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PULA
IMVULA

GROWING FOOD • PEOPLE • PROSPERITY

GRAIN SA MAGAZINE FOR DEVELOPING FARMERS

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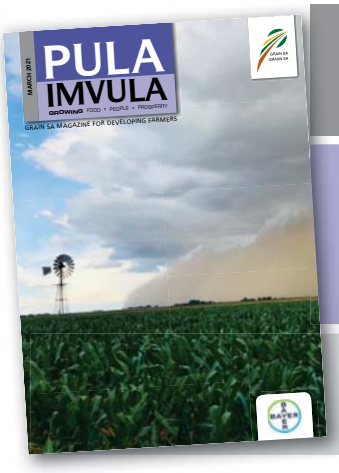


The cover page photo for this issue was taken by Jenny de Klerk (Grain SA Photo Competition).

A Word From...

Liana Stroebel

IT IS HARD TO BELIEVE HOW FAR THE NEW YEAR HAS PROGRESSED AS IT FEELS AS IF CHRISTMAS WAS ONLY YESTERDAY! IT SEEMS AS IF TIME HAS BECOME MORE LIQUID THAN BEFORE. THE RESULTS OF YESTERDAY'S PLANS, ACTIONS AND DECISIONS COME AROUND A LOT FASTER AND WE CAN QUICKLY SEE WHERE MISTAKES WERE MADE OR WHERE WE DID NOT PAY ATTENTION TO DETAIL.

With that in mind, it is imperative that we truly focus our attention on the end result in absolutely everything that we plan and do today. If you cut one small corner today, it will come back to you quicker than you realise.

As you know, in farming, we cannot over emphasize the importance of timing. It is vital to have a very clear understanding of how to set realistic timelines for actions. For example, working backwards from your planting date. It is crucial to set very specific dates on when you need to do what – from liming to getting your equipment ready, buying inputs and so forth.

With experience, you will also learn to make the difficult decisions quicker – for example if you cannot afford all the needed inputs, rather plant less hectares and do your applications properly, as opposed to stretching your inputs. Also, if you are perhaps funded and inputs are late, make the tough call to rather not plant or only plant a smaller area, and save your inputs to catch the right planting window during the next season.

In order to make progress, we need to be aware of our challenges throughout the season. Be honest and hard on yourself. Analyse and note things that you would do differently and use those as a guideline to improve your practices next year. Never make the same mistake twice.

All the best for the rest of the season and stay aware and pro-active!

Monitoring your crop can save money

ONCE PLANTING HAS BEEN COMPLETED THERE IS ALWAYS AN ELEMENT OF RELIEF AND FARMERS ARE OFTEN QUITE EXHAUSTED FROM LONG HOURS AND STRESS. IT IS TEMPTING TO SIT BACK AND RELAX, SATISFIED THE SEASON'S WORK IS DONE – BUT IT'S NOT.

Jenny Mathews, Pula Imvula contributor. Send an email to jennymathews@grainsa.co.za

Keeping your maize crop flourishing throughout the growing season can be challenging so it is important to have a clear plan of action.

To avoid 'crisis control mode' at any stage of the crop growth:

- Be present.
- Be motivated.
- Be vigilant.
- Be informed.
- Be proactive.
- Be passionate.

It is important to **do a regular tour** around all your fields. Scout your fields diligently and thoroughly. You could consider having a weekly route where you stop in all your fields to assess their progress and health. A quick drive around looking out the window of the bakkie is really not being present. Stop, get out and **inspect the fields**. Walk through the rows, and bend down to inspect the soil, the roots of the plants and the leaves. Examine the plants closely for worrying signs or the presence of any undesirable plague or pest.

How do you know what you should be looking for? **Get yourself informed**. Talk to mentors, experts and neighbours. Read about the growth stages of the plants you are growing; learn more about commonly occurring weeds, pests and plagues in your region.

Once you know more about these threats to your crop, you need to **equip yourself with knowledge** on how best to control them. You need to know at what stage of your crop development they will most likely affect yield, so you know when to control the problem.

The key to combating issues is: **Be proactive and deal with each problem as it arises**. It is crucial to manage your time well and be well informed. It is also important to focus your attention on tackling a problem properly and finishing the job so the threat to your crop potential is managed as best as possible.

Being proactive means you have prepared and serviced the equipment you may need for the control of problems such as your knapsack sprays and your boom sprayers. It means you have learned how to calibrate your spray equipment to get accurate distribution of chemical droplets with the right safety gear available for your farm workers.

Remember you need to use clean water for your spray mixes and you must be very sure of the doses you will use – an incorrect dose can spell disaster for your crop! Equally important, you must know whether your seed is Roundup ready or not – too many crops have been killed using Roundup spray on non Roundup plants. All this is avoidable.

Young maize infested with clover that needs to be controlled urgently.

MANAGING AND MONITORING YOUR CROP

The motto, 'Prevention is better than cure,' is one we should live by. However, things happen which we can't always predict e.g. the Fall Army Worm outbreak which first occurred in South Africa in 2016. The farmers who managed to control this outbreak effectively were the ones who were **diligently monitoring their fields** and picked up the outbreak early.

Monitoring is an important part of mitigating any outbreak that may occur. Even if all looks clear and healthy, keep checking regularly as issues develop quickly. We took a drive through fields not far from our home the other day. Imagine our surprise when we spotted hail damage on the young plants – we had not even been aware that hail had fallen! We quickly got an expert out to assess the damage which, to our relief, was nothing to be worried about.

The important thing to bear in mind when a crisis occurs, is that panic and chaos never solved any problems. There are many solutions available to farmers these days:

- Identify the problem accurately. If you are unsure, rather call on the advice of trusted experts. With modern technology and access to the internet it is becoming much easier to identify diseases and pests etc.
- Assess the extent of the damage or infestation. If you are good about doing your crop scouting then you should be able to catch it before the problem is at an uncontrollable level.
- Devise a plan of action. More often than not there will be some form of chemical control measure which you can apply to tackle the problem, but using the correct product is essential. Consult your chemical representative to give you a recommendation and be sure to follow the programme that he gives you accurately.
- Keep your goal, that is your bottom line, in sight. Remember that you are ultimately trying to minimise the financial loss that your potential yield loss will incur by leaving the problem untreated. If your crop is too tall to get in with a regular tractor drawn boom spray, then you will need to look at options like contracting a high rise sprayer or an aerial crop sprayer to get the job done. This can be an expensive outlay so you should bear in mind the overall damage and loss that you may experience when leaving the problem unattended.

The same field one week later post herbicide spray application.

Stay passionate throughout the season. It should always be a source of pleasure to drive through your fields and check on the crops. Best wishes for the year ahead! ■

WORDS OF WISDOM

There are no secrets to success.
It is the result of preparation, hard work,
and learning from failure.

~ COLIN LUTHER POWELL

Part 2 Choose a **MARKETING CHANNEL** for your crop

PRODUCERS SHOULD REMEMBER THAT A SUCCESSFUL MARKETING STRATEGY REQUIRES A COMMITMENT TO A UNIQUE MARKETING PLAN, BASED ON THE FARM'S INDIVIDUAL NEEDS. CRUCIAL TO SUCCESS IS ACTIVE INVOLVEMENT IN ALL ASPECTS OF MARKETING, THAT IS GATHERING MARKET INFORMATION, ANALYSING MARKET TRENDS, PREPARING A PLAN AND PUTTING THE PLAN INTO ACTION.

Ikageng Maluleke, Agricultural Economist, Grain SA. Send an email to Ikageng@grainsa.co.za

In part one of the marketing channels series, we discussed direct marketing channels available to producers. The focus was on non-futures exchange marketing. In this article we focus on futures exchange marketing.

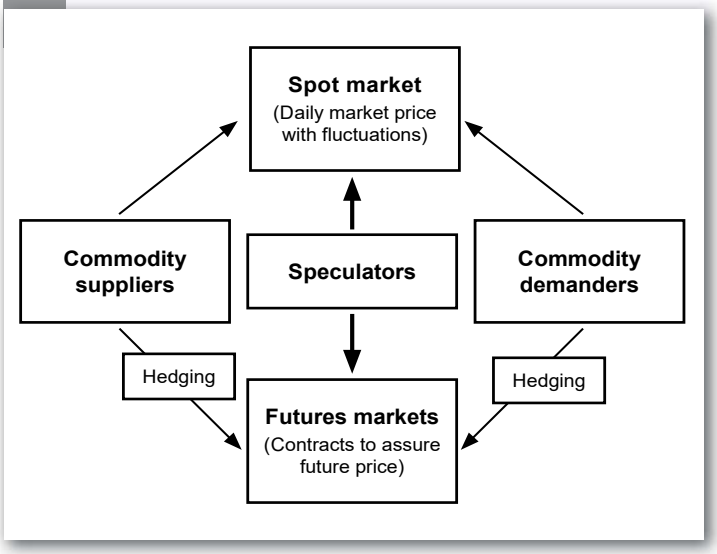
FUTURES EXCHANGE CONTRACTS THROUGH SAFEX

This marketing strategy involves hedging (futures or options). A **hedge** is an instrument used to reduce or cancel price risk.

A futures contract is traded on Safex for delivery of grain at a future date. The contract specifies the item to be delivered and the terms and conditions of delivery.

An **option** is a contract whereby one party has the right, but not the obligation, to buy or sell the maize at a predetermined price at any time within a specified period. This contract or option gives the buyer the right but not the obligation to exercise the contract, while the seller of the option has the obligation to honour the contract if the contract holder wants to exercise it.

1 ***A schematic representation of the commodity markets.***



Source: Mark A. Ethlen

There are two distinct types of options, put and call options:

- A put option gives the option buyer the right to sell the maize.
- The call option gives the option buyer the right to buy the maize.

SAFEX MARKETING COSTS

Futures contracts have an implication on the cash flow of the producer. In the case of a futures contract, the buyer or seller has to pay an initial margin that is refunded when the transaction is done. Variation margins also apply to futures contracts.

If the futures contract price moves against your position, you need to deposit a variation margin in order to maintain your position. If prices move R20/ton against your position, you need to deposit the money within 24 hours. In the case of options contracts, you need to pay the premium; no variation margins apply to options contracts.

If a producer combines a forward contract and a hedging contract, the company purchasing from him/her normally carries the initial margin and the variation margin. Then you have a situation where you have quantity and price locked in.

Marketing costs include broker fees, interest, transport and handling costs. ■

The grain price at hand, is not always the final price

GRAIN AND OILSEED PRICES ARE WIDELY DISTRIBUTED TO ALL GRAIN AND OILSEED PRODUCERS, WHO ALSO RECEIVE OTHER PRICES LIKE A FARM GATE PRICE AND THE EX-SILO PRICES. IT IS IMPORTANT TO UNDERSTAND THESE PRICES AND KNOW THE DIFFERENCE BETWEEN THEM AND ALSO TO BE ABLE TO CALCULATE THE PRICE YOU WILL RECEIVE FOR YOUR GRAIN.

Pietman Botha, Pula Imvula contributor. Send an email to pietmanbotha@gmail.com

The first price that is distributed on a daily basis is the Safex maize or commodity price for different delivery months. Normally the current month is the daily market price. The future market delivery months, for example May July December, will be future prices.

The second set of prices is the farm gate price. This price is the price that producers will receive for their product on the farm. The third set of prices is the ex-silo price. The ex-silo price is the price for the grain in the silo. Contractually producers will normally receive the ex-silo price. There is a big difference between the Safex and the ex-silo price; and the money in the bank.

SAFEX PRICE

The Safex price is the market price for grain delivered in Randfontein. This is the market price for the commodity that includes the demand and supply as well as the expected demand and supply of the commodity.

Since the South African grain market can import or export grain, the international demand and supply of the commodity as well as the exchange rate of the currencies will also be included in the South African commodity Safex prices.

The highest or lowest boundaries of the commodity prices is the import parity and export parity prices. Since the Safex price is a free market price for a commodity delivered in Randfontein it is used as the basis to determine the farm gate price.

Normally from this Safex price the transport differential and the margin for the broker will be deducted to result in the farm gate price for the grain. If this grain is delivered to the silo there will be other handling and transport costs that will be deducted.

1 ***An example of how to calculate the effect of different marketing options.***

Marketing options	Sold to agribusiness (R/t)	Farm load price (R/t)
Safex price (JULY 2021)	**3 270**	**3 270**
Less transport differential	233	233
Less agent margin	10	10
Farm gate price	**3 027**	**3 027**
Less silo handling cost	57	0
Less transport to the silo	10	50
Ex silo price	**2 960**	**2 977**
Less storage costs @ R0,50/t/day	15	0
Nett farmer grain price	**2 945**	**2 977**

Marketing options

Producers can expect to pay for the different agribusinesses loading and unloading cost that differ from business to business. Producers can also expect to pay daily storage costs for the grain. These costs will differ between businesses and producers must make sure they know and understand these costs.

Some agribusinesses will charge a daily cost up to a certain point and then there will be a yearly cost. Make sure that the grain is kept as short as possible on the daily storage. Transfer it to contracts as soon as possible.

Table 1 is an example of how to calculate your own price and to be able to compare different prices.

By using Table 1 as an example, farmers can evaluate different marketing options. Producers must get hold of the information for their area and compare the different options. ■

FORWARD PLANNING
is a recipe for success

AT THIS TIME OF THE YEAR MOST OF THE PRODUCTION ACTIONS FOR THE SUMMER CROPS ARE DONE. THE CROPS ARE NOW GROWING AND THE HARVESTING WILL FOLLOW. THE WORKLOAD ON THE FARM IS LESS AND YOU AS MANAGER MUST START PLANNING FOR THE COMING PRODUCTION SEASON.

Pietman Botha, Pula Imvula contributor. Send an email to pietmanbotha@gmail.com

Planning the next season must start with the potential of the different fields as well as what was done in the current season, what worked and what did not. Each field needs to be planned according to the crop and the potential, as well as what was planted on the field. Include herbicide restrictions into your planning.

It is important to be able to calculate how much money is going to be needed to be able to produce the following year's crop. This is very important because the funds must be available before the production season start in July. Money must be available for dissing, taking of soil samples and the application of lime in July.

PLANNING A DETAILED CROP BUDGET

Many producers will say it is impossible to do forward planning, but the winning producers do it this way yearly. They are always on time and have the best yields and most of the time, the best profits.

How do they do it? Normally they will draw up a detailed crop budget including everything that is needed to produce a crop. Winner producers decide on the marketing strategies as well as aspects to navigate risk and to manage debt beforehand.

There are norms that they use to calculate the cost of the inputs used. The seed costs for the maize is easy to determine. The producer must contact his seed representative and with their help the cultivar planted, plant population per hectare and cost can be determined.

Fertiliser cost

The fertiliser cost is more difficult to calculate, but possible. The Fertiliser association of Southern Africa (FERTASA) on a regular basis publish the fertiliser withdrawal figures per crop. The plant nutrients withdrawal figures of maize kg per ton grain is shown in **Table 1**.

With this information consult your fertiliser representative and calculate the fertiliser needed as well as the costs. The latest soil sample date will also help a lot and fairly accurate calculation can be done. Concerning the lime, a rule of thumb is 1 ton per hectare per year. Discuss this with your fertiliser representative as well.

1 ***Plant nutrients withdrawal figures of maize at different yield for planning.***

Plant nutrients	Per ton	Per 4 ton	Per 6 ton
Nitrogen (N)	15 kg	60 kg	90 kg
Phosphorus (P)	3 kg	12 kg	18 kg
Potassium (K)	4 kg	16 kg	24 kg

Herbicide and pesticide

Your herbicide and pesticide programme will differ according to the type of maize planted. If a Roundup Ready stack gene cultivar is planted, the programme will differ from a standard cultivar. With the cultivar decided, let your herbicide representative visit your field and with his knowledge decide on the herbicide and pesticide programme. With their help producers will be able to have a good indication of what the herbicide and pesticide programme will cost.

Diesel and maintenance

The diesel and repair works can also be fairly accurately calculated. As a rule of thumb for conventional production practises 75 litres of diesel will be used. If producers have their own diesel consumption figures use it. Use the current fuel price and you will be close to the actual cost. There is always a relation between diesel cost and repair and maintenance cost. If producers use their fuel cost and add an extra 10% it will be close to their repairs and maintenance costs needed. Other costs like hedging, contract work insurance and other costs must also be included.

Crop gross margin

The difference between income and the direct allocable costs is the crop gross margin.

Table 2 is an example of a maize crop budget. It gives a summary of most direct allocable costs. Farmers can use this as an example to calculate their total maize cost and maize gross margin. Remember if the gross margin is negative, the change that the crop will be profitable is most unlikely. Review the costs and make some adjustments.

2 *Detailed gross margin planning for the production year X to X+1.*

FIELD CROP BUDGET		Hectares planted		Planning yield	
INCOME AND PRODUCTION OF CROPS					
Income type		**Yield/ha**	**Price/t**	**Income/ha**	**Total income**
TOTAL INCOME – MARKETING COST					
DIRECT COSTS					
Cost Item					
Seed	**Packaging**	**Cost/package**	**Amount/ha (kg/pips)**	**Cost/ha**	**Total cost**
Fertiliser	**Packaging**	**Cost/package**	**Amount/Ha (kg/litre)**	**Cost/ha**	**Total cost**
Lime	**Packaging ton**	**Cost/t**	**t/ha**	**Cost/ha**	**Total cost**
Herbicides	**Packaging**	**Cost/package**	**Amount/ha (kg/litre)**	**Cost/ha**	**Total cost**
Pesticide	**Packaging**	**Cost/package**	**Amount/ha (kg/litre)**	**Cost/ha**	**Total cost**
Input insurance	**Yield x price**	**% used**	**Cost % of income**	**Cost/ha**	**Total cost**
Price hedging		**t/ha hedged**	**Cost/t/hedge**	**Cost/ha**	**Total cost**
Contract work		**Cost/action**	**Times action done**	**Cost/ha**	**Total cost**
Crop insurance	**Yield x Price**	**% used**	**Cost % of income**	**Cost/ha**	**Total cost**
Aerial spraying		**Cost/action**	**Times action done (b)**	**Cost/ha**	**Total cost**
Drying Cost		**t/ha**	**Cost/t**	**Cost/ha**	**Total cost**
Marketing Cost		**t/ha**	**Cost/t**	**Cost/ha**	**Total cost**
Casual labour		**Workdays/ha**	**Cost/day**	**Cost/ha**	**Total cost**
Packaging and Material	**Packaging**	**Cost/package**	**Amount/ha (kg/litre)**	**Cost/ha**	**Total cost**
Transport		**km/ha**	**Cost/km**	**Cost/ha**	**Total cost**
Fuel		**Cost/litre**	**Litre/ha**	**Cost/ha**	**Total cost**
Fuel cost for operation up to planting					
Fuel cost for planting up to harvesting					
Fuel cost for harvesting and transport					
Total fuel costs					
Repairs				**Cost/ha (d)**	**Total cost**
Repair cost for operation up to planting					
Repair cost for planting up to harvesting					
Repair cost for harvesting and transport					
Total repair cost					
Total direct cost					
Gross margin					

An example of severe erosion in South Africa. (https://sundayexpress.co.ls/villagers-take-matters-into-their-own-hands/donga-art-3/)

An unproductive farm can be prevented

YOU ARE FARMING TO MAKE MONEY BY PRODUCING PRODUCTS TO SELL AT A PROFIT. IF, BY POOR MANAGEMENT, THE PHYSICAL SOIL BECOMES SO DAMAGED THAT IT CANNOT SUPPORT FINANCIALLY VIABLE PRODUCTION ANYMORE, OR IF THE FINANCES OF THE FARM ARE MISMANAGED, A FARM CAN BECOME SCRAP.

Marius Greyling, Pula Imvula contributor. Send an email to mariusg@mcgacc.co.za

When referring to soil, see it in a broader sense including all that is above the soil – veld, lands, water and even the rainfall, and all below the soil – water, plant roots, soil organisms.

HOW CAN SOIL BECOME SCRAP?

In its natural form soil is continuously subject to erosion or weathering. The process of weathering of soil is accelerated by our standard soil tillage practices (emphasis on ploughing) because it lays the soil bare. Worldwide research has proven this.

Bare soil is exposed to wind and water erosion which removes the topsoil (the good soil). Contrary to this, soil covered with vegetation of any kind and/or even old plant material is far less prone to weathering. The vegetation and plant material absorbs the force of water or wind and slows down the process of weathering. Those with livestock remember your grazing management – or lack thereof – will also enhance erosion. Over-grazing is especially problematic, laying soil bare.

The formation of new soil is a continuous but very slow process whereas soil weathering can be much quicker. It has been widely accepted and proven that permanent covering of soil is the greatest counter strategy to the continuous erosion of soil.

Soil with insufficient soil organisms is unfertile and requires more artificial fertiliser to maintain production. The result, a point will be reached where it becomes financially unviable to produce. Because of this, there has been an emphasised promotion of conservation farming in our country.

South Africa is prone to erosion because of erratic weather conditions and difficult terrain. It has been calculated that our country loses on average some 17 t soil/ha/year, 75 mm rainwater due to runoff and 2 t organic material. Theses loses together with other losses such as hail equates to a crop loss of some 10% annually.

MANAGEMENT IS IMPORTANT

Sound management of all the areas of management is needed to prevent your farm, big or small to become a scrap farm. Financial management is an important area of management as it is the link between all aspects of the farm business, and also 'oils the wheels' that allow the business to function more effectively. If you do not have enough finances available to purchase the required production inputs your business cannot function effectively.

Financial management

Certain aspects of financial management are important of which cash-flow management is the most important. However, you cannot manage your cash-flow without a proper budget. The first important step to sound financial management is compiling a proper budget.

The greatest sin regarding cash-flow is unplanned, unnecessary and on the spur of the moment buying. Pay special attention to capital expenditures (expenditures to buy another tractor or implement, machinery, and so forth). Do a feasible study before any actual capital expenditure is done even if you have budgeted for it, things can change during the year. If you have budgeted to purchase another tractor and the budgeted income is not realised, it is going to put pressure on your payback capability and cash-flow.

Be very careful of increasing debt just because it may be available, especially short-term debt such as a bank overdraft. Extreme weather conditions, droughts, flooding, hail are not uncommon in South Africa. These all influence income negatively, and should you then still have to repay unnecessary, unplanned short-term debt you will be in trouble.

You must also distinguish between your farming business finances and personal finances. It is highly advisable to have two separate bank accounts and to pay yourself a salary to kept in your private bank account. Having only one account could give you a false impression that you have funds available, especially when considering personal expenses.

A financial and physical analysis of your business is a must and needs to be done at least once a year. To be able to do this you do need proper production and financial records. If you do not measure, you cannot manage.

A last consideration. The degeneration of soil to a state of unproductivity occurs over a long time and therefore requires time and extra input of capital and thorough management to reverse. Thus, prevention is better than cure. Contrary, financial degeneration normally occurs over a much shorter time and the cure is proper management.

To prevent your farm becoming a scrap farm, pay special attention to your production practices and your finances. ■

Supplements for animals grazing on cover crops

COVER CROPS ARE INCREASING IN POPULARITY AND ARE BEING USED MORE COMMONLY FOR LIVESTOCK. THE QUESTION NOW ARISES REGARDING THE TYPE OF SUPPLEMENT THAT SHOULD BE GIVEN TO ANIMALS UNDER THESE CONDITIONS.

Johan Mouton, technical manager: Research and Development, Molatek, Epol and Driehoek. First published in SA Graan/Grain April 2020.

To answer this question, others first have to be asked. Why was the cover crop planted in the first place? Why are there animals on it? Is the grazing utilised only because it is there for cash-crop purposes? Is it part of the feed flow or does it form part of a value-adding action?

There are a number of variables involved, with the complicating factor being whether it is a summer or winter cover crop. In order to lay down a few principles within the context of the article, two scenarios are used from a feeding perspective. The first scenario is providing supplements on high-quality grazing, which is typically the green-feed/sorghum-type of mixtures that are used during the summer or in late autumn. The second scenario is cover crops that are used as winter roughage. Although a variety of crops is used, each with its unique characteristics, there are management measures that apply throughout to both scenarios.

INTERACTION BETWEEN GRAZING PRESSURE AND ANIMAL PERFORMANCE

The principle of high grazing pressure for high-quality grazing means that individual animal performance is lower, but that more kilograms of meat are produced per hectare – a good practice with which value is added, for example through backgrounding, but a poor practice with lactating, reproducing animals for various reasons. The net profitability for lactating animals is less with high grazing pressure than more conservative loads with less handling of animals. Back to the question: 'Must all the material be removed or should a part of it be left behind for agronomic reasons?'

A movable electric fence is a handy tool to utilise the cover crops. Ideal utilisation is obtained with two fences – one in front and one behind the herd – to avoid unnecessary trampling and thus always making fresh fodder available. The cutting of fresh fodder every three to four days is sufficient from a practical point of view. Do not let the cattle raze the field and only then provide fresh fodder. Mover over to the new fodder as soon as the current fodder has been approximately 50% to 60% utilised. This ensures a constant diet without feeding disorders.

The livestock industry, like many other industries, suffers under conditions that lead to lower profits.

WHAT MUST BE SUPPLEMENTED?

Young grazing poses the risk of the moisture content being so high (>80%) that the total dry-material consumption by the animals remains low despite the fact that they eat their fill. The practice of utilising more mature grazing, with accompanying hay, largely solves this problem.

The quality of this type of grazing is usually good. If we look at the value-adding options, the supplement is an energy/protein combination with the emphasis on an energy value of more than 10 MJ metabolisable energy per kilogram (>65% TDN [total digestible nutrients] @ 12% moisture). As the grazing is normally high in protein, lower protein values can be supplemented (<20%), but this should mainly come from natural protein, as the grazing is high in free nitrogen.

If the grazing is of a high quality, supplement levels of 0,5% of body mass will be sufficient, and this can increase to 1%. The economic benefit of supplements of more than 1% on good-quality grazing is highly questionable.

This type of supplement is normally palatable and you should not try to limit this with salt intake. Provide sufficient eating room and feed the right quantity at the same time every day. Animals can finish eating and go and graze.

For dry animals who just have to utilise the fodder, a phosphate supplement will be sufficient. The option where the dry matter of cover crops that have been sprayed to kill the plants is utilised, will focus more on a protein-type maintenance lick. If value must be added, an energy component has to be added. The first prize on the sprayed grazing is the maintenance of dry animals with a protein supplement. Here more traditional supplement practices can be followed, where intake is controlled and troughs are kept full.

POSSIBLE CHALLENGES

Frothy bloat can occur due to the inherent nature of the grazing. There are fodder supplements that can limit this, but like in the case with most other feed disorders, prevention is better than cure (in the case of bloating the animals usually die). Allow animals to adjust gradually over a seven-day period by placing them on the grazing for only 30 minutes in

Foliar FUNGICIDE SPRAY regimes:

A handy tool to fight maize ear rots

MAIZE WITH A HIGH YIELD POTENTIAL IS OFTEN MORE SUSCEPTIBLE TO CERTAIN DISEASES, RESULTING IN THE USE OF PROPHYLACTIC FUNGICIDE SPRAY PROGRAMMES. SINCE 2007 A SIGNIFICANT INCREASE IN THE USE OF FUNGICIDES IN MAIZE PRODUCTION HAS BECOME PROMINENT TO PREVENT AND/OR CONTROL FOLIAR DISEASES.

Dr Belinda Janse van Rensburg, ARC-Grain Crops, Potchefstroom.
First published in SA Graan/Grain April 2020. ***Send an email to BelindaJ@arc.agric.za***

An increase in the market price of maize has helped to make fungicide sprays economically viable. Foliar fungicide spray programmes usually include a combination of strobilurin and triazole at the five-leaf to eight-leaf stage of plant growth, followed by a second spray of triazole 28 days to 30 days after the first spray. No fungicides are currently registered to control Fusarium ear rot diseases and their subsequent mycotoxins. The aim of this study was to determine whether prophylactic fungicide regimes for foliar diseases could reduce the risk of colonisation of grains by *Fusarium verticillioides* (**Photo 1**) and *F. boothii* (**Photo 2**) and their resultant mycotoxin production.

F. verticillioides and *F. boothii* are two of the predominant maize fungal ear rots that can cause a reduction in grain quality as well as the production of mycotoxins that can be detrimental to humans and animals. *F. verticillioides* can produce fumonisins B_1, B_2, and B_3 and *F. boothii* can produce the estrogenic metabolite zearalenone (ZEA) together with the nivalenol (NIV) and deoxynivalenol (DON) mycotoxins.

PLOT TRIALS

Randomised split-split plot trials were conducted during the 2018/2019 planting season under dry land conditions with three replicates per treatment at:

- Potchefstroom (warm, dry production area in the North West Province);
- Cedara (subtropical production area in KwaZulu-Natal); and
- Vaalharts (semi-desert area in the Northern Cape).

The whole-plot factor represented days of spray applications and the second main effect, spray combinations. The sub-plot effect was cultivar. Two maize cultivars (BG3292 and BG3492B) were used and trials were maintained according to best practice appropriate to the respective production areas. Experimental plots were monitored for the five-leaf to twelve-leaf, pre-flowering, flowering and soft dough stages of plant growth.

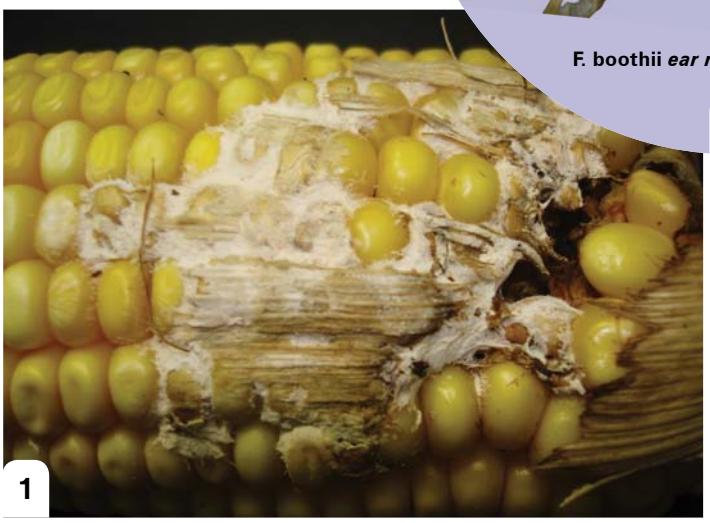
Active ingredients from the triazole, strobilurin and benzimidazole fungicide classes, currently being used by producers as prophylactic fungicides for the prevention and control of foliar diseases, were tested in various combinations (**Table 1**).

The controls included naturally infected plants with no fungicide treatment. Four rows of each cultivar in an experimental block were planted and the middle two rows were sprayed to prevent fungicide drift to other experimental blocks. The outer two rows represented the controls. During silking, maize ears of one middle row was inoculated with *F. verticillioides* and the other one with *F. boothii.* Plants were scouted throughout for leaf diseases and stalk borers.

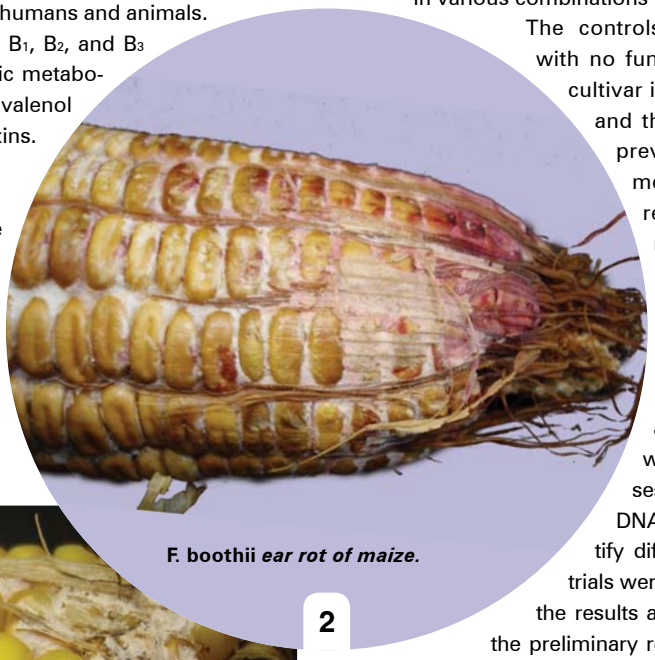
Plots were individually harvested and rated, threshed and milled. Samples were subjected to qPCR and HPLC analyses to determine the amount of fungal DNA present in grain samples and to quantify different mycotoxins, respectively. These trials were repeated in the 2019/2020 season and the results are currently being analysed. Therefore, the preliminary results of the 2018/2019 season are discussed in this article.

Results showed that the inoculation method was effective, as target DNA fungal biomass was significantly higher compared to the naturally infected plants. Infection of maize grain by *F. verticillioides* and *F. boothii* (target DNA) varied over the three localities and was the highest in Cedara and the lowest in Potchefstroom.

In this study period, cultivar BG3292 was always more susceptible to fungal infection and mycotoxin production in maize grain, compared to its isoline BG3492B. The highest fumonisin levels were recorded at Potchefstroom in cultivar BG3292 and overall, DON and ZEA levels were quantified in low amounts. None of the mycotoxin levels exceeded South African regulatory limits. In some instances, only cultivar as main variable had an effect on mycotoxin production in maize grain.



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



F. boothii ***ear rot of maize.***

1 ***Fungicide spray combinations and time of application.***

	First spray	Second spray
1st combination	Amistar Top (Azoxystrobin 200 g/ℓ + Difenoconazole 125 g/ℓ) five leaf stage* eight leaf stage* eight leaf stage* ten leaf stage* 12 leaf stage*	Artea (Cyproconazole 80 g/ℓ + Propiconazole 250 g/ℓ) 28 days later (pre-flowering stage) 28 days later 42 days later (flowering stage) 28 days later (flowering stage) 56 days later (soft dough stage)
2nd combination	Abacus (Pyraclostrobin 62,5 g/ℓ + Epoxiconazole (62,5 g/ℓ)	PunchXtra (Flusilazole 125 g/ℓ + Carbendazim 250 g/ℓ)
3rd combination	Amistar Top (Azoxystrobin 200 g/ℓ + Difenoconazole 125 g/ℓ)	PunchXtra (Flusilazole 125 g/ℓ + Carbendazim 250 g/ℓ)
4th combination	Abacus (Pyraclostrobin 62,5 g/ℓ + Epoxiconazole (62,5 g/ℓ)	Artea (Cyproconazole 80 g/ℓ + Propiconazole 250 g/ℓ)

** Application times will be the same for all fungicide combinations*

SUMMARY

This is the first time that it could be proved that certain fungicide spray combinations can reduce fungal infection (in Cedara and Potchefstroom), which is an added advantage for producers. The non-significance of application dates is also a positive finding as producers do not need to add extra sprays to the existing prophylactic fungicide regimes (to include a later spray), which means that extra costs are avoided.

It must be noted that in an environment conducive for fungal infection such as Cedara, the 50% growth reduction of *F. verticillioides* target DNA levels (1 335,2 pg μg^{-1}, 1 140,5 pg μg^{-1} and 1 123,4 pg μg^{-1}) is still relatively high and can be considered as a yield constraint. Therefore, the reduction of fungal infection by certain fungicides should be seen as an added advantage, but should be used in an integrated pest management system to mitigate maize ear rot infections and their related mycotoxins.

It is reported in literature that the stress of fungicidal treatments can affect other facets of fungal metabolism, including sporulation and secondary metabolite (mycotoxin) accumulation. In this study elevated mycotoxin levels were not recorded for fungicide spray combinations and this will be closely monitored in the second year data that will follow. ■

Supplements for animals...

the morning and 30 minutes in the evening on the first day. Extend this period every day to ad lib grazing on Day 7. Never place hungry animals on the grazing. Animals should always have access to roughage of good quality that is available ad lib during the adjustment.

Prussic acid poisoning is a significant challenge. The primary driver is plants that are under stress, for example limited moisture (wilted) or cold (frost). Major differences occur between species with respect to prussic acid and a combination of environmental factors can affect this.

Sulphur in the lick can help, but the only real solution is prevention. Grazing should not be used where this problem is suspected.

Diarrhoea can occur, particularly during the adjustment period. The roughage will help for this. Intake will be low, but will suppress the diarrhoea. The diarrhoea should not be confused with dung that is loose and greenish in any case on this type of grazing. Feed lime in the supplement will have no effect on the diarrhoea.

Vitamin B deficiencies can occur together with the diarrhoea because incomplete synthesis takes place as a result of the rapid rumen through-flow rate. This is characterised by typical nerve symptoms. Vitamin B can be supplemented (injectable) and roughage can be provided to limit the rumen through-flow rate.

A magnesium deficiency is a possibility that can occur due to the inherent properties of the grazing and supplements, which can lead to an induced deficiency. Symptoms are similar to those of animals with milk fever, characterised by paralysis. Magnesium solutions can be administered intravenously, but this must be done timeously – animals will die if they move past a critical point. The best treatment is prevention, and if problems are expected, 1% magnesium sulphate (Epsom salts) or magnesium oxide can be added to the lick.

In particularly wet seasons, foot rot can be a problem because of hooves that remain soft. Adding 1% zinc sulphate/oxide to the supplement can help prevent this problem. In addition, preventive vaccination for lung-related diseases is essential. Parasite control is obvious.

If Grade 2 and 3 maize is used in the supplement, do not lose sight of mycotoxin poisoning. This is also characterised by typical nerve symptoms. Toxin binders can be mixed into the supplement as a preventative measure.

CONCLUSION

In general, cover crops are high-quality grazing that requires relatively simple supplements that have to be managed on a daily basis. Although a few potential challenges have been mentioned, the grazing is mainly safe and can be utilised successfully with good management.

It remains important to determine the aim of the planting when planning the planting of cover crops, to decide on the animals and system to be used, and to select the lick supplements in collaboration with the nutritionist. If this is not done, the profit will not be maximised. ■

The good guys:
Beneficial nematodes at the service of producers

THIS ARTICLE FOCUSES ON ONE OF THE MOST ABUNDANT AND IMPORTANT MULTI-CELLULAR ORGANISMS THAT FORMS PART OF THE SOIL FOOD WEB AND THE GREATER SOIL ECOSYSTEM, NAMELY NEMATODES. LEARN MORE ABOUT DIFFERENT NEMATODE GROUPS, THEIR FUNCTION IN SOIL ECOSYSTEMS, HOW BENEFICIAL NEMATODES PROVIDE A SERVICE TO PRODUCERS AND THE USE OF NEMATODES AS INDICATORS OF SOIL ECOSYSTEM HEALTH.

Dr Gerhard du Preez, North-West University and Crop Protection at the ARC; Prof Driekie Fourie, North-West University and Dr Mieke Daneel, Crop Protection: ARC. First published in SA Graan/Grain March 2020.

Soil is alive! In a teaspoon of healthy soil there are more organisms than people on earth. bacteria, fungi, algae, protozoa and nematodes, among others, interact with the surrounding environment that consists of minerals, water, air, nutrients and organic matter. This collective of living and non-living matter represents the soil ecosystem.

Soil is dynamic! Energy is captured during photosynthesis by plants and flows through a complex and dynamic food web (**Figure 1**) to higher trophic levels. This soil food web also responds to both natural and human-induced changes and is sensitive to disturbance.

Soil is life! Without soil, life as we know it would not be possible. The services provided by soil ecosystems include food and fibre production, water quality and supply, carbon storage and pollutant degradation.

BUILDING AND MAINTAINING HEALTHY, RESILIENT SOILS

Nematodes are mostly known as pests that pose a major threat to crop production. This is as a result of the damage caused by specific plant-parasitic nematodes, for example, root-knot or lesion nematodes. However, the truth is that the majority of nematodes, both in terms of diversity and abundance, are beneficial and play a very important role in building and maintaining healthy, resilient soils.

Beneficial nematodes are classified under different feeding groups that include, among others, bacterial feeders (**Figure 2**), fungal feeders, omnivores and predators (**Figure 3**). These feeding groups interact with each other as well as with other organisms that form part of the soil food web. They also fulfil multiple, indispensable ecosystem functions, including cycling nutrients, dispersing fungi and bacteria, decomposing organic matter, controlling pests, stimulating microbial growth and serving as a food source for larger soil organisms.

How does this benefit producers? In conventional agricultural systems, plants are largely dependent on fertilisers to meet their nutritional requirements. However, a healthy, functioning soil ecosystem can reduce the need for external inputs. Nematodes, for example, increase the availability of nutrients in a number of ways. By stimulating the growth and promoting the dispersion of bacteria and fungi, nematodes support the decomposition of organic matter and the release of nutrients. Furthermore, when feeding on bacteria, fungi and other soil organisms, nematodes excrete ammonium, a plant-available form of nitrogen. Scientific studies have shown that nematodes can increase available nitrogen in soil by more than 20%.

Nematode feeding also represents another important ecosystem function, namely pest control. By foraging on soil-borne disease pathogens, including plant-parasitic nematodes, pest populations are regulated or even suppressed. Another example of disease control is the use of entomopathogenic nematodes. These nematodes, in association with their symbiotic bacteria, parasitise and kill their hosts and are subsequently cultured in large numbers to be used as biocontrol agents for a wide variety of insect pests, including moths, flies, beetles and caterpillars. Also worth noting is the function of plant-parasitic nematodes. By grazing on roots (not excessively), nematodes can in fact stimulate plant growth.

It is clear that nematodes are at the service of producers. However, as nature would have it, beneficial nematodes are sensitive to environmental disturbances such as tillage and the use of pesticides – more so than plant-parasitic nematodes. Therefore, in order to benefit from the services provided by nematodes and functioning soil ecosystems, the drive towards sustainable agriculture and good agricultural practices needs to be continued. By limiting (or even eliminating) the physical disturbance of soil and using chemicals only when really necessary, producers can farm together with nature, rather than against it. It is also worth remembering that human activities are often responsible for creating environments favourable for pests. An example of this is a mono-cropping system with unhealthy soils where, for example, plant-parasitic nematodes can cause total crop failure. With the effects of climate change becoming increasingly evident, and with growing human populations, it is time to farm not for today, but for the future.

MEASURING SOIL ECOSYSTEM HEALTH

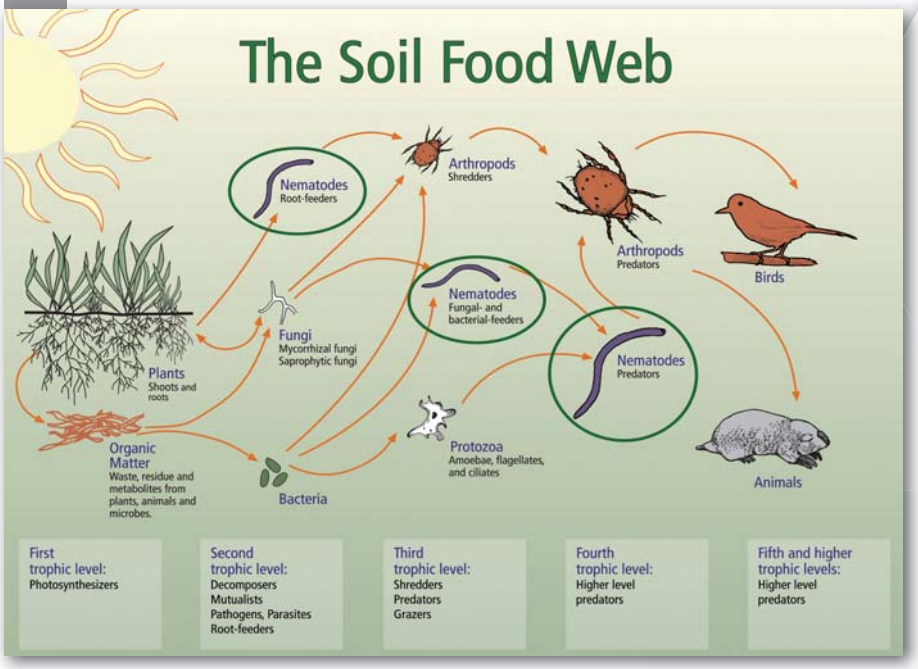
Nematodes are not only great at helping us grow crops, they can also be used as a tool to monitor the progress in improving soil health. Since nematodes represent multiple feeding groups that form part of the soil food web, changes in the population numbers of one or more of these feeding groups (induced either naturally or by human activities) tell something about what is happening in the greater soil ecosystem.

For example, an increase in the number of mostly bacterial-feeding nematodes is indicative of soil enrichment. This would occur following the addition of mineral fertilisers or other nutrient-rich soil amendments such as manure or vermicast. Furthermore, the ratio between bacterial- and fungal-feeding nematodes suggests the energy flow (decomposition) pathway, either bacterial- or fungal-dominated.

While the former is typically indicative of an environment rich in nitrogen, the latter suggests increased availability of carbon. Also, omnivore and predator nematodes are generally the most sensitive to disturbances like tillage. Therefore, if these nematodes occur in low numbers or are absent, it shows that the system is unhealthy and not functioning optimally.

Although these statements may seem arbitrary, scientists have developed a set of indices, known as nematode-specific indices, that allows accurate comparisons between fields/treatments, as well as soil ecosystem health monitoring. Typically, soil samples are collected after which the

1 ***Soil food web illustrating energy flow and interactions between soil organisms. Nematode trophic (feeding) groups are encircled in green.***



Credit: United States Department of Agriculture

2

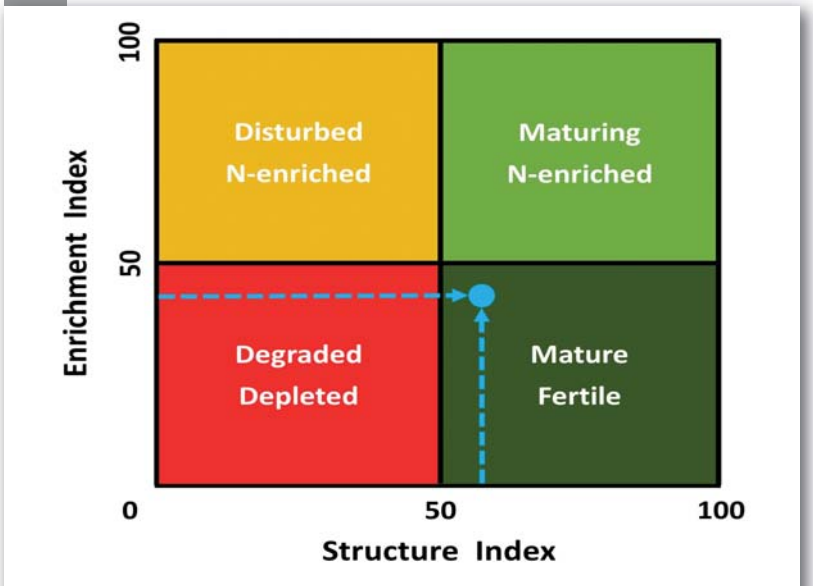
***Scanning electron microscopy image of a bacterial feeding nematode species from the genus* Acrobeles.**

Credit: Prof Joaquín Abolafia Cobaleda from the University of Jaén (Spain)

3 ***Light microscopy image of a predator (*Anatonchus sp.*) feeding on another nematode.***

Credit: Dr Roy Neilson from the James Hutton Institute (United Kingdom)

4 ***Nematode faunal profile used for the classification of the soil food web status.***



The y-axis is represented by the Enrichment Index and the x-axis by the Structure Index. These two indices are used to plot and classify the studied site into one of four quadrats.

nematodes are extracted, identified and counted by trained personnel using microscopes (nematodes are very small). The generated data are then used to calculate selected nematode-specific indices.

Two sets of these indices that are useful for measuring soil ecosystem health in agricultural systems, will be discussed briefly. The first is the Maturity Index, which ranges on a scale from 1 (disturbed) to 5 (stable). This index makes for quick and easy assessments and comparisons between sites. In a conventional agricultural system, one expects to find low Maturity Index values. However, in a system where soil health is promoted, the Maturity Index value should increase over time as the soil ecosystem recovers.

A second measure of interest is the Soil Faunal Profile (**Figure 4**). As seen in Figure 4, this profile consists of a graph with the Enrichment Index representing the y-axis and the Structure Index representing the x-axis. The Enrichment Index serves as a measure of nutrient availability, while the Structure Index indicates whether the soil food web is functioning optimally. By calculating these two indices, a field or site can be plotted on this profile and the soil food web status determined. For example, a field that plots in the left lower quadrat is classified as degraded and depleted, while a field that plots in the right upper quadrat is classified as maturing and N-enriched. For producers that aim to farm more sustainably and/or implement conservation agriculture systems, the goal should be to plot in the right lower quadrat, thus having mature and fertile fields. The Soil Faunal Profile is an overall measure of soil enrichment and ecosystem health.

Throughout history, nematodes have often been scrutinised for the role that the minority plays in crop loss. Isn't it time that credit is given to the majority for services rendered?

The Nematode Diagnostic Laboratory of the North-West University provides a soil ecosystem health assessment service to producers and other interested parties. Please contact Dr Gerhard du Preez (*gerhard.dupreez@nwu.ac.za*) or Prof Driekie Fourie (*driekie.fourie@nwu.ac.za* or 018 285 3006) for further information. ■

Skills training GAINS TRACTION

WITH THE CURRENT FOCUS ON STRENGTHENING AGRICULTURAL VALUE CHAINS AND INVESTING IN WORKFORCE DEVELOPMENT AND JOB CREATION, VOCATIONAL TRAINING IS BEING RE-EVALUATED FOR ITS RELEVANCE IN A SECTOR THAT IS CRUCIAL TO THE ECONOMIC GROWTH OF SOUTH AFRICA.

Valerie Cilliers, editor: SA Graan/Grain. First published in SA Graan/Grain December 2020/January 2021. Send an email to valerie@infoworks.biz

Vocational training and artisan development are often overlooked by students and parents who contend that the academic route offers better prospects for the future.

CEO of the Agricultural Sector Education Training Authority (AgriSETA), Zenzele Myeza, believes that vocational training should be a top priority. 'Young students often overlook trades as a viable option, not only as a career, but also in working towards entrepreneurship opportunities and becoming a potential employer,' he says.

PREPARING STUDENTS FOR THE FUTURE

Vocational training – also known as technical training – focusses on preparing students for their chosen profession or trade by equipping them with practical skills and theoretical industry-related knowledge. In many cases, vocational education combines learning in the technical environment as well as practical work experience. Some vocational institutions also offer vocational training to postgraduates who want to gain a specific skill set.

According to Zenzele technical trades, many of which are considered scarce skills, are in high demand by various industries across sectors, including agriculture. It is a career of choice. 'A trade gives you an option to choose a career which allows for training through Technical Vocational Education and Training (TVET) centres. Technical skills are much needed across all value chains of all sectors. It is a viable option for an alternative career – and often serves as a kick-start to the founding of entrepreneurial enterprises or small businesses.'

Acquiring a trade offers a range of opportunities in a country like South Africa where there is currently a great shortage of skills. The Department of Higher Education and Training (DHET) has identified 13 trades that are in high demand across all sectors:

- electrician
- diesel mechanic
- millwright
- mechanical fitter
- bricklayer
- plumber
- rigger
- boilermaker
- pipe fitter
- motor mechanic
- welder
- fitter and turner
- carpenter and joiner

Scan the QR code to find a list of accredited training providers and information on how to apply for learning programmes, bursaries, internships and training.

PRACTICAL SKILLS IN THE AGRICULTURAL SECTOR

Through competency-based training along agricultural value chains, students are equipped with practical skills to meet labour-market needs. According to AgriSETA, some of the most common trades in the agricultural sector are the following:

- air-conditioner and refrigeration mechanic
- boilermaker
- diesel mechanic
- electrician
- fitter and turner
- heavy equipment mechanic
- instrument mechanician
- mechanical fitter
- millwright (electromechanician)
- plumber
- tractor mechanic
- transportation electrician
- welder/plater
- rigger
- motor mechanic
- pipe fitter

In terms of the Skills Development Act (No. 97 of 1998), AgriSETA is responsible for the skills development of the agricultural workforce by facilitating the implementation of learning through learnerships, skills programmes, adult education and training as well as tertiary studies or in-service training by allocating grants and bursaries. It also supports apprentices, interns and mentorships. Bursaries are available during certain times of the year. The next window period is from 1 August to 15 September 2021.

ADVANTAGES OF VOCATIONAL TRAINING

Research shows that some of the fastest-growing career paths lie in the technical fields. Vocational training is great for school leavers who want a more practical approach, especially if they know what industry they want to move into. Some of the advantages include:

- Hands-on experience – courses are often designed to allow for engagement with industry leaders and in-service training.
- Students enter the workforce quicker – most vocational courses are shorter than degree courses and graduates usually have the required licenses to enter the workforce immediately.
- Experience gained make students employable – there is less risk of being turned down at an interview due to a lack of experience. ■

THE CORNER POST

RAMULONDI PETRUS MANAGA

Don't wait for an opportunity – create it

RAMULONDI PETRUS MANAGA (64) WAS THE RUNNER-UP IN THE SMALL-SCALE MAIZE FARMER CATEGORY OF GRAIN SA'S GROW FOR GOLD NATIONAL YIELD COMPETITION IN 2020. THESE WORDS BY THE AMERICAN TALK-SHOW HOST, OPRAH WINFREY, DESCRIBE HOW PETRUS HAS UNDERTAKEN HIS JOURNEY AS A MAIZE FARMER: 'DON'T WORRY ABOUT BECOMING SUCCESSFUL. WORK TOWARDS BEING SIGNIFICANT AND THE SUCCESS WILL NATURALLY FOLLOW.'

Louise Kunz, Pula Imvula contributor. Send an email to louise@infoworks.biz

Petrus says he grew up farming as his father, Jack, was also a farmer. 'He taught me everything I need to know about farming,' he shares about his role-model who passed away in 1978 when Petrus was just 21 years old.

As a tribute to his father, Jack's name now forms part of Petrus's own farm's name – Jacklondi's Farming Suppliers. This is to symbolise that he became the man he is today because of his father's influence. The 'londi' part of the farm's name was derived from part of his own name, Ramulondi, a very proud land owner.

SUCCESS DEPENDS ON YOU

His 15 ha farm is situated about 45 km from Louis Trichardt in the Nzhelele area near Dzanani in the Vhembe district of Limpopo. Here Petrus managed to achieve 6,49 t/ha last season using the cultivar DKC 78-45 BR of Bayer. This achievement inspired his Bayer seed representative to enter him and he was placed second after the winner Gardner Khumalo, who was featured in *The Corner Post* of the February 2021 issue of *Pula Imvula*.

Petrus believes that if you love what you are doing, you will be successful. This hands-on farmer obtained nearly all his agricultural knowledge from his father. Planning forms an integral part of his farming operation and he believes in sticking to the basics like soil preparation, adding fertiliser and following a good spray programme. He firmly believes in taking soil samples as healthy soil produce healthy crops. He has also witnessed that in this area a mixture of manure and 321 delivers a good maize crop.

'I plant and harvest twice a year on 13 ha. As soon as I am done harvesting in March, I plough and then plant again. By June when the cold weather arrives my crop is already grown and there is minimal risk for damage.'

Although he has not yet joined one of Grain SA's study groups, he was invited to a group once as a guest to share his story and agricultural knowledge. 'Unfortunately a family crisis prevented me from attending.' He plans on attending this year and who knows, he may just learn something new there as one is never too old to learn.

PRACTISE MAKES PERFECT

Initially maize and a variety of vegetables – tomatoes, cabbages and butternut – were produced on the farm. However, he made the decision to rather focus on one thing. 'I decided to specialise in maize because this is the product which our community needs,' he shares. He also knew he could achieve great results focussing on one thing as success come from doing that one thing over and over. This principle is also one which characterised the Chinese American actor and martial artist, Bruce Lee. He once said: 'I fear not the man who has practiced 10 000 kicks once; I fear the man who has practiced one kick 10 000 times.'

This approach has proven successful and Petrus says that up to now he has not made a mistake and has been blessed with a good harvest every year. He even supplied maize to the humanitarian aid organisation, the World Food Programme. In 2016 they purchased 30 tons of his 42 ton harvest from him.

Although Petrus was a full-time teacher until August 2018, he never gave up on the father and son team's reason for farming – to provide food for the community. He became a full-time teacher and part-time farmer until his retirement when he could farm full-time. Being a full-time farmer means he is more active than before. 'I am always on the go, working hard. Farming is definitely keeping me young,' he says.

Petrus is not a dreamer, but a thinker and a doer who sees possibilities around him. After his retirement he decided not to sell his maize anymore, but to produce maize-meal on the farm. Maize is being milled on the farm. 'People wanted maize-meal, so I made a plan to help them.' Packaging from 12,5 kg to 80 kg is also done at the plant on the farm.

DREAMS FOR THE FUTURE

'I am currently doing very well, but am running short of land to plant,' he shares. With his available equipment and implements he believes that he could easily handle 20 ha to 40 ha. 'This way I can provide even more food for our rural community.'

Petrus is passionate about agriculture and excited to see a third generation farmer in action already. His eldest son, Ramulondi (31), resigned from his commercial job and returned to the area to purchase a 20 ha piece of land where he is farming. His other son, Funzani (26), will also follow in his father's footsteps as he has already joined his father on the farm, where he is learning from a good mentor who sets a wonderful example. This just shows that 'a good example has twice the value of good advice' (Albert Schweitzer). ■

GOOD COMMUNICATION
is part of our programme

GRAIN SA
GRAAN SA

FARMER DEVELOPMENT DEPENDS ON EXCELLENT COMMUNICATION AND AT GRAIN SA WE USE A NUMBER OF DIFFERENT PLATFORMS TO TRANSFER KNOWLEDGE THAT CAN CHANGE LIVES AND LIVELIHOODS. IN PREVIOUS ISSUES WE LOOKED AT KEY COMMUNICATION STRATEGIES SUCH AS THE STUDY GROUPS AND INDIVIDUAL FARMER SUPPORT. IN THIS ISSUE WE FOCUS ON OUR FLAGSHIP PUBLICATION.

The Grain SA Farmer Development Programme teaches, develops, transfers skills and continuously mentors farmers while actively building supportive networks around them. Although our head office is in Pretoria, we have established a footprint in key grain growing areas like Dundee, Kokstad, Lichtenburg, Louwsburg, Maclear, Mthatha, Nelspruit and Paarl.

Our team is comprised of experienced agriculturalists who communicate with farmers in their own language and are passionate about developing farmers towards sustainability and success. We will help any grain farmer who has access to land and the necessary own finance, who wants to grow food for their family or build a farming operation.

OUR LATEST ACTIVITIES

It's been a hectic few weeks as it is the height of activity for the summer grain producers. While many folk may have been slowing down for some relaxation over the festive season, our team has been busier than ever!

From 14 December 2020 to 15 January 2021 we have held **46 study group meetings** and made **72 farm visits** to those farmers receiving individual support this season. Our aim is to ensure the farmers are equipped to plant the crops correctly for optimal yields and then we monitor the fields alongside the farmers, offering advice on weed control, spray calibration and required mechanical maintenance.

PULA IMVULA, OUR FLAGSHIP PUBLICATION

It may seem strange to tell you more about our *Pula Imvula* magazine when you are likely to be holding a copy in your hands. Did you know that this beautiful, full colour magazine started out life as a newsletter to the developing grain farmer members of Grain SA? It is now available as a hard copy magazine, widely distributed to farmers and industry role-players around the country, and is also available in electronic format on *www.grainsa.co.za* either as a single article or a full magazine download.

The magazine is published in five languages – and in 2020 our monthly distribution statistics were:

English	Sesotho	Tswana	Zulu	Xhosa	Total number of copies
1 915	1 691	997	4 997	6 432	16 032

Jenny Mathews, Pula Imvula contributor. Send an email to jennymathews@grainsa.co.za

Topics for articles are allocated according to donor funding. We have been generously supported by the Maize Trust, OPOT, the Winter Cereals Trust and a number of the agribusinesses who have committed themselves to the developing farmer sector.

Why is a magazine a vitally important channel of communication?

The aim of development is to increase participation in development and to inform, motivate and train rural populations at grassroots level. There are so many obstacles in the development arena and the opportunities to transfer knowledge are limited where one relies only on development officers to reach many people who could benefit from accurate, relevant information and skills transfer.

Accessibility and transportation challenges are serious limiting factors for rural farmers, so **we have learned that truly effective rural development is highly dependent on media that can be broadcast more widely**, such as radio and printed media.

We are proud of our publication

- The magazine is a vibrant, colourful, sector specific publication which is well received by the farmers who say that they find the information timeous, relevant and easy to understand.
- It is also a reliable information package in the tool-kit of the development officers and mentors who use it for study group discussions or to refer farmers to for specific information.
- Articles are specifically tailored for developing grain farmers. Topics cover many aspects of production and marketing as well as other generic information that is useful towards equipping and upskilling the farmers.
- The aim is to ensure that best practice, appropriate information is transferred in a timeous manner that is also easily received and then can be shared on within the developing grain farming community.
- We place high value on 'farmer-to farmer extension'. If we can educate one farmer who can share the valuable information with ten more, the network is widened and knowledge transfer is accelerated.

'Knowledge and innovation have a key role to play in helping the farmers and rural communities meet challenges of today and tomorrow'. (European Commission, 2019).

Farmer Development Programme

Our readers say...

Pula Imvula

This book called Imvula Pula it helps us a lot because it teaches us how to follow the correct production practices and encourage us by showing us farmers who are participating on the GSA farmer of the year competition. I would like to take this opportunity to thank GSA for donating to us the maize Shellers. Another important point is that through Imvula we could see how other farmers in other areas of S.A are doing their farming businesses we even see them having their produce which they have harvested on their arable lands.

We are greatful to receive Pula Mvula catalogue because we are very much encouraged by this little book that has a lot of information that keep us going forward to reach our desire/goal of becoming a commercial farmer one day. The way we enjoying to read this book even other farmers ask for each and everymonth that when are the next one coming; because they are willing to know whats new on the upcoming one. So please keep on sending them to us because they are of a great help. It is developing us as farmers; guiding us on how to plant and protect of plants in a right way.

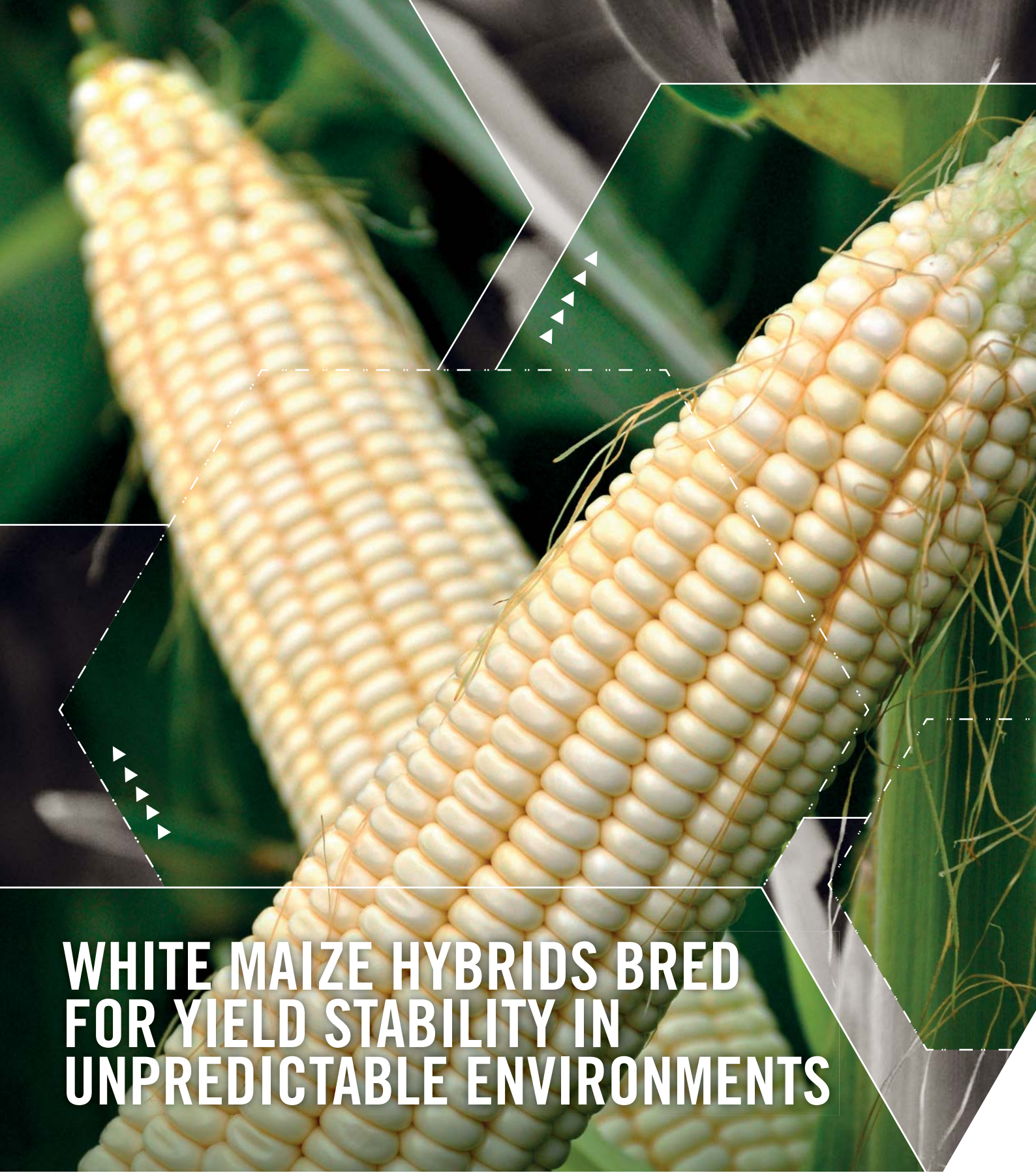
Thank you very much.

Siyaphambilli Small Farmers

We as Siyaphambili u gain so much to Mvula paper.First now we know how to test soil.How do we see that our soil need the lime and what kind of lime we need to used in our Area Mpumalanga.We need to used two different type of Lime dolometic lime and calticetic lime.

We learn how to used no- till
No-till is important it save our soil and it prevent our soil to be stroyed by heavy rain.We learn how to control weed in our cropsWe have a post emergency and pre emergency.We learn that when you cultivate your field you need to prepared it for the crop you are about to plant and not to see weed taking over.
And they give us advised how to increased investment in maize industry.It tell us that ather farmer how to fight challenge in farming industry. We learn about this project Job fund project.

We learn many things to iMvula paper. Thank very much Grain SA .



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