). Monoculture maize fields planted to CA principles were selected as controls. Ear rot and mycotoxin quantifications are the same as described for the commercial production area samples.

RESULTS

Samples from commercial production areas

In **Kroonstad** (northern Free State), both samples collected in 2019/2020 contained low amounts of *F. verticillioides* and *F. graminearum*. Mycotoxin quantifications for FUM, ZEA, DON and 15-ADON were low and insignificant to human or animal health. In 2020/2021 the fallow/maize/maize system had significantly dangerous levels of DON (1 604 parts per billion [ppb]), while no mycotoxins were detected during this season at the sorghum/maize/maize and soybean/maize intercrop.

In **Makwassie** (North West Province), the monoculture maize sample (2019/2020) had a DON level of 1 020 ppb, which exceeds legal limits for pigs and pet food, while all other mycotoxins were lower than the legal limits. Monoculture maize had lower mycotoxin levels than maize planted on a fallow land followed by maize, where the maize ear rot *F. graminearum* was extremely high (6 455 pg/20µl) with resultant toxic DON (7 144 ppb) and ZEA (26 193 ppb) levels. In a field of maize where groundnuts were planted the previous season, the ear rot *F. graminearum* (881 pg/20µl) was high and resulted in toxic levels of DON (9 619 ppb). In the 2020/2021 season, monoculture maize had very low DON levels and no other mycotoxins were detected. Maize following sunflowers had no mycotoxins detected.

In **Ottosdal** (2019/2020 and 2020/2021), monoculture maize sampled in fields with different plant populations had no or very low ear rots and resultant mycotoxins.

In **Reitz** during the 2019/2020 season, the monoculture maize had moderate infections of *F. verticillioides* ear rot (45,3 pg/µl) as well as higher infections of *F. graminearum* ear rot (458 pg/µl). Although various related mycotoxins were detected, they were lower than the allowed legal requirements. In maize following a grass cover crop, *F. verticillioides* (70 pg/µl) and *F. graminearum* (129 pg/µl) ear rot infections were low and no mycotoxins were detected. On maize following a sunflower crop, *F. graminearum* ear rot infections were low (64,4 pg/µl) and again no mycotoxins were detected.

Samples from small-scale production areas (KwaZulu-Natal)

In **Mayizekane** (farm 1), the monoculture maize sample had a high *F. graminearum* (1 126 pg/20µl) infection with a low level of ZEA (354 ppb). The maize sample intercropped with dry beans had levels of *F. verticillioides* (7,4 pg/20µl) and *F. graminearum* (350 pg/20µl). The resultant FUM (752 ppb) and ZEA (85 ppb) levels were within acceptable limits. The maize sample intercropped with cowpeas had a low *F. verticillioides* infection level (70,5 pg/20µl), but a high *F. graminearum* infection level (2 386 pg/20µl), with a ZEA level (4 294 ppb) exceeding the legal limit for pigs, calves and dairy cattle.

In **Mayizekane** (farm 2), the monoculture maize sample had low *F. verticillioides* (128 pg/20µl) and *F. graminearum* (38 pg/20µl) infections. The FUM level (2 266 ppb) did not exceed the legal limit. The maize sample intercropped with cowpeas had a low infection rate for *F. graminearum* (82,7 pg/20µl), but the ZEA (976 ppb) level exceeded the legal limit for calves and dairy cattle.

In **Mayizekane** (farm 3), the monoculture maize sample had low *F. verticillioides* and *F. graminearum* infections (24 pg/20µl and 67 pg/20µl, respectively). The FUM level (6 896 ppb) exceeded the legal limit for humans, horses and pets. The maize sample intercropped with dry beans had low *F. verticillioides* (25 pg/20µl) and *F. graminearum* (146 pg/20µl) infections, with corresponding low levels of FUM (105 ppb), 15-A DON (105 ppb) and ZEA (29 ppb). *F. verticillioides* and *F. graminearum* infections were high in the maize samples intercropped with cowpeas (779 pg/20µl and 1 152 pg/20µl respectively).

F. verticillioides ***maize ear rot.***

F. graminearum ***maize ear rot.***

In **Eqeleni**, grain from four monoculture no-tilled maize fields were sampled and infection rates of *F. verticillioides* and *F. graminearum* varied from 0 to 3 pg/20µl and 3 to 231 pg/20µl, respectively. FUM was not detected in any fields and DON levels varied from 240 to 798 ppb (all below the legal allowable limits). 15-ADON varied from 0 to 208 ppb and ZEA from 0 to 144 ppb, which were also all below the legal allowable limits.

In **Stulwane**, three maize/cowpea intercrop fields were sampled. Low infection levels in grain were quantified for *F. verticillioides* (35 to 51,2 pg/20µl) and *F. graminearum* (17 to 221 pg/20µl). In grain sampled from two maize monoculture fields, *F. verticillioides* and *F. graminearum* were also low (12 and 81 pg/20µl and 90 and 102 pg/20µl, respectively). One grain sample had a DON level of 1 665 ppb, making it toxic to pigs and pets. Very low levels of ZEA were found in maize grain from monoculture fields (49 to 78 ppb).

In **Ezibomvini**, two monoculture maize fields, one maize after a cover crop and five maize/drybean intercropped lands were surveyed. Maize grain from the monoculture fields had low *F. verticillioides* (7,9 and 17 pg/20µl) and *F. graminearum* (21,4 and 85 pg/20µl) infections, with corresponding low mycotoxin levels. The DON level in one sample was 1 950 ppb, making it toxic to pigs and pets. Similarly, maize grain (following a cover crop) had low *F. verticillioides* (34 pg/20µl) and *F. graminearum* (100 pg/20µl) infections.

The FUM level was low at 240 ppb, DON was 1 418 ppb (making it toxic to pigs and pets), 15-A DON was 518 ppb and ZEA was 107 ppb. The five maize/drybean intercrop fields had low *F. verticillioides* infection levels varying from 0 to 4,4 pg/20µl and low *F. graminearum* infection levels varying from 0 to 595 pg/20µl. Three of the fields had no FUM, where the other two had levels of 127 and 379 ppb and only one field had DON (121 ppb). Otherwise no mycotoxins were detected in the drybean/maize intercropping systems.

In **Vimbukhalo**, three monoculture maize fields were sampled, one cowpea/maize intercrop and two drybean/maize intercrop fields. In the monoculture maize fields, low infection levels of *F. verticillioides* (1,3 to 35 pg/20µl) were observed. Trace amounts of mycotoxins were detected in the monoculture fields. In the maize/cowpea intercrop field, no ear rot pathogens or mycotoxins were detected. *F. verticillioides* infections in the two maize/drybean intercrop fields were low at 1,4 and 10,2 pg/20µl. *F. graminearum* was present in one grain sample (2,4 pg/20µl). No mycotoxins were detected except for one field where 399 ppb DON were detected.

In **Spring Valley**, a maize monoculture field and a maize/drybean intercrop were sampled. In both fields the infection with *F. verticillioides* (134 and 4,6 pg/20µl, respectively) was low. No *F. graminearum* was detected nor any mycotoxins except FUM levels of 81 ppb in the monoculture maize sample.

In **Emabunzini**, a maize/drybean field intercrop was sampled where *F. verticillioides* had a low infection of 39 pg/20µl. *F. graminearum* and mycotoxins were not detected.

In **Ndunwana**, a monoculture maize grain sample had low *F. verticillioides* infection levels (4,8 pg/20µl) with no *F. graminearum* detected. No mycotoxins were detected except for ZEA (56 ppb), which is very low.

In **Madzikani**, grain from a monoculture maize field had a *F. verticillioides* infection of 47,7 pg/20µl with no mycotoxins detected.

CONCLUSION

Samples from commercial production areas

Although there were no tendencies regarding the effect of the rotation/CA system on mycotoxigenic ear rot fungi and/or mycotoxins, there was variation among localities regarding both mycotoxigenic fungi and mycotoxins, with Makwassie having the highest DON and ZEA levels. Ottosdal had the lowest levels of fungi and mycotoxins. This area was previously known for high levels of *F. verticillioides* and FUM. However, it appears that in recent years levels of *F. graminearum* and related mycotoxins have been on the increase.

Samples from small-scale production areas (KwaZulu-Natal)

Although there were no clear tendencies regarding the effect of the cropping system on mycotoxigenic ear rot fungi and/or mycotoxins, it appeared that the maize/dry bean intercropping system had lower mycotoxigenic fungi and mycotoxins than other cropping systems.

The variation among localities (environmental conditions) regarding both mycotoxigenic fungi and mycotoxins, was greater than the cropping systems themselves. ■

ACKNOWLEDGEMENTS

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DR BELINDA JANSE VAN RENSBURG, DR BRADLEY FLETT, ARC-GRAIN CROPS AND DR HENRY NJOM, ARC-GRAIN CROPS, POTCHEFSTROOM.
FIRST PUBLISHED IN SA GRAAN/GRAIN, JUNE 2022.

TRENDS IN THE SA MAIZE MARKET

IN THE LOCAL MARKET, PRICES TRADITIONALLY FALL FROM APRIL TO MAY DUE TO THE TRANSITION TO A NEW SEASON, WITH INCREASED STOCKS DUE TO THE BEGINNING OF THE HARVESTING PROCESS. SOUTH AFRICA NORMALLY COMPETES WITH THE CHEAPEST COUNTRY OF IMPORT ORIGIN, WHICH IS USUALLY ARGENTINA OR BRAZIL.

If stocks get tight at the end of the season, prices can move away from export parity, but the norm for maize is that prices usually stay at export parity. This is due to South Africa normally having much more stock than what is needed locally and not being able to export the surplus to such an extent that deficits arise.

South Africa expects a big harvest in the coming season (**Table 1**). Local consumption is about 11,4 million tons, with another million tons that will be exported to neighbouring countries – so there is about 3 million tons of exportable surplus, which therefore puts stocks in a comfortable position.

Graph 1 represents South Africa's local closing and pipeline stock at the end of each season. Over the past six seasons, there has been a trend of decreasing and then lower stock levels at the end of the season. However, it appears that the stock levels will be in a healthy position at the end of this season, indicating that we may rather stay at export parity locally. Prices can also trade below the export parity if exports do not occur to support prices.

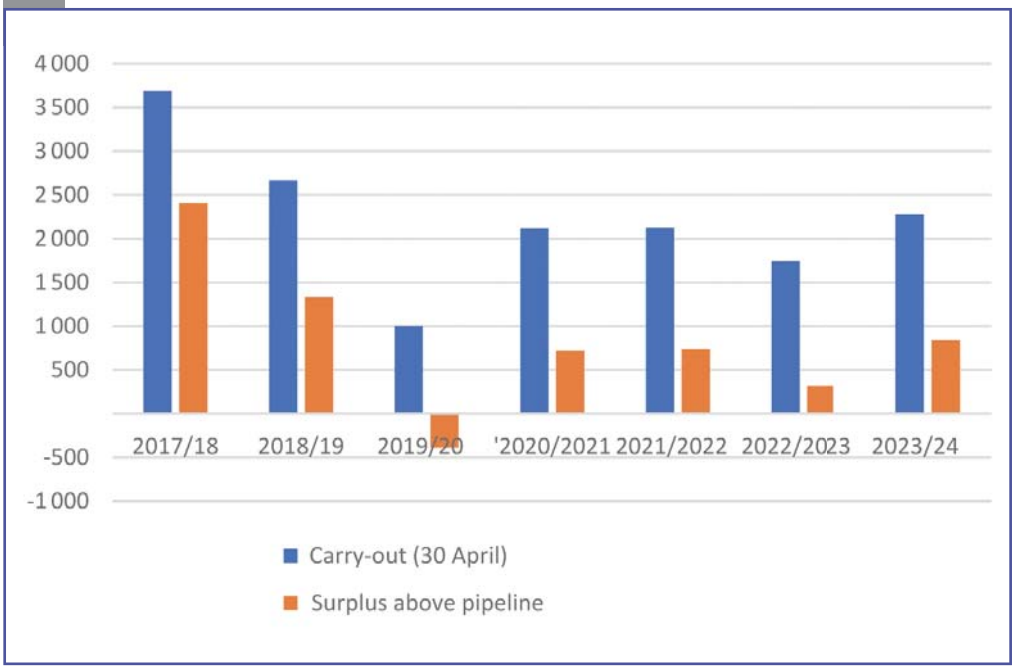
On the international market, it appears that closing stocks can decrease by 10%, which may provide some support to prices until September, when the United States of America (USA) begins its harvesting process. Internationally prices are currently under pressure.

There is currently a lot of uncertainty in the international market because the big six maize-producing countries are planting or are about to start planting. The USA starts planting in April, with the first intention to plant released on 31 May. This will have a big effect on the prices.

If the USA's intention to plant indicates that 92 million acres of maize will be planted, there will possibly be major downward pressure on the international market. There is a possibility of this happening because maize is currently more profitable to plant than soybeans in the USA.

At time of writing this article (March 2023) the general consensus is that pricing should be done preferably before the end of May – mid-May will be even better. It is expected that sometime before the end of May there might be support again in the local market, which will create a pricing opportunity for farmers. ■

1 *Maize closing and pipeline stocks.*



1 *CEC crop estimate for maize for the 2023/2024 marketing season.*

CROP	Area planted 2023 Ha (A)	1st forecast 2023 Tons (B)	Area planted 2022 Ha (C)	Final crop 2022 Tons (D)	Change % (B) ÷ (D)
Commercial:					
White maize	1 520 500	8 187 150	1 575 000	7 850 000	+4,29
Yellow maize	1 062 000	7 427 900	1 048 000	7 620 000	-2,52
Total maize	2 582 500	15 615 050	2 623 000	15 470 000	+0,94

CHRISTIAAN VERCUEIL, AGRICULTURAL ECONOMIST, GRAIN SA

Limit the spread of BLUETONGUE

BLUETONGUE DISEASE IS A NON-CONTAGIOUS, INSECT-BORNE, VIRAL DISEASE IN RUMINANTS, MAINLY SHEEP AND LESS FREQUENTLY CATTLE. THE VIRUS DOES NOT AFFECT HUMANS, BUT THE DISEASE IS CAUSED BY VIRUSES TRANSMITTED BY INSECTS.

According to *vetlink.co.za*, outbreaks of bluetongue can result in significant losses due to the impact on livestock health, but also in the loss of livestock markets due to regulatory restrictions on animal movement to limit the spread of the disease.

The disease is characterised by fever, excessive salivation and swelling of the face and tongue. Some animals also develop foot lesions, resulting in lameness. Other symptoms may include difficulty in breathing, a nasal discharge and an ulcerated and/or inflamed snout, beak and ears.

TREATMENT

In an article in *Farmer's Weekly* (26 January 2023), Dr Danie Odendaal, director of the South African Veterinarian Network, stated that there is no treatment against the disease. "The aim of treating infected animals is to make them feel better until they have developed immunity against the virus. Vaccination is the most effective way to minimise losses and interrupt the cycle from an infected animal to vector.

In its March 2023 newsletter, the Red Meat Producers' Organisation (RPO) mentioned that vaccination is without a doubt the best preventative measure against bluetongue. However, they shared some guidelines to keep in mind when vaccinations are not available:

- Avoid unregistered drugs, vaccines and home remedies.
- Sheep can be sprayed over the head and legs with registered insecticides. The best products are those containing deltamethrin.
- The midges breed in moist areas such as wetlands and, if possible, such areas should be avoided, especially at night when the midges are active.
- Reduce contact between the midges that spread the virus and the sheep. Cattle are only slightly affected (or not affected at all) by the virus but are more susceptible to midges. If cattle and sheep graze together, midges will tend to prefer the cattle. Be aware that the virus can multiply in cattle.
- If possible, the herd and especially the most valuable animals such as rams should be kept in a sheltered barn from late afternoon until late morning. Openings can be covered with shade netting and sprayed with insect repellents.
- The treatment of affected sheep relies on good care, soft food and, if necessary, appropriate antibiotics and painkillers.

Remember the following:

- Previously vaccinated animals are less susceptible to the virus than young lambs, which will require special attention and care if they get sick.
- As the situation can vary between districts and farms, always consult your local vet.

SOURCES

RPO Newsletter, March 2023

https://vet360.vetlink.co.za/training/blue-tongue-in-cattle

https://www.farmersweekly.co.za/agri-news/south-africa/south-africa-is-sitting-on-a-bluetongue-timebomb/

PULA IMVULA EDITORIAL TEAM

HELPING FARMERS TO GROW

TWO NEW FACES HAVE JOINED GRAIN SA TO CONTRIBUTE TO THE FARMER DEVELOPMENT PROGRAMME (FDP). PHUMZILE NGCOBO (34) IS THE ASSISTANT REGIONAL MANAGER FOR REGION 29 AND LEHLOHONOLO BAKWA (21), AN INTERN IN THE COMMUNICATIONS DEPARTMENT AT THE HEAD OFFICE IN PRETORIA, WILL ENSURE THE PROGRAMME RECEIVES EXPOSURE ON SOCIAL MEDIA.

Phumzile joined Grain SA in January 2023. Although she is still learning the ropes from Graeme Engelbrecht, the regional development manager at the Dundee office, she has now started attending study group meetings on her own with the support of the office assistant. She is looking forward to contributing positively to the growth and success of the region in its quest to develop farmers.

Even though her late father was a subsistence farmer, Phumzile's interest was focussed on education, not agriculture. As her family could not afford to send her to university, she decided to attend a nearby agricultural college. 'In part my job now involves teaching, so I have struck it lucky as I get to do what I have always loved (teaching) through what I have grown to love (agriculture).'

In the short time she has been working with Graeme, she has noted that farmers face diverse challenges and require integrated approaches to solving them. 'Increased input prices and the variable climate are placing increased pressure on the farmers. Farmers require support to continue farming amidst these challenges.'

When asked what the government can do differently to assist farmers, she said: 'The ministry of agriculture is an enormous portfolio. I strongly believe that together we can do more. The challenges that farmers face are so diverse that not one entity or organisation has the capacity to address them.'

She believes that a wide variety of stakeholders, including the government, non-governmental organisations (NGOs) and public-private entities need to come on board to service the needs of farmers. 'Once the support structure needed by the farmers has been established, even a greater effort will be required to develop their capacity to make the best decisions related to their production practices and in turn become more self-reliant.'

Phumzile Ngcobo

Lehlohonolo Bakwa

THE FDP IS TWEETING

You can now follow the Farmer Development Programme on Twitter. Lehlohonolo will make sure that the programme gets enough attention on this social media platform. She will also share relevant articles that were published in *Pula Imvula*. Just type Grain SA Farmer Development on the Twitter search engine, scroll down and read the latest tweets. ■

PULA IMVULA EDITORIAL TEAM

HEALTH AND SAFETY Part 9

Safety *procedures*

THE EMPLOYER IS RESPONSIBLE FOR ESTABLISHING A SAFE WORKPLACE. SAFETY SYMBOLS AND EMERGENCY PROCEDURES SHOULD BE DISPLAYED WHERE IT IS VISIBLE TO EMPLOYEES, TEMPORARY PERSONNEL AND VISITORS.

Safety symbols make staff aware of possible dangers and give directions to escape routes or assembly points in the workplace. It also shows when and what type of protective clothing should be worn for specific tasks.

The Safety Regulations require all symbols to be South African Bureau for Standards (SABS) approved and always clearly visible. Symbols for escape routes and fire extinguishers should glow in the dark, so that they are always visible. When any of the signs fade, it must be replaced.

Fire protection devices on the property must be serviced annually by an accredited person or company, who should also complete the label affixed to the fire extinguisher.

A workplace must have an evacuation plan which is discussed with the employees. This procedure should be practised at least twice a year.

Emergency numbers must also be applied in the workplace. ■

CHARL SAAYMAN, HEALTH AND SAFETY CONSULTANT AT MEGA HEALTH AND SAFETY

HAVE YOU HEARD?

GRAIN SA ACTIVITIES

- In an article published in *Farmer's Weekly* on 17 March, Magda du Toit writes about Grain SA's successful ***Farmer Development Programme***, which is making great strides in both food production and transformation in the local grain sector.

Scan the QR code to read the article.

- MJ Swart and Hailey Ehrenreich from Grain SA's Western Cape office were invited to promote the agricultural industry when Dr Ivan Meyer, Western Cape Provincial Minister of Agriculture, delivered his budget speech at the Western Cape Government on 28 April.

- Kynoch's northern region team gave a presentation on fertiliser application on maize during a group session arranged by Grain SA in Barberton. They shared their expertise and knowledge to help farmers increase their crop yields.

CELEBRATING HEROES IN AGRICULTURE


Graan Grain

MY HERO

March's hero: Koos Mthimkulu

'I'm a BETTER FARMER today BECAUSE OF HIM'

Koos Mthimkulu from Senekal, one of the farmers of the Grain SA Farmer Development Programme (FDP), was the March winner in the Grain SA/ John Deere My Hero competition. He was nominated by his son, Clifford. You can enter your agricultural hero by scanning the QR code and completing the entry form. There is a great prize to be won!

YOUNG JOURNALIST ACKNOWLEDGED

Tiisetso Manoko, a young South African journalist who writes for *Food for Mzansi*, has been chosen as one of the top ten agricultural journalists in the world to receive the 2023 IFAJ-Alltech Young Leaders Award. He is the only South African to make the cut.

ARC AND MALAWI JOIN FORCES

A memorandum of understanding (MoU) was signed between the Agricultural Research Council (ARC) and the Lilongwe University of Agriculture and Natural Resources in Malawi on 6 April, in Pretoria. The purpose of this MoU is to enable research projects by the ARC in collaboration with the university. This includes, among other things, the cooperation in respect of research in areas of mutual interest, as well as cooperation in the mobilisation of resources for outreach projects.

MINISTER SURPRISES 'SOIL SISTERS'

A group of 35 female farmers and 'agripreneurs' graduated from a year-long blended development programme by Corteva Agriscience, known as #SoilSistas. The Minister of Agriculture, Land Reform and Rural Development, Thoko Didiza, made a special visit to the 2022 graduates' ceremony. In her keynote speech, she said programmes like this are important in training and supporting women in agriculture. 'In provinces like Gauteng, women account for 60% of the farmers. This illustrates the important role of women in our agricultural sector and, more importantly, in our country's food system.'

Source: Food for Mzansi

Corner Post

BY LOUISE KUNZ, ASSISTANT EDITOR

'FARMING IS NOT ABOUT OWNING LAND, BUT ABOUT HAVING THE RIGHT SKILLS AND KNOWLEDGE. YOU ALSO NEED TO BE PASSIONATE, PATIENT AND ABLE TO PERSEVERE DESPITE ADVERSITIES,' SAYS SAMUEL MOLOI (52), WHO FARMS IN THE FOURIESBURG AREA.

Samuel got interested in farming as a young boy. His father was a farm worker and during the holidays he would watch the various farming activities. Little did he realise that this 'holiday activity' would form the foundation he would need to become the successful farmer he now is.

The other two other big factors that contributed to his success were a radio programme and a generous commercial farmer. Samuel first heard about Grain SA while listening to Radio Lesedi, where Jane McPherson, who was the manager of Grain SA's Farmer Development Programme at the time, shared information about courses and study groups that were presented by Grain SA. He realised that this was how he would gain the necessary agricultural knowledge to kickstart his career as a farmer.

A local commercial farmer made it possible for Samuel to put his knowledge into practice on a 30-hectare piece of arable land. 'He even offered the use of his tractors and implements for *mahala!*' The farmer also gave him advice to ensure that the crop would grow. His dream became a reality at last.

By 2008, he was farming on a total of nearly 400 hectares, including arable land which he leased from the Dihlabeng Local Municipality. He now realises approximately 7 t/ha on maize and about 3 t/ha on soybeans. This year, heavy rains caused huge problems in the fields, but he remains positive that he will still realise a good harvest.

Although he has faced many challenges, he does not allow setbacks and trials to obstruct his dream. 'I do not believe in giving up.' He is a diabetic and must go to hospital for dialysis three times a week, but still manages to keep the farm going – thanks to his dedicated team of workers. Without owning a single hectare of land, this passionate farmer has become one of the success stories from Grain SA's Farmer Development Programme.

SAMUEL'S STORY

WHAT ROLE HAS GRAIN SA PLAYED IN YOUR FARMING CAREER?

Knowledge has been the main contributor to my success, and I gained most of my knowledge about agricultural practices by attending study group meetings, training courses and farmers days presented by Grain SA. The Grain SA mentorship programme is crucial to the success of developing farmers. I cannot thank Grain SA enough.

WHAT HAS BEEN YOUR BIGGEST ACHIEVEMENT?

It was wonderful to be chosen as the 2009 Grain SA Developing Farmer of the Year and the award was a motivation to improve my farming skills. At the 2022 Day of Celebration, I became a member of the 2 000 Ton Club after I produced 3 200 tons of yellow maize. This shows that I am growing, which is my real success story.

DO YOU HAVE A FARMING DREAM?

I will never stop dreaming about owning my own land because I have a responsibility to feed the nation. I would also love to see my son follow in my footsteps and become a second-generation farmer.

SAMUEL'S THREE TOP TIPS

1. Never stop learning.
2. Do soil samples and ensure that the soil is healthy.
3. Try to know everything about your operation.

FARM FACTS

Farm: Genade
Nearest town: Fouriesburg
Region: Eastern Free State
Size: 920 ha of leased land, also leases an extra 1 400 ha on ten different farms
Type of farming operation: Mixed (plants maize, soybeans, drybeans and has livestock.) Samuel is converting to no-till practices.

GRAIN SA'S CONTRIBUTION

- Samuel joined Grain SA in 2004.
- Member of the Dishweshwe Study Group.

Training courses completed:
Samuel is proud of the fact that he has completed all the courses offered by Grain SA.

A mentor's view:
Jacques Roux, regional development manager in the Eastern Free State, has been visiting Samuel on his farm for the past few years. He says that even with Samuel's health struggles, he is a remarkable farmer because of three strong points: 'Firstly, he is an excellent manager whose financial statements and administration are up to date. Secondly, he has a committed team of workers who continue unsupervised while he is in hospital and thirdly, he does not have to rely on contractors to get the work done as he owns enough equipment.'

Jacques Roux

A programme that is changing lives

Agriculture part of SA's road to recovery

AGRICULTURAL DEVELOPMENT IS ONE OF THE MOST POWERFUL TOOLS TO END EXTREME POVERTY, BOOST SHARED PROSPERITY, AND FEED A PROJECTED 9,7 BILLION PEOPLE BY 2050. HEALTHY SUSTAINABLE AND INCLUSIVE FOOD SYSTEMS ARE CRITICAL TO ACHIEVE THE WORLD'S DEVELOPMENT GOALS.

In March 2022, President Cyril Ramaphosa said that he believed that the agricultural sector has the potential to be a key driver on South Africa's road to economic reconstruction and recovery. Growth in the agriculture sector is two to four times more effective in raising incomes among the poorest compared to other sectors.

As a South African based grain farmer organisation, Grain SA believes in participating in the process of building an inclusive rural economy in which rural communities have greater opportunities to participate more fully. This goal is founded on the precept that a healthy rural economy will be supported by an agricultural sector that facilitates land reform, job creation and poverty alleviation.

Grain SA believes a multi-pronged approach towards ensuring the commercial viability and sustainability of emerging commercial farmers is a priority for all stakeholders in the agricultural sector. The challenges to this growth path are however not insignificant.

Wandile Sihlobo, chief economist of the Agricultural Business Chamber (Agbiz), notes that challenges are vast, ranging from 'the need for diversification of the export markets to non-traditional regions' to the 'need to improve logistics like roads, rail and ports and the expansion of agricultural finance.

Challenges remain and are currently further exacerbated by loadshedding and the many diverse knock-on effects into our sector which influence both production and market-place activities. The organisation believes that critical strategic interventions are necessary if land reform programmes are intended to revive rural communities. Although Grain SA does not have infinite capacity to change policy the organisation has the required expertise to ensure successful production at grass roots and meaningful farmer development. This is why Grain SA is committed to pursuing every opportunity to share knowledge and assist in the transformation process. The organisation is the voice of all grain farmers in South Africa and will continue to lobby on their behalf on every platform possible.

INVESTED PARTNERS HELP TO GET THE JOB DONE

The Maize Trust and the Grain SA Farmer Development Programme have partnered towards maize farmer development since 1999. This co-operative and supportive collaboration has enabled the building of a solid network that is able to fast-track information and offer valuable support services to developing farmers. It is making a difference to the lives of many farmers and contributing towards positive change in our country.

Despite the many challenges, encouraging growth can be seen. The development of many competent, committed grain farmers who have been equipped with knowledge and skills for best practice with modern technologies, masterful mentorship, and practical information systems at their fingertips, have been developed.

Dr Sandile Ngcamphalala, the Grain SA Farmer Development lead, is tasked with the thought leadership and strategic initiatives and all project planning, project monitoring and project reporting processes as well as maintaining the communications between all the regional offices. This extensive network of expertise has enabled the roll out of diverse projects in collaboration with other sectoral stakeholders.

AT GRASS ROOTS

Ntate Johan Kriel (right), regional development manager in the Western Free State, and mentor Bertie Human (left) paid Willem Modukanele from the Welkom area a visit.

Graeme Engelbrecht, regional development manager at the Dundee office, assists Mzwai Zuma with tractor maintenance.

Neil Kirk, one of the Farmer Development Programme's trainers, checks the moisture content of farmer Sabasaba's maize.

Always something to learn

THE months of January and February 2023 are peak summer crop-growing months and saw 402 farm visits and 104 study group meetings. In March, Grain SA mentors engaged in 127 farm visits and 120 study group meetings.

Many encounters involved members of the team visiting farmers' fields to check on the crop progress. The team also made recommendations about how the farmers can achieve the best potential for their crops.

The following courses took place in March:

- Two 'Introduction to dry bean production' training courses, sponsored by the Oil and Protein Development Trust (OPDT), were presented.
- A 'Tractor and farm implement maintenance' course, sponsored by the Maize Trust, was presented to 20 learners in QwaQwa, Phuthaditjhaba, in the Free State.

Ndinda Mkhonza from Hereford East in Mpumalanga proudly showed off his crop to the Grain SA team during a farm visit.

Paul Wiggill, mentor in the Bergville area, visited Thanduyise Shelembe of Rietvlei near Greytown in KwaZulu-Natal to check on his crops.

Regional development manager, Jerry Mthombothi, is very happy with Jabulane Mahlangu's crop. Jabulane (photo) farms in Sehlakwane in Limpopo.

Farmers adapt to cope WITH CHALLENGES

WILL Rogers, an American actor, once noted that a farmer must be an optimist, or he wouldn't still be a farmer.

This season, farmers had to contend with the usual challenges. These included heavy rains, which delayed planting in various regions, a sudden midsummer drought that was present for more than seven weeks in some areas and unwelcome bouts of hail, which caused damage to several fields.

With the help of the Grain SA team, the farmers learned how to cope with challenges. They are hopeful that, as the harvest season is upon us, there will be some good yields to deliver to the silos around the country.

Paul Wiggill assisted one of his farmers, KB Mazibuko, with filling in insurance forms for hail damage.

The wet soybean fields of Mlotshwa Mathews Mfanimpela from the Louwsburg region made access difficult.

Excessive rain caused several problems. The Tsolo road (Eastern Cape) looked more like a river than a pathway.

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