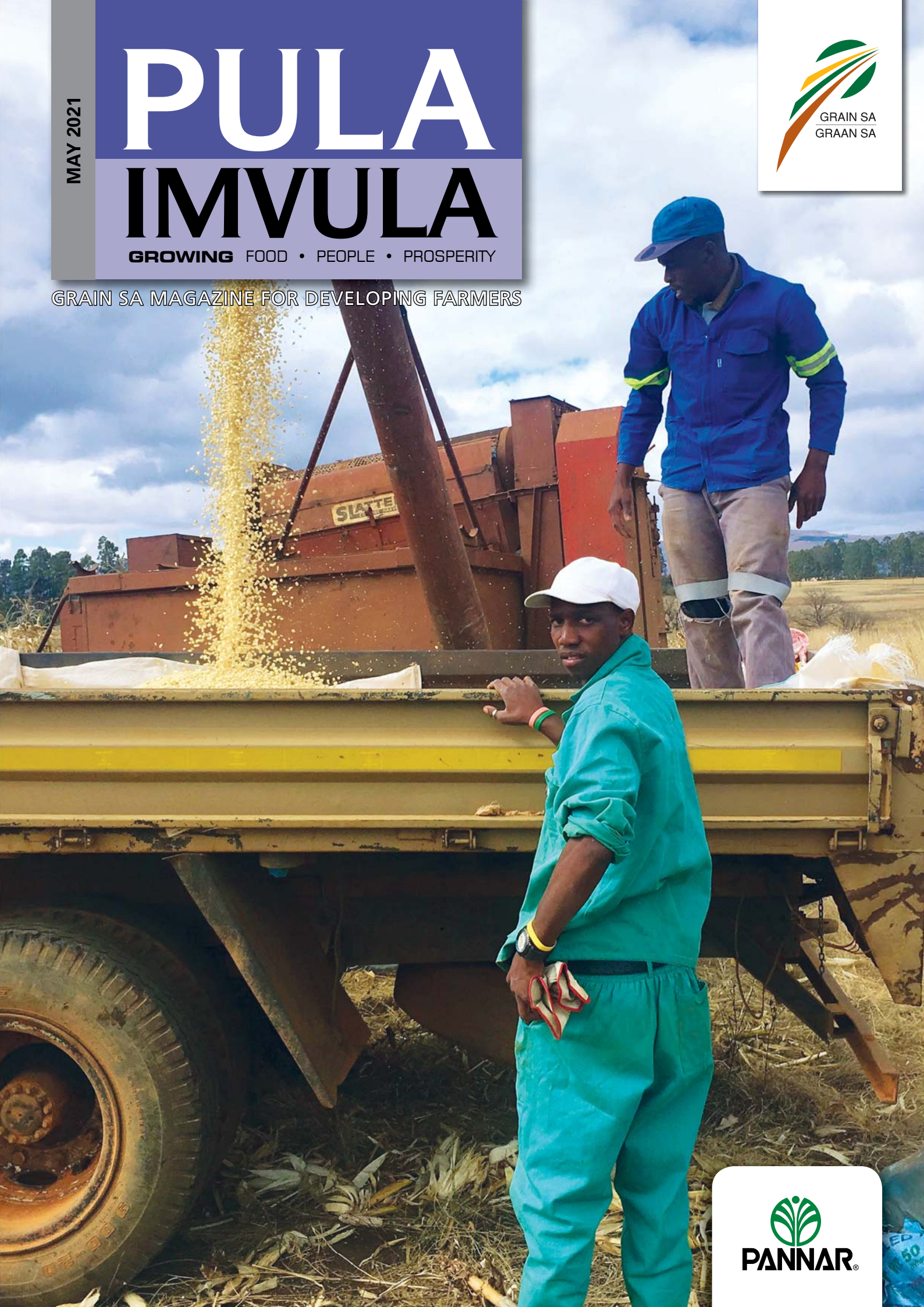


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# PULA IMVULA

**GROWING** FOOD • PEOPLE • PROSPERITY

GRAIN SA MAGAZINE FOR DEVELOPING FARMERS





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*Some of the members of Lydenburg study group harvesting their maize.*



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## A WORD FROM...

*Jerry Mthombathi*

**S**OME FARMERS, BOTH COMMERCIAL AND SMALLHOLDER PRODUCERS, ARE CROSSING THEIR FINGERS AND EXPECT TO GET HIGH YIELDS AT THE END OF THIS PLANTING SEASON. DUE TO HIGH RAINFALL AND FLOODS THAT DAMAGED ARABLE LAND, SOME ARE DOUBTING THAT THEY WILL BE ABLE TO HARVEST GOOD-QUALITY CROPS AND A HIGH YIELD.

Farmers may be facing problems such as water logging, with stagnant water remaining in most of the arable lands and resulting in crops suffocating. Where contours were washed away due to the heavy rains, soil erosion may occur. Damaged roads have made access to lands difficult, so proper care could not be given to the crops.

Weed control is also more difficult in wet fields, so in some areas weeds are taking over. Soil acidity has become a very big problem, as well as the leaching of plant nutrients because of the heavy rains received.

Many farmers have planted late because it was dry during November and December 2020. When it started raining, it was raining non-stop. Another big problem is that some arable lands were not properly fenced off, and as a result they have suffered livestock damage to their crops.

Some of these problems are due to a lack of knowledge, while others are due to negligence. Using dirty water to spray for both weed and pest control will not help you to achieve a good yield. Nor will planting a high plant population.

However, farmers are resilient and I am sure most of these problems will be sorted out. Farmers, try to fence off your arable land. Make contours and construct gabion structures to prevent soil erosion. Adhere to the correct planting dates.

Increase your knowledge about the proper usage of herbicides and other chemicals, as well as the servicing and calibration of farm implements. Plant on low-lying areas to avoid planting on waterlogged soil. Do soil correction by taking soil samples and send them for testing.

To be a successful farmer, always follow the correct production practices – use certified seeds, adhere to the correct planting dates, apply the correct amount of fertiliser, control weeds adequately, and calibrate and service farm implements. ■





*Jurie Mentz made this farmer stop the harvester to check the beaters as too much grain was filtering through. Guidance is one of the advantages of the Farmer Development Programme.*

# Preparation is key to happy harvesting

**F**ARMERS WANT TO HARVEST AND SELL EVERY KERNEL THEY PRODUCE. PROPER MAINTENANCE AND ADJUSTMENTS DURING HARVEST TIME ARE CRITICAL IN ACHIEVING THIS. PREVENTATIVE MAINTENANCE IS AN ONGOING AND REGULAR CARE PLAN WHICH IS EXECUTED BY FARM OWNERS OR THE FARM WORKERS.

Most of the summer grain growing regions have seen an abundance of wet weather during the season, and for a change most farmers are looking forward to an abundant harvest time. We were doing some calculations recently; and realised that our tractors, trailers, combine harvesters, de-bulking equipment and threshing machines are going to work harder than they have in a very long time. They will likely cover many kilometres and carry countless heavy loads.

We need to be extra certain that the machines can cope and get our crop safely to the market place, because any downtime during the harvesting processes will end up being very costly.

## PREVENTATIVE MAINTENANCE GOALS

- Reducing the likelihood of equipment failure.
- Avoiding unexpected equipment breakdowns.
- Extending the lifecycle of equipment.
- Maximising on the equipment's value.
- Saving time by planning and scheduling ahead.



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Grain producers are fine-tuning their equipment now to reduce mechanical delays, improve performance, assure a safe harvest and maintain grain quality once they start combining the crop.

A few hours spent with combines, augers/conveyors, dryers and storage bins will usually have a considerable payback in the form of time saved and reduced deductions at the point of sale. All equipment that will come in contact with the grain, as it moves from the field to the storage bins or silos, should be thoroughly cleaned prior to harvesting to minimise mould and insect infestations, and to protect the purity of individual corn varieties or seed lots. Combines, hauling vehicles, conveyors, drying equipment and storage bins should be thoroughly cleaned before the rush of harvesting begins.

If you plan on storing your own grain, then thoroughly clean out all grain bins, especially caked grain that will contaminate the new crop. Sweep down walls, ladders, ledges and floors inside grain bins to remove old grain and fine material, where insects and mould spores can be waiting to invade the incoming crop.





*Harvesting at Driefontein in the Donkerhoek-area. (Photo taken in 2017).*



*Harvesting using a mechanical threshing machine.*



*Harvesting with slattery.*

## COMBINES

Assuming the combines were thoroughly serviced and cleaned after last season's harvest, the following problems should have been addressed already:

- Bearings: Were they too loose or worn? Were they checked and replaced where necessary?
- Wheel bearings: Grease.

- Fan belts: Replace worn or stretched fan belts.
- Chains: Replace stretched out and worn chains.
- 'Pensketting': Check the intake chain.
- Tyres: Did any of the tyres cause problems with frequent punctures? Replace worn tyres.
- Bushes: Check the wearing bushes and replace. The condition of the 'shaker bushes' is important.
- Elevators: Check for tension on elevator chains.
- Sieves: Look for leaking or damaged sieves, as your grain will leak or your sample will be dirty and compromised, lowering yields and grades.
- Inspect your rotor and concaves, as this part turns and is the most critical part since it is where the grain is removed from the cob.
- In the Slattery combine harvesters, check that the beater bars are not too worn and that they are adjusted correctly. They can either not remove all the grain off the cobs or, if set too aggressively, they can break the pips. Also, check for damage on the sieves.

All these issues need to be check-listed before the harvest begins. Pre-harvest check and grease all bearings once again. All this applies to small and larger threshing machines and combine harvesters. If you have a self-propelled combine, perform a complete service including oil change and filters replaced.

## TRAILERS

### De-bulking trailers

Check the following:

- Chains, elevators and augers for wear and tear. Do the bearings need replacing? Do the chains need to be tightened or replaced?
- Areas that are rusty will cause the grain to leak out.
- Tyres need to be in good condition.

### For transporting the crop

Check the following:

- The draw bar at the front of the vehicle. Are there any cracks that need welding?
- Worn pins or bushes. Replace them if necessary.
- Grease the 'skamel' (swivel) to ensure there is no wear.
- All tyres for wear and tear, as well as the rims for cracks. Repair or replace if necessary.
- Grease all wheel bearings.
- The bulk sides to ensure there are no gaps or leaks.
- The side flaps that open to release the grain must work smoothly and be secure, so they don't open accidentally in transit.
- If you are driving on public roads, are your licences in order? ■

# FIREBREAKS

## are essential for safety

**A**CCORDING TO THE *FIRE ACT*, EVERY LAND-OWNER ON WHOSE LAND A VELD FIRE CAN START AND SPREAD TO ADJACENT LAND, HAS THE RESPONSIBILITY TO HAVE A FIREBREAK ON HIS SIDE OF THE BOUNDARY FENCE. THE ACT CLEARLY STATES THAT A FIREBREAK MUST BE FREE OF ANY COMBUSTIBLE MATERIAL.

In some districts fire management associations have rules that will help with firebreaks. Some associations will have their own rules for firebreaks.

### PURPOSE OF A FIREBREAK

The real purpose of a firebreak is to have a place where a back-burn fire can be started. This is the best way to fight a wildfire. This back-burn action must only be done under the control of an experienced firefighter, with enough farmers and firefighters as support.

The firebreak must be wide enough to have a reasonable chance of preventing a veld fire from spreading beyond your property. A firebreak made with a slasher is not allowed, as the fire can still creep over it.

If the grass on either side of the firebreak is 1 m high, the firebreak must be at least 3 m wide. If there are 2 m high bushes on either side, the firebreak must be 6 m wide.

### MAKING A FIREBREAK

- Inform all the neighbours that you are going to make firebreaks. Keep them and their workers informed throughout the process.
- Make sure that the climatic conditions are suitable to make firebreaks, especially if firebreaks are going to be burned.
- Make sure that all equipment used to make a firebreak is serviced and in a good working order.
- Ensure that every worker understands his duties and knows what to do in the case of a breakdown on the firefighter equipment or an

unexpected wind change. There must always be a plan in place if something goes wrong.

- Make sure that all workers use protective gear when the firebreak is burned.
- A firebreak can be cleaned with a controlled fire with the assistance of fire-fighting personnel. The biggest advantage of these firebreaks is that it starts to go green as early as August, while the veld grass is still flammable.
- A firebreak can be graded with a rear-mounted or self-propelled grader. Make sure that all plant material is cleared from the firebreak. This way the grass will sprout before the veld and make a better firebreak.
- A firebreak can also be made by an offset disc. The offset disc will cut the plant material in the soil; and this way is easy and works well. However, the downside is that because the soil is disturbed, weeds will grow and the grass roots will die. Soil erosion can also occur.
- A firebreak can be sprayed with herbicide to die earlier in the season. Then this dead material can be burned before the surrounded plants are dead.
- Established fire lanes can be towed regularly throughout the year, with a group of heavy-load trucks, tractors or big front-end loader tyres.
- Remember to keep your neighbours informed of your actions and to be on time with the firebreaks.

For more information, contact your local fire management association. ■

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*Productivity is never an accident.  
It is always the result of a commitment  
to excellence, intelligent planning,  
and focused effort.*

~ PAUL MEYER





# Grain SA developing farmers **meet online**

**D**UE TO THE COVID-19 REGULATIONS AND AN INCREASING NUMBER OF COVID-19 CASES IN JANUARY, NO PHYSICAL MEETINGS COULD BE HOSTED FOR GRAIN SA'S DEVELOPING FARMERS. THEREFORE ONLINE MEETINGS WERE HELD ON 12 FEBRUARY FOR ALL FOUR REGIONS.

The first challenge faced in terms of the online meeting was connectivity and access to devices that could enable farmers to participate in the meeting. To overcome this aspect, the regional coordinators had to host viewings for farmers who could not log in at home. Due to the regulations and limited space, only potential commercial and new era farmers attended physically at various venues, with ample social distancing, as they would form part of the delegates for the congress.

## NECESSARY INFORMATION SHARED

The programme was quite loaded, with the chief executive officer, Jannie de Villiers, acting as chairperson of the meeting. Alfred Gondo, a farmer from the Louwsburg district, opened the meeting in prayer.

First on the agenda the newly appointed farmer development manager, Sandile Ngcamphalala, was introduced. He commenced his duties at Grain SA on 1 March 2021 and expressed his eagerness to start, with a willingness to learn and share his expertise.

The panel members included Dirk Strydom, the current interim farmer development manager, Ramodisa Monaisa and Jeremia Mathebula, who both form part of the executive committee. The last panellist was Patricia Zimu, who is an administrator and marketer at Grain SA.

In terms of the Farmer Development Programme, Dirk Strydom covered the following content:

- Staff changes, which involved the appointment of a new manager and operations officer, who will be replacing Jane McPherson and Willie Kotze.
- He discussed the process of restructuring the Bloemfontein and Lichtenberg offices.

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- The conversation included a new non-profit organisation (NPO), named *Phahama/Phakama*. This organisation was formed according to Section 18A, with Ramodisa as the chairperson and Jeremia as the vice-chairperson.
- The panel also discussed the current situation in terms of funding for projects and the challenges faced.
- The presentation concluded with current market issues such as the grading and quality of maize, and the location differential.

In the question-and-answer session, the farmers requested training about the grading regulations, as it remains a big issue. They also asked for the SACTA (South African Cultivar and Technology Agency) project to be expanded to cover mechanisation and more producers.

In terms of marketing, Patricia Zimu focused on the different functions of Grain SA along with the benefits that members derive. She emphasised the importance of keeping communication channels open. Members were encouraged to communicate with their executive members and with each other through study groups to share timely information. She also pointed out the importance of paying levies to help sustain the organisation.

In general, the farmers were very positive and grateful for the good rains and the prospects for the season. The only issue with the extra showers received is that some areas were flooded, and farmers could not access their lands or spray against weeds.

Jannie closed the session by giving a synopsis of the current strategic focus of the organisation and the way forward for the year, including a succession plan for his retirement in August. ■



*The Grain SA personnel who were part of the first virtual regional meetings. Some worked behind the scenes and others were in the spotlight.*



*In front of the green screen are Patricia Zimu, Jeremia Mathebula, Dirk Strydom, Ramodisa Monaisa and Jannie de Villiers, who were the panel members at the regional meeting. The new Farmer Development manager, Sandile Ngcamphalala, is at the back with Ikageng Maluleke, agricultural economist, and Alzena Gomes, public relations officer, who worked behind the scenes to ensure that the virtual meetings ran smoothly.*



# A proper budget can enhance FARM MANAGEMENT

**T**HE EVENTS OF THE LAST YEARS – THE DROUGHT, PANDEMIC, VELD FIRES, RECENT FLOODING, POOR SUPPORT FROM THE GOVERNMENT, LOCALISED OUTBREAKS OF PESTS AND DISEASES, AND THE CURRENT CONSTRAINED ECONOMIC ENVIRONMENT OF OUR COUNTRY – HAVE ALL EMPHASISED THE IMPORTANCE OF PROPER MANAGEMENT TO SURVIVE AS A FARMER.

South African farmers continuously face misfortunes and decreasing profits because of ever-increasing input costs. Without proper production plans and a proper annual budget, you will find it exceedingly difficult to manage your business successfully. This is applicable whether you are a subsistence, small-scale or commercial farmer.

## ALL ABOUT BUDGET

In simple terms a budget is a formal written explanation of all your production plans and other plans for your business. It expresses all the income and expenditures related to your plans in physical quantities and financial terms. A budget is normally drawn up for a year, for instance from 1 March 2021 to 28 February 2022.

A budget consists of all your physical plans (production and others), with the final step the allocation of monetary values, or rands and cents, to every item – income and expenditures. This can be done by using the monetary values of previous years, called historical values, and adding a percentage to cover price increases. This way of budgeting is known as incremental budgeting. You can also calculate the values from scratch, known as zero-budgeting.

For example: According to your production plan, you plan to plant 300 ha of maize using 120 kg of LAN fertiliser as top dressing. Your service provider predicts that the price of LAN will be R6 050/t for the coming year. The cost of the LAN fertiliser will then be  $300 \text{ ha} \times 120 \text{ kg} \times \text{R}6\,050/\text{t} = \text{R}217\,800$ .

On the income side you plan to produce 5,5 tons of maize on average per hectare at an expected selling price of R2 750/t, according to your marketing agent. Your expected income will then be  $300 \text{ ha} \times 5,5 \text{ t} \times \text{R}2\,750 = \text{R}4\,537\,500$ .

You then follow this process for every source of income and all your expenses. Every production input – seed, herbicides, pesticides and every overhead cost such as fuel, repairs, maintenance and salaries – must be done in this way.

## ADVANTAGE OF ZERO-BUDGETING

The advantage of zero-budgeting is that it is more accurate because every item is considered from zero. Whilst doing this, also ask the question: 'Why is this necessary?'. Then you will have a powerful tool to manage your finances, especially expenditures which are under

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your control. You will suddenly notice past errors, inefficiencies and unproductive activities.

Zero-budgeting is time-consuming and you will most probably need assistance to set up the system. Do not hesitate to get assistance or attend a training session, as it will only be to your benefit.

Farm costs are overall divided into two groups:

- Variable costs, also known as production costs.
- Non-variable costs, which are overhead and fixed costs.

In practical terms, to determine the variable costs from scratch is not an unsurmountable effort. However, some of the non-variable costs can be difficult to determine from scratch and is not worth the effort. Incremental budgeting or using historical costs for those items is a better option.

Gather as much information as possible to compile your budget; and you will have an ultimate tool to manage your business. A well-planned budget also makes it relatively easy to analyse the profitability of all enterprises or branches of your business.

## IMPLEMENT YOUR BUDGET

When you have put in the effort to compile a budget, the key to enhancing your management is to implement your plans according to your budget. Pay special attention to managing your costs. Attempt not to overspend and beware of impulsive expenditures.

If you encounter any misfortune, and have proper plans and the accompanying financial information in place, you will at least have something constructive to adjust to cope with the misfortune. Misfortunes could affect your income negatively and/or increase expenditures.

For instance, you may have budgeted to erect a new shed, but then you are struck by an unexpected pest which damages your crop. The result – a reduced income and extra costs to combat the pest. You realise that, according to your budget, you will not be able to erect the shed. You will then have to adapt your budget accordingly and possibly postpone the erecting of the shed to the next year. Now you are managing your budget.

Practice makes perfect; and you will be surprised how accurate your budget will become in a few years' time when done properly and implemented effectively. A budget which is implemented properly will become an indispensable tool to enhance proper management, which is needed to face all the risks of a farming enterprise. ■



# Secrets to achieve good broiler production

Part 2

**T**HE KEY POINTS TO KEEP IN MIND WITH BROILER PRODUCTION WILL BE COMMON TO BOTH SMALL AND LARGE PRODUCERS. IT IS, HOWEVER, IMPORTANT TO REVISIT THE BASICS – LIKE MANAGEMENT, HOUSING AND INFRASTRUCTURE – FROM TIME TO TIME.

## GOOD STOCKMANSHIP

A broiler farmer should like chickens and enjoy being in the chicken houses to observe bird behaviour and the birds' health status. It is important to be empathetic, patient and dedicated to showing attention to detail. In large houses daily observation and a quick reaction to any health or growth problems are critical for financial success.

Always observe the status of a chicken's combs, eyes, beak and tongue, crop, feathering progress, breast development, vents as well legs, feet and skin conditions.

## ORDERING YOUR DAY-OLD CHICKS

Develop a close relationship with your chosen supplier, as you will usually be ordering similar sized batches every seven to nine weeks throughout the year. The hatchery plans months ahead to be able to supply all its customers with their requirements on time. Make certain that deposits, if required, and payment conditions are clear to both parties. If you are a regular customer, you can expect attention to quality issues and backup from your supplier at any time. Make sure you know exactly on which day and time a delivery will take place.

## PREPARATION BEFORE CHICKS ARRIVE

- It is important to have everything ready on the farm and in the chicken houses before the day-old chicks arrive.
- Clean and disinfect the chicken houses.
- Check that all your bell drinkers, tube feeders and curtains on open-sided houses are working correctly.
- Good clean water, at a quality fit for human consumption, must be provided and all the tube feeders must be topped up.
- Shallow feed trays filled with starter feed are essential to ensure that newly placed chicks can fill their crops, and drink enough water as soon as possible after the boxes have been opened in the house.
- Have enough bell drinkers (six drinkers per 1 000 chicks), tube feeders and trays for every 1 000 day-old chicks as recommended.
  - Temporarily put in ten extra drinkers per 1000 chicks at placement.
  - Check that your circular spot brooders, whether gas or electric, and red lamp heaters are working and reaching the optimum temperature at chick level.

The chicken house should be preheated for 24 hours before the arrival of the chicks and the temperature must be measured at chick height. The ideal at this level is 32°C for whole-house brooding and 32°C for spot brooders. The litter temperature must be between 28°C and 32°C. Cement floors can be heated to 40°C



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to ensure that the litter maintains the optimum temperature. Humidity, or the amount of moisture in the air within a house, should be between 60% and 70%.

If you use paper, make sure that 80% of the brooding area, which is a smaller area within a house specially dedicated to the brooding phase, has been put in place. Place 40 g of starter crumble per chick on the paper.

## LITTER

One of the most important production factors is the quality and quantity of litter used. Dry pine shavings or chopped wheat straw that is highly water absorbent should be spread in a layer of at least 2,5 cm to 5 cm on concrete floors and 10 cm on earth floors. The 5 cm on concrete floors will provide the best insulation against cold.

Chickens can lose much of their ideal body temperature through their feet touching cold surfaces. Therefore it is extremely important to maintain the chick temperature at an optimum.

## CHICK PLACEMENT

- Unload the chicks and place them on the paper in the brooding area. Leave them to settle for one to two hours. Then check the feed, water, temperature and humidity, and adjust the house settings if required.
- Make sure that the chicks are 'cheeping' properly, are clean, stand firmly, walk well, are alert and are active. Check whether the yolk sac is fully retracted and has a healed navel.

Chicks should weigh between 38 g and 43 g for a good start to attain the future growth standards required. Measure the chick vent temperature, which should be between 39,4°C and 40,8°C in the first four to five days. Continuously monitor that the chicks are filling their crops properly.

Report any problems observed immediately to the hatchery supplier.

## LIGHTING

Provide 23 hours of light for the first seven days to encourage the maximum feed and water intake.

## CONCLUSION

Beginner farmers or farmers who want to improve their current management practices with broiler production, should download the detailed broiler production manuals available on the Internet for Cobb, Ross and Arbor Acres breeds. The detailed principles shown for every aspect of production will assist the farmer in deciding which practices he can apply in his unique circumstances.

The next article will cover feed consumption, other factors and achieving production standards. ■

## Part 3 How the MAIZE MARKET functions

**T**HIS ARTICLE IS THE THIRD OF A FOUR-PART SERIES THAT ATTEMPTS TO EXPLORE THE FUNDAMENTAL FACTORS THAT HAVE AN IMPACT ON THE MAIZE MARKET. IT WILL FOCUS ON SPOT PRICE DETERMINATION AND THE ROLE OF A LOCATION DIFFERENTIAL.

The spot price refers to the price paid for a commodity at Randfontein (ex-silo prices). The spot price is determined by deducting transport costs from the Safex price at every registered silo. For maize, there are multiple contracts listed on Safex. The only difference is the date of expiry. One of the contracts traded on Safex will always have an expiry date equal to the current month. For example, a May 2021 contract expires on 24 May 2021. The contracts trade at different price levels, with the closest expiry date trading at the highest price. However, this applies only to current crops. With the new season commencing, contract prices for the new season crop might differ completely.

To standardise the “place” from where the contract is priced or traded, Safex operations use the location differential, with the predetermined point as Randfontein. Since all Safex prices are Randfontein-based, this means that if a producer can deliver or a miller can accept delivery at Randfontein, they will receive or pay the Safex price for the delivery month contract (the spot price).

Since delivery occurs at points across the different producing regions, spot prices are based on a Safex adjusted price. For example, if the transport costs between Randfontein and the silo of choice for the producer is R90/ton, the delivery price for the producer will be equal to the Randfontein price (contract price for the delivery month) minus the R90/ton transport cost. The buyer will now collect the maize from that particular silo at Safex price minus the R90/ton. These transport cost differentials are calculated yearly and found on the JSE website. The area differential is determined based

on a weighted average transport cost by road and rail. The areas that make more use of road transport will have a larger proportion of road transport in the calculation.

The basis (transport differential cost and handling fees) is an indication of spot price levels at the different registered Safex silos. The farmer can use it in his attempts to sell his maize. He is not forced to sell his maize for a price under Safex less basis. If he cannot find a buyer willing to buy at that price level, he can deliver his maize to the registered Safex silo, obtain a silo certificate and present it to Safex for payment. The problem with basis trading is farmer's access to this level of information. The local co-operatives or local maize buyers can fulfil this important function. Safex provides farmers with an opportunity to hedge their crop as well as an opportunity to bargain for a guaranteed minimum price in the local market.

Farmers are encouraged to familiarise themselves with the supply and demand situation in their production area to get additional premiums for their product. These premiums are not standardised and are negotiated between the seller and buyer on each transaction. The differentials simply standardise the pricing of a futures contract to one reference point. In cases where local demand exceeds local supply, due to either a crop shortfall or a nearby processing plant, the difference between the basis and the Safex price may be less than the transport margin or even exceed the futures market price. If local supply exceeds local demand, the basis gives farmers a clear indication of what a representative spot price of maize at a specific location should be. ■



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# African maize stalk borers: Where do they overwinter?

**B**EFORE THE FALL ARMYWORM (*SPODOPTERA FRUGIPERDA*) INVADED AFRICA, THE AFRICAN MAIZE STALK BORER WAS REGARDED AS THE MOST IMPORTANT INSECT PEST THAT ATTACKS MAIZE. IF THE STALK BORER LARVAE EAT THE MAIZE EARS AND CAUSE FUSARIUM EAR ROT TO DEVELOP, PRACTICALLY THE WHOLE HARVEST CAN BE DESTROYED. THE PARTS THAT ARE HARVESTED IN SUCH A CASE CAN BE A HEALTH RISK TO PEOPLE AND ANIMALS.

It is generally accepted that approximately 10% of a total maize harvest is destroyed by the African maize stalk borer. Because of this type of

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Grain Crops, Potchefstroom.  
The article was first published  
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**SA**Graan  
Grain

damage, this insect species is still regarded as an important insect pest on maize.

In Africa, maize is attacked by a group of stalk borers that includes the African maize stalk borer (*Busseola fusca*), the Chilo borer (*Chilo partellus*), the pink stalk borer (*Sesamia calamistis*) and the

## African maize stalk borers...



1

**Calyx damage resembling little 'windows' after a stalk borer fed on the calyx.**  
Photo: Dr Annemie Erasmus



**The diapause larva of the Africa maize stalk borer.**  
Photo: Dr Annemie Erasmus

2

sugarcane stalk borer (*Edana saccharina*). The African maize stalk borer is indigenous to Africa, which means that this stalk borer can be found only on this continent.

### LIFE CYCLE

There are two to three clearly demarcated moth flights in every season. Depending on the planting date, the maize plants can be infected by either the first or the second generation. Female moths lay egg pockets behind the leaf sheath. Newborn larvae are dark brown in colour and become lighter as they mature. Shortly after the larvae hatch, they migrate upwards to the calyx to start feeding. Damage caused by these larvae appears like little 'windows' on the sepals (**Photo 1**). Bigger larvae eat straight through the calyx, so that the sepals appear to have a row of holes as they grow out. This type of damage is known as 'hail damage'.

If the growth point of the plant is damaged by the feeding larva, it leads to dead heart symptoms. Larvae stay in the plant calyx for approximately two to three weeks before they drill into the stem. The larvae stage of the African maize stalk borer lasts approximately six weeks, after which they become pupae. The last generation of larvae of the growing season do not become pupae, but hibernate as diapause larvae (**Photo 2**) in stubble residue and are then the main source of infection during the subsequent season.

### WHAT IS A DIAPAUSE PHASE?

Diapause is a form of resting phase in insects, similar to hibernation in some mammals. It enables insects to survive unfavourable environmental conditions. Diapause is a development response that only sur-

faces during a specific developing stage and it differs from one insect to the next.

If diapause occurs on the back of unfavourable environmental conditions, it is known as facultative diapause. However, if diapause occurs with every generation completed by the insect, it is called compulsory diapause. Facultative diapause is the most common form of diapause in insects and only occurs when a generation has to survive unfavourable conditions. However, compulsory diapause takes place at a determined time, regardless of the environmental factors.

During the third moth flight of the African maize stalk borer, which is also the final moth flight of the season, the moths lay eggs for the last time. Larvae hatching from these eggs do not complete the life cycle up to the moths, but prepare to survive the winter as larvae. The larvae that mature before the winter starts are the only ones that will survive as diapause larvae.

Factors that determine which part of the population will be mature by the winter include the location of the infestation, how soon winter conditions start during a specific year, and when the moths of the third moth flight flew and laid their eggs. The larvae that were able to mature before the winter later move to the base of the maize stalk (**Photo 3**) to overwinter.

During late autumn the larvae tunnel directly to the base of the stalk, where they then stay in diapause for the winter. During this time they do not feed on plant material anymore and they plug the tunnel behind them with frass. If there is more than one larva in the plant, the other larvae usually migrate to another plant, so that there is only one larva in each plant.





3

*A diapause larva in the base of the maize stalk.*  
Photo: Dr Annemie Erasmus



4

*The larva of an Africa maize stalk borer.*  
Photo: Dr Annemie Erasmus



*A Chilo borer larva.*  
Photo: Dr Annemie Erasmus

5



## African maize stalk borers...



*The larva of a sugar cane stalk borer.*  
Photo: Dr Annemie Erasmus

6



7

*The larva of the pink stalk borer.*  
Photo: Elrine Strydom

Diapause larvae hibernate in the base of the maize stalk for five months before they move on to the next development phase to become pupae. This means that larvae had to build up enough reserves to survive this period and to also be able to reproduce as soon as environmental conditions are favourable again.

### HOW DO LARVAE EMERGE FROM THEIR WINTER SLEEP?

The first rain in spring (change in humidity), rising temperatures and changing day-night lengths (photo period) stimulate diapause larvae to become pupae. Larvae that were in diapause make holes in the stubble, a few centimetres above ground level – they look like little windows. The moths escape through these holes approximately two weeks after the pupae formed. While these larvae lie in the base of the stalk, they change into pupae and create the first moth flight of the new season. ■







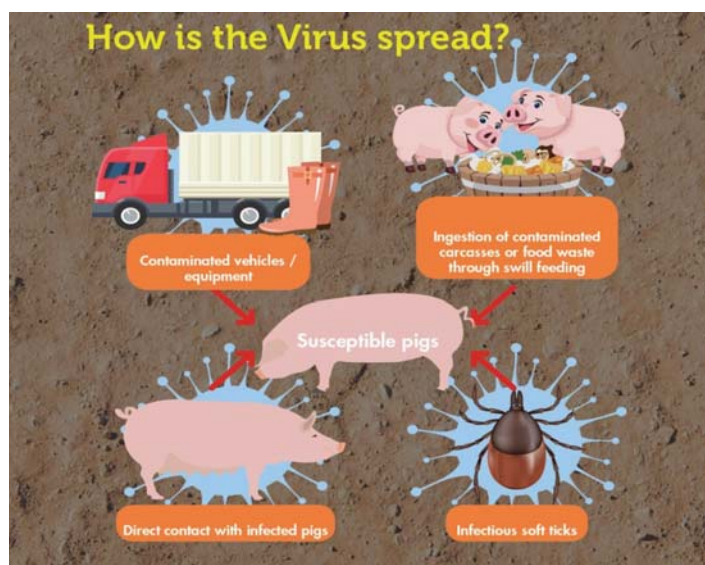
# Swine flu: Rather be safe than sorry

**S**INCE THE BEGINNING OF 2021 THERE HAVE BEEN NUMEROUS OUTBREAKS OF AFRICAN SWINE FLU (ASF) REPORTED IN GAUTENG (RANDFONTEIN, TEMBISA AND MIDVAAL AREAS), THE FREE STATE, NORTH WEST (POTCHEFSTROOM AREA) AND LIMPOPO (THABAZIMBI AREA). BIOSECURITY IS THE ONLY WAY TO KEEP YOUR PIGS SAFE.

## WHAT IS AFRICAN SWINE FEVER?

This is a highly contagious transboundary viral disease which is transmitted by contact with infected pigs or warthogs carrying infected ticks from the endemic area. Feeding of infected kitchen waste can also transmit the disease. It affects wild and domestic pigs and spreads quickly. Because the pigs die quickly after being infected, it can cause high economic and production losses. The virus is highly resistant to low temperatures and can survive for extended periods of time in the blood, faeces and tissue of infected animals.

## HOW IT SPREADS



Source: NAHF

*Article compiled by Pula Imvula editorial team.*

## HOW TO KEEP YOUR PIGS SAFE

As there is no treatment or vaccine available yet, biosecurity is the only option to prevent the spread of ASF.

### What is biosecurity?

Biosecurity refers to the measures that are taken to protect animals by preventing the spread of harmful organisms and disease. Some of these biosecurity measures are:

- Only buy pigs from a reliable source.
- Keep pigs in an enclosure/camp to limit or prevent contact with pigs of unknown health status, including wild pigs and warthogs.
- Isolate sick pigs away from the rest of the herd.
- Limiting on-farm traffic. Vehicles transporting pigs should be washed before entering your farm.
- Follow strict access control and do not allow visitors to have contact with your pigs.

### Other recommendations



**Clothes:** It is very important to have separate clothes for working with the pigs and for going home. If possible shower before you start working with the animals and before you go home. If this is not possible, make sure you just change your clothes.

## Swine flu: Rather be safe...



**Boots:** Wash your boots regularly with soap and water to remove manure and animal hair when moving between pig pens, and before entering or leaving the farm.

**Equipment:** Avoid sharing equipment between farms. If you have to share, disinfect it before use.

### Feeding rules to follow

- Make sure you buy commercial feed from a reputable supplier. If mixing your own feed, make sure the ingredients come from a trusted source. Never mix ingredients that come from an uncooked meat source into the feed.
- Kitchen waste (swill) should under no circumstances be fed to pigs unless it has been cooked for an hour to inactivate the ASF virus and other diseases of concern. Also remove all meat products from the waste. ■



**Raw, uncooked kitchen scraps and restaurant waste.  
Meat and bones from any animal origin.**



**Commercially formulated pig-feed.**

**Cook kitchen waste for an hour before adding to feed. ■**

***Pig keepers are requested to be vigilant. Report any sudden illnesses and deaths to the local state veterinary office immediately, so that swift action can be initiated to prevent the spread of African Swine Fever (ASF).***

### SOURCES

- The National Animal Health Forum (<https://nahf.co.za/gdard-gauteng-department-of-agriculture-and-rural-development-african-swine-fever-awareness-campaign-february-2021/>) [17 March 2021]
- <https://sappo.org/animal-health/african-swine-fever/> [17 March 2021]
- <https://www.dalrrd.gov.za/Home/aid/1135> [17 March 2021]



# THE CORNER POST

**LEBO MOGATLANYANE**

*Every link in this programme's chain is important*

**O**LEBOGENG (LEBO) FLORENCE MOGATLANYANE (32) IS A WELL-KNOWN NAME AMONG NORTH WEST FARMERS WHO ARE PART OF GRAIN SA'S FARMER DEVELOPMENT PROGRAMME. AS OFFICE ASSISTANT AT THE LICHTENBURG OFFICE, HER FRIENDLY VOICE FORMS THE LINK BETWEEN GRAIN SA AND THE FARMERS.

Although the Lichtenburg office has been closed since the outbreak of the COVID-19 pandemic, Lebo and Du Toit van der Westhuizen, development co-ordinator in North West, still focus on their goal. Since the lockdown started, they work from their homes to ensure that the programme's impact does not suffer as a result of the pandemic. She loves being part of this programme, as she can play a part in helping farmers to realise their dreams.

## TACKLING CHALLENGES HEAD-ON

The American singer, songwriter and actor, Nick Jonas, said: 'Life happens. Adapt. Embrace change and make the most of everything that comes your way.' This is exactly the way Lebo tackled what life handed her.

She matriculated in 2006 at Tswelelopele High School in Itsoseng near Lichtenburg. Thereafter she decided to do a course in public relations at the Independent Institute of Education's (IIE's) Varsity College in Pretoria. Unfortunately, she could not complete her diploma due to financial constraints. However, she decided that she would one day reach her goal of successfully obtaining her qualifications.

She worked as a data capturer at the Independent Electoral Commission (IEC) on a contract basis before being offered a job in a temporary human relations position at a cement factory, Lafarge Lichtenburg, in 2010. This allowed her to save up enough money to further her education. 'I then studied for a diploma in project management and a certificate in events management, both at Oxbridge Academy.'

*It is truly fulfilling to know that what we do, doesn't go unnoticed and that every link in the Farmer Development Programme chain is important.*

When she was appointed at Grain SA's Lichtenburg office in August 2013, her agricultural knowledge was limited. She did not grow up on a farm, but in a village where farming is practised on communal land.

She shares that her knowledge about farming has definitely increased over the years – especially since her uncle, farmer Samuel Mogatlanyane, is now also a participant in the programme. While working, she has also been furthering her education. She recently completed her diploma in human relations at STADIO (formerly known as the Southern Business School).

**Louise Kunz, Pula Imvula**  
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## HELPING THOSE WHO MAKE A DIFFERENCE

As office assistant, Lebo is in charge of all the administration, which includes compiling and sending out invoices. 'I liaise with farmers on behalf of the management when required, so this basically makes me the link between farmers and Grain SA,' she says.

She expands further on what her job entails: 'I also create profiles for farmers on our Farmer Development website and have to arrange training days and farmers' days, as well as all the study group meetings.' Her duties also include daily reports on the website about Du Toit's farm visits and the study group meetings.

To Lebo the most exciting part of her job is the gratitude that she receives from farmers. 'It is so nice to get a phone call from a farmer just to say thank you, we appreciate what you guys are doing for us. It is truly fulfilling to know that what we do, doesn't go unnoticed and that every link in the Farmer Development Programme chain is important.'

She has also realised that Grain SA is basically the first link that binds other chains to ensure that the nation is fed. 'It is so satisfying to know I work for a company that tries by all means possible to make sure that people are fed every day. I am a link in the chain that ensures that my children can enjoy a glass of milk or eat their morning cereal. Thanks to our farmers' hard work my family and friends have food on their tables.'

Amidst the chaos and the devastating impact of the pandemic, Lebo still manages to get ready for work with excitement every day. Her job motivates her to be more and to do more, because she interacts and helps people (farmers) who are making a difference in the lives of others. 'I really admire farmers' patience and persistence. They have taught me that patience is indeed a virtue, and if you want something, you have to work hard for it.'

## ON A PERSONAL NOTE

Lebo is a true North West citizen. She was raised by her grandmother in a small village called Shaleng, which is near Delareyville. Her mom, Kedibone Mogatlanyane, worked away from home. When their grandmother passed away the children joined their mom in Itsoseng, a township near Lichtenburg.

This mother of two is also a keen cook and baker, who loves to try out new recipes. Her dream is to one day have an events centre and a campsite of her own, where she can help shape tomorrow's leaders. ■

# A programme that is changing lives



## Telling OUR OWN STORY first-hand

**ONE** OF THE DRIVERS OF GRAIN SA'S FARMER DEVELOPMENT PROGRAMME IS OUR CLOSE INTERACTION WITH FARMERS. WE BELIEVE IN GETTING OUT THERE, GETTING OUT OF OUR CARS AND GETTING OUR EYES AND FEET ON THE GROUND, WHERE OUR FARMERS ARE WORKING.

During February our team was very busy travelling through rural South Africa, visiting fields and monitoring crop progress.

- Our regional development managers had **166 study group encounters** with farmers, either in the form of a meeting or a field trip to the farmers' fields.
- As far as **farm visits** are concerned, there were **97 one-on-one encounters** with farmers who were assisted or mentored by one of our team members.

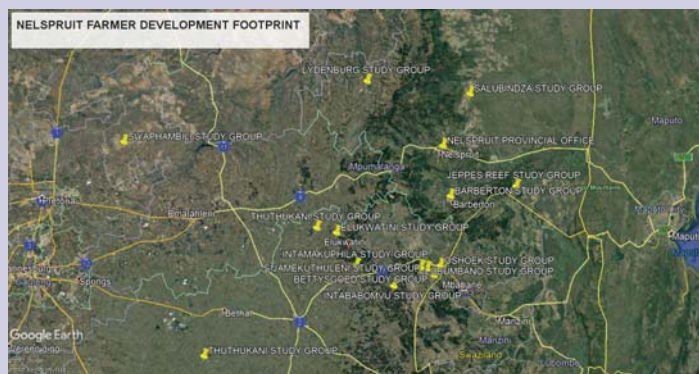
The Grain SA Farmer Development Programme presented four five-day training courses during February:

- Fanie Pienaar presented 'Introduction to soybean' in Sotho at Sebokeng Agricultural Centre in Vereeniging – sponsored by OPDT, 23 attendees.
- Agnes Mndawe presented 'Introduction to maize' at Zaaiplaas in Sehlakwane Village – funded by the **Maize Trust**, 28 farmers attended.
- Timon Filter presented 'Introduction to soybean' at Breyten Hall – funded by OPDT, with 25 attendees.
- Elias Dladla presented 'Introduction to groundnut production' to 22 farmers near Artherston – sponsored by OPDT.

### NELSPRUIT REGION EXPANDING

The Nelspruit Farmer Development Office services an extensive area and manages study groups, training and mentorship to farmers distributed from the east of Pretoria to the Swaziland border and further east to the borders of the Kruger National Park.

The farming activities in this area are generally on a subsistence and smallholder farming scale, where agriculture contributes significantly to household food security as well as household income. The agricultural



*This Google map, which is highlighting Nelspruit Study Groups, reflects the extensive region that our farmer development team covers to mentor developing farmers.*

potential here is high due to favourable rainfall and high-potential soil.

There is great potential to create more much-needed local employment and secure food sovereignty in the region. The farmers are able to grow a wide range of produce – from maize and soybeans to a wide variety of vegetables and fruit. Whilst many farmers are experiencing small successes, there is still much work to be done as production remains well below the regional potential in general.

General feedback from the regional manager, Jerry Mthombothi, is that the farmers in his region are positive. Despite early drought, the crops are looking good. Farmers in the region planted maize, groundnuts, sugar beans and a variety of vegetables. The heavy late rains have caused some issues with lodging and water-logged fields but nonetheless, improved production practices are promising good harvests ahead.

*Close interaction with our farmers makes a positive impact on the relationships we build, but it also influences the mentoring we do about best practices and sustainable farming.*

## AT GRASS ROOTS



*Farmer Maseli Lethuka, a New Era Commercial farmer and a member of the 1 000 Ton Club, has been a longstanding member of Grain SA and the Kestell Study Group near Qwa-Qwa in the Free State. He has served organised agriculture on the Grain SA Board and on the board of the Winter Cereals Trust, among others. Johan Kriel is the regional manager at his side. We rejoice with him at the sight of such wonderful fields of maize this season!*



*The 'Introduction to maize production' course attendees learn how to take a soil sample. Agnes Mndawe presented this course at Zaaiplaas, at the study group chairperson's house.*

*Grain SA's mentor visited farmer Tom Jacobs and discussed issues about his lands as well as diesel quality.*



*Bheki Mabuza is a member of the Donkerhoek Study Group, which is supervised by regional manager, Jurie Mentz from Louwsburg. He is a New Era Commercial farmer, has participated in the Jobs Fund project and is now a Beyond Abundance project participant.*





## Let's take a look at activities in the Mpumalanga region

**ON** 17 February, regional manager, Jerry Mthombothi, who is based in Nelspruit, travelled to Limpopo where he has started a new study groups who will fall under this region.

He paid a visit to 13 Zaaiplaas study group members to give constructive guidance and advice on their arable lands. Betty Tala and Christina Mapaila are both participating in Grain SA's Beyond Abundance Project. As a farmer development champion, Jerry is excited by the progress shown by his new Limpopo study group members, many who are living in deep rural areas. In the past they harvested between five and ten bags of maize on a hectare. Now they are looking forward to harvesting 3 t/ha to 4 t/ha just by using better practices and listening to expert advice.



*Farmer Betty Tala took Jerry's advice to spray and top-dress with N-fertilisers. Just look at her harvest now!*



*This is the field of a non-Grain SA member who uses mechanisation to remove weeds from his arable lands, and does not have a knowledgeable source for guidance.*



*Another farmer who is smiling now after she listened to Jerry's advice to top dress with two bags of N-fertilisers after a few weeds were found, is farmer Christina Mapaila.*

Grain SA Farmer Development rolled out four five-day training courses during February. One of these courses, 'Introduction to Soybean,' was presented by Timon Filter at Breyten Hall. The course was funded by OPDT and there were 25 farmers who attended.



## The IMPORTANCE of collaboration

**TWO** 'friends of the programme' contributed to make a difference in the community and in our farmer's lives. We acknowledge their contribution with gratitude.

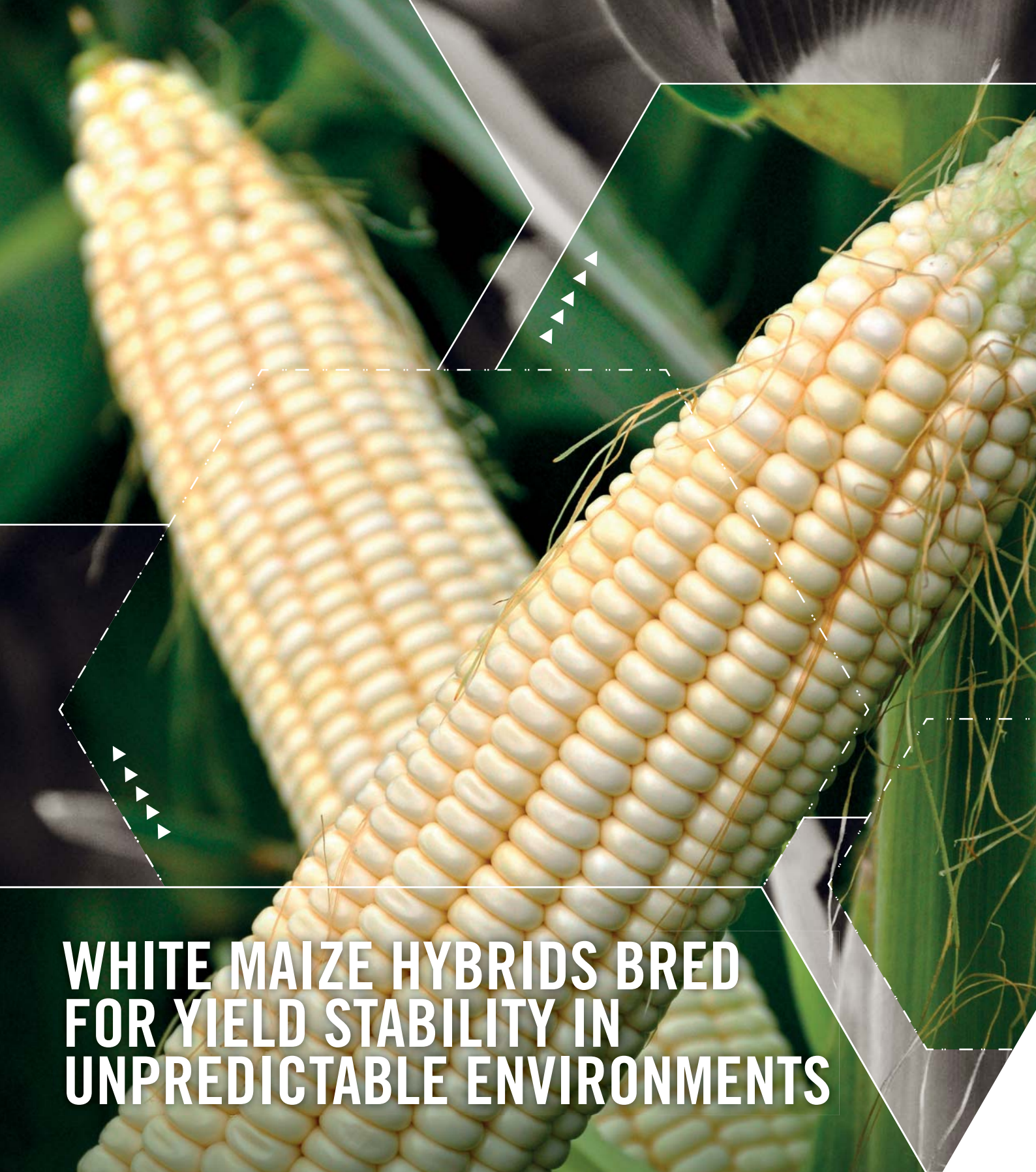


*Bayer is a long-time supporter and partner of the Grain SA Farmer Development programme. This year Bayer donated 106 x 2 kg bags of seed for the Nelspruit office to distribute to subsistence farmers who are striving to improve household food security. Sophy and Anna Mohlongo were two of the farmers to benefit from this donation.*



*Grain SA's Nelspruit office helped members of community and church organisations to receive a donation of maize meal during this challenging time. Mkhondo TWK at Piet Retief donated 1 000 x 10 kg bags of maize meal which was gifted to vulnerable community members who had lost jobs due to the COVID-19 pandemic lock down. The people expressed appreciation to Grain SA for this initiative.*





# WHITE MAIZE HYBRIDS BRED FOR YIELD STABILITY IN UNPREDICTABLE ENVIRONMENTS

Pannar's white maize package of leading, stable performers demonstrates strong seedling vigour and early plant establishment. These hybrids are widely adapted, agronomically strong and renowned for grain and milling quality. The solid performance of our white hybrids will go a long way towards reducing variability in productivity and profitability, for effective risk management. Add to this the professional advice provided by our sales and agronomy teams and you can plant with confidence, knowing that you will reap the maximum return on every bag.

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