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GROWING FOOD • PEOPLE • PROSPERITY

GRAIN SA MAGAZINE FOR DEVELOPING FARMERS

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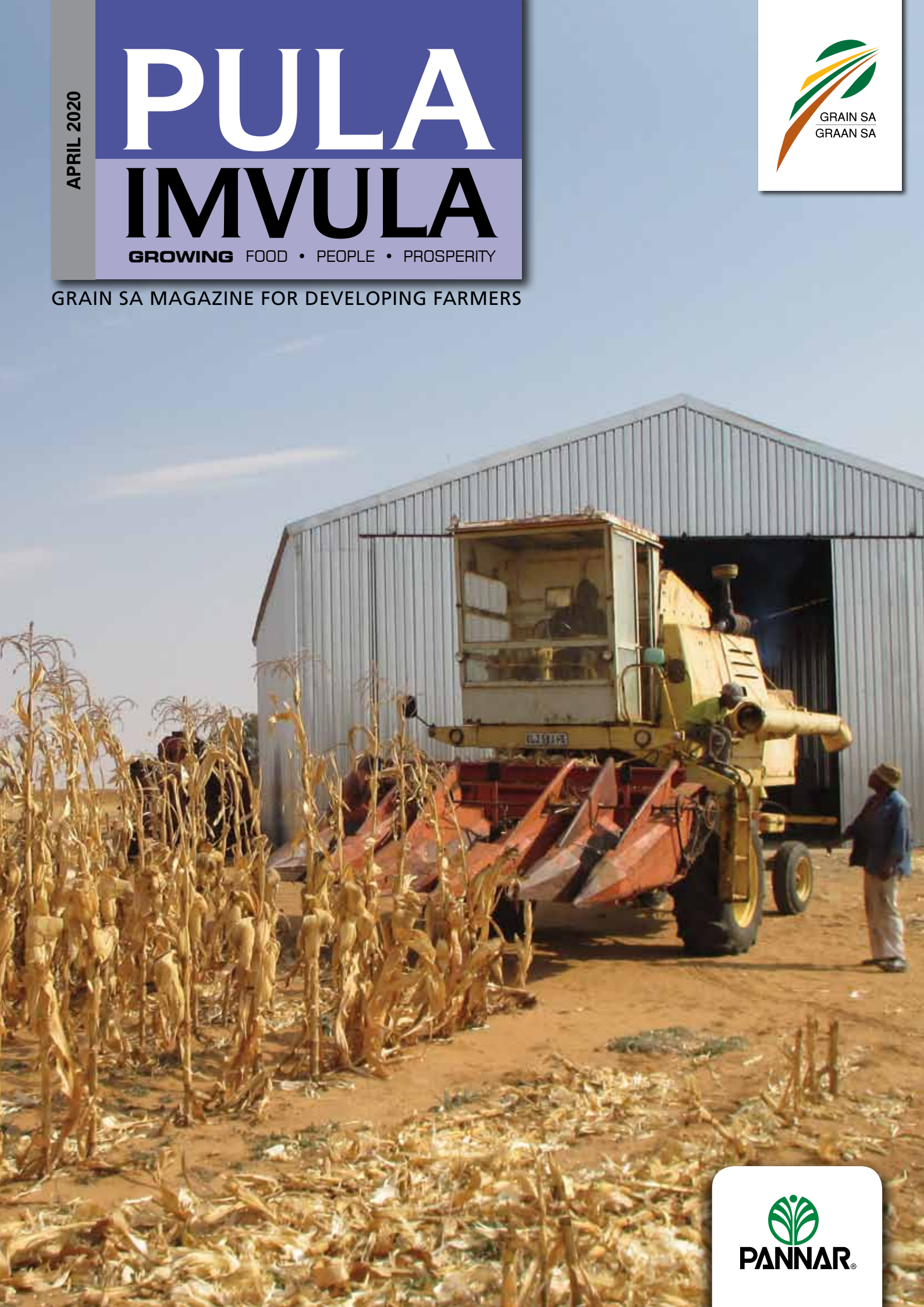

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A Word From...

Luke Collier

THE 2019/2020 SEASON HAS BEEN A TOUGH ONE TO SAY THE LEAST. IN SOME AREAS FARMERS HAVE RECEIVED JUST THE RIGHT AMOUNT OF RAIN AND THEIR CROPS LOOK FANTASTIC! IN OTHER AREAS THEY ARE FLOODING AND IN OTHERS THEY ARE STILL GRIPPED BY DROUGHT. FARMING IS TOUGH!

With all of the climatic and economic challenges out there we need to continuously improve our yields and better our practices to keep our heads above water, and the bank manager happy! However, farming does tend to work in cycles, with both good years and bad years. It is up to us as the farmer to be as consistent as possible so that we can reduce the fluctuations of those cycles as much as possible.

This time of year, I like to reflect on the season that has passed, to try and determine where I could have improved. Whether it be a land that had poor germination, or poor land preparation I ask myself what I could have done better. We need to get into the habit of trying to improve our yields and farming practices every year, I have seen many farmers happy with mediocre yields or crops and eventually they get left behind. The margins in farming are so slim now days that we cannot afford to accept an average crop; we need to do everything in our power to produce the best we possibly can.

This time of reflection does not mean sitting on the couch with a cup of tea admiring your garden! It means spending time in your fields, having a look at where you could have sprayed better or drained your field better. During this time of reflection, you need to get out there and have a good look at your crops to see areas that can be improved upon. The climate is not something that is in our control, however calibrating a planter properly or planning a better spray programme is in our control. If we can improve in those areas year on year our crops can only get better.

Good luck and we will see you in the fields! ■

Prepare for a BUMPER CROP

THE CROP PRODUCING REGIONS OF SOUTH AFRICA ARE LOOKING PHENOMENAL AND 2020 LOOKS SET ON BEING A RECORD HARVEST. IT IS WONDERFUL TO SEE. HARVEST TIME IS A SPECIAL TIME WHEN FARMERS CAN AT LAST REAP SOME REWARD FOR THEIR HARD LABOUR. THIS IS ESPECIALLY SO WHEN THERE HAS BEEN A NUMBER OF CHALLENGING SEASONS BEHIND THE BACK.

Gavin Mathews, Bachelors in Environmental Management. Send an email to gavmat@gmail.com

For some farmers everything is hanging in the balance and getting a good harvest will determine whether they can continue farming or not. Whatever your situation may be, make sure that you follow through and bring this harvest in to the best of your ability. There are many things that you have control over during this stage of the season to ensure that you get as much grain as possible into the silos.

Most of your harvesting equipment has had a long rest since the 2019 season and has most likely been standing idle for some time. As your crops start ripening and drying on the fields you should be getting your equipment out and start the process of working through all the mechanical elements of the machinery.

Be prepared for a bumper crop and make sure that you have everything ready for action. Minimise waste to maximise profits.

COMBINE

Before you start the combine make sure that you check the oil and water and top up where necessary. Work through the engine before you start checking the combine mechanics. The combine is made up of many moving and shaking parts which ware and tare, so be sure to go through each part carefully to make sure that everything is working perfectly.

Grease everything meticulously and oil the chains. Make sure that your machine is fitted with the correct sieves and that they are in a good working order with no holes. Check your grain bin and auger and make sure that there are no holes or leaks anywhere. Your number one goal this season is to minimise wastage as much as possible. We want the grain in the silo and not on the ground in the field.

HEADERS

Often the header will be one of the last things to check. Rather make a point of checking this in conjunction with the combine. Hook up the header which will be used first and check all moving parts carefully. Grease well and oil the chains. If anything needs replacing you should do it now to avoid break downs during the harvest.

> *As your crops start ripening and drying on the fields you should be getting your equipment out and start the process of working through all the mechanical elements of the machinery.*

DE-BULKER

The de-bulker or '*tapkar*' is a very important part of the harvesting team as it can determine the speed at which you get the job done. Its goal is to keep the combine moving at all times. Make sure that the tyres and wheel bearings are in good working order as it carries a heavy load along rough terrain. Also be sure to check the bin, inspect that it has no rusting holes where grain will leak out. The auger is another essential part on this machine that needs to be working well. Go through each aspect carefully to be sure that you have no unnecessary hold ups.

TRUCKS AND TRAILERS

Inspect the wheel bearings and tyres carefully. Check the bin linings as well as all the doors and joints, making sure that everything seals well.

TRACTORS

Tractors often never get a break and are usually always on the go. But it is important that before they start the heavy work of carting trailers and traveling long distances to the co-op, that they also get a good run through making sure that they are mechanically sound. If they need servicing be sure to do it before the harvest starts.

STORAGE

This is one of the most important aspects of your harvest planning. How will you store your grain? Will you have a holding area on the farm, or will you be carting directly to the silo? Go through the logistics of your operation carefully and try to foresee bottlenecks and hold ups. If you are going to have a holding facility on the farm, how will you store the grain? Will you use a storage dam, or will you use a concrete slab? There are many options but be sure to choose a method that is safe from the elements as well as from theft. It needs to be as efficient as possible with minimal wastage.

CONCLUSION

This harvest has the potential to be a great one indeed. But remember that the greater the harvest the greater the strain on your machinery and equipment. More tons will need to get to the silos. So be prepared for a bumper crop and make sure that you have everything ready for action. Minimise waste to maximise profits. ■

MAIZE – what a versatile crop!

MAIZE IS THE MOST COMMON STAPLE FOR SOUTH AFRICA AND MOST OF THE WORLD. MAIZE CONTAINS APPROXIMATELY 72% STARCH, 10% PROTEIN, AND 4% FAT, SUPPLYING A SUBSTANTIAL AMOUNT OF ENERGY FOR HUMANS AND ANIMALS. MAIZE CAN BE USED IN VARIOUS INDUSTRIES FOR THE PRODUCTION OF FOOD AND INDUSTRIAL PRODUCTS, INCLUDING STARCH, SWEETENERS, OIL, BEVERAGES, GLUE AND INDUSTRIAL ALCOHOL.

This article focuses on our local maize products as well as some common maize by-products used in other industries.

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

LOCAL MANUFACTURING OF MAIZE PRODUCTS

Figure 1 indicates different kinds of maize meal produced from white and yellow maize in South Africa. Most of the maize over the past five years was used to produce super maize meal.

Figure 2 indicates production of other maize products in the South African market, which includes maize chop, maize rice, maize grits and samp, most of which is made from white maize. Over the past five years, South Africa produced a great amount of maize chop that goes into the animal feed industry.

LOCAL EXPORT MARKET

Figure 3 shows maize meal exports over the past five years, most of which goes into the African market. South Africa imports a negligible amount of meal.

MAIZE BY-PRODUCTS

Animal feed

- **Maize gluten meal**: Is a by-product of the manufacture of maize starch by the wet-milling process. Corn gluten meal is a protein-rich feed, used as a source of protein, energy and pigments for livestock species including fish.
- **Maize fibre**: Cellulosic fraction of the maize grain, rich in carbohydrates, easily digestible. Product of the manufacture of corn starch. Used in cattle breeding and oil cake manufacturing industry.
- **Oil cake**: After expelling oil from dry maize germs, the residue is corn oil cake. As it has a substantial amount of fat and protein, it is used as a major ingredient in the cattle feed industry.

Food industry

- **High maltose maize syrup**: Is a food additive used as a sweetener and preservative. Used in producing ice creams, confectionary and baked goods.
- **Maize oil**: Is extracted from the germ of maize. Used in the food industry as a cooking medium.
- **Liquid glucose**: Maize syrup or glucose syrup are synonyms and are usually manufactured by subjecting starch to high temperature in the presence of acid. Used in manufacturing food products like jam, jellies, chewing gums, canned fruits.
- **Special maize starch**: Is the starch derived from the maize. The starch is obtained from the endosperm of the kernel. Commonly used in thickening sauces or soups, and in making maize syrup and other sugars.
- **Dextrose monohydrate**: Is a white crystalline powdered sugar obtained from the complete hydrolysis of maize starch. It is used

as a sweetener, a fermentation substrate, a wetting agent or in confectionery, bakery, snacks, beverages and dairy products.

Textile and paper industries

- **Sayatex**: Is an oxidized starch derived from maize. The film produced from sayatex is strongly adherent, continuous and clear. It is used for surface sizing of paper and yarn.
- **Native maize starch**: Is a cereal starch, which has a low ash and protein content. It is used in the textile finishing operation to change stiffness, feel or handle of the fabrics, to modify the appearance by filling the interstices of the weave and to add weight. Also used in the paper industry.
- **Fabrilose**: Modified, thin, boiling starch, used in textile sizing.
- **Dextrins**: Are normally prepared by roasting starch in the presence of acid which materially changes the character and properties of starch. They are used in foundries, distemper and textiles.
- **Sayafied**: Esterfied starch plays an important role in the manufacture of gypsum wallboard, protecting the gypsum crystals that form the bond between the gypsum core and the paper. Used in the paper industry and textile sizing industry.

Over the past five years, South Africa produced a great amount of maize chop that goes into the animal feed industry.

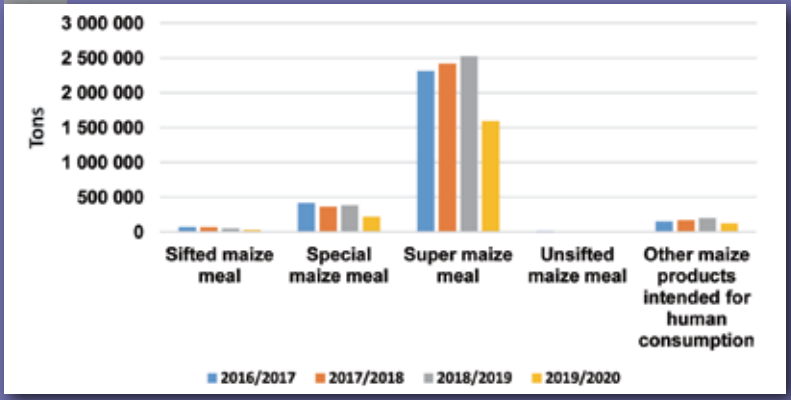
Pharmaceutical industry

- **Dextrose anhydrous**: Is used in intravenous injections vital for preventing dehydration.
- **Starch ip/bp**: Is specially manufactured for the pharmaceutical industry. The major use of starch in pharmaceutical formulation is as a binder and filler for tablets and capsules.
- **Maize steep liquor**: Or CSL is a by-product of the wet milling of maize. It contains much of maize's soluble protein, carbohydrates and minerals. It has a vital function in production of penicillin and other antibiotics.

Multiple industries

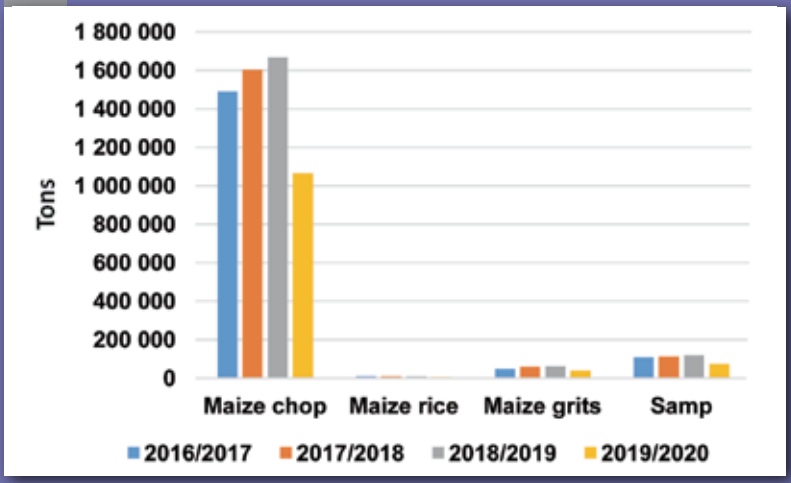
- **Sorbitol**: Is a sugar alcohol, which the human body metabolises slowly. Used for the production of cough syrups, toothpastes and other oral hygiene products, cosmetics, paints, cigarettes and baked food items. ■

1 ***Production of meal from white and yellow maize.***



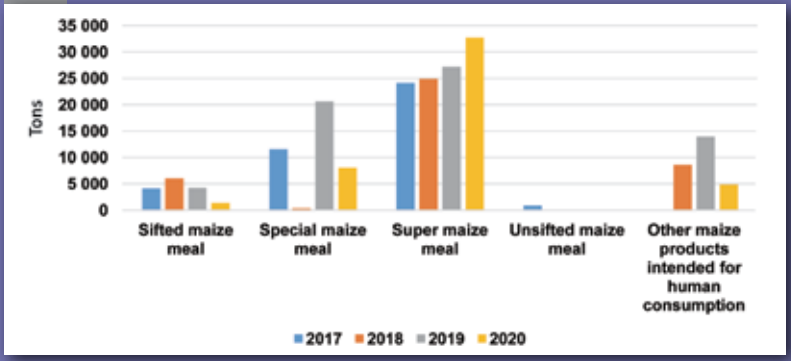
Source: SAGIS
**2019/2020: May - Nov 2019*

2 ***Production of other products from white and yellow maize.***



Source: SAGIS
**2019/2020: May - Nov 2019*

3 ***Exports of meal from white and yellow maize.***



Source: SAGIS
**2019/2020: May - Nov 2019*

Estate planning
– make time to manage your affairs

TOO MANY PEOPLE MAKE THE MISTAKE OF THINKING THAT ESTATE PLANNING IS ONLY SOMETHING THAT WEALTHY PEOPLE HAVE TO DO – WRONG! ESTATE PLANNING IS FOR EVERYONE WHO HAS ACCUMULATED ANY ASSETS AS WELL AS BUILT UP SOME FORM OF BUSINESS ENTERPRISE.

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

Estate planning is important because it is all about protecting your loved ones. When a person's estate has not been carefully planned, inevitably the affairs of the deceased are left in confusion along with a negative impact on loved ones who must wade through red tape and rigmarole while still grieving the loss of their loved one.

WHAT IS AN ESTATE?

We all have an estate no matter what our financial status is. Your estate refers to everything you own such as:

- Property (residential, agricultural, business).
- Financial assets (bank accounts, shares).
- Life insurance policies.
- Personal goods (vehicles, jewellery, furniture and other belongings).

ACTIONS TO BE TAKEN TOWARDS BETTER ESTATE PLANNING

- Write your will – this is a legal document in which you name an executor to carry out your wishes, heirs for your assets and name the guardians if you have minor children.

FOUR MAIN REASONS TO DO ESTATE PLANNING

It is always wise to plan for when something happens to a family's breadwinner/s.

1 It allows you to choose who gets what

The main purpose of estate planning is deciding **who will benefit** from that which you will leave behind. If you don't name the beneficiaries it will be left to the courts to decide and this process can take years and cost a lot of money. The courts cannot know which of your heirs is likely to be responsible and manage your affairs carefully or which is likely to irresponsibly waste what you have left your beneficiaries.

2 It gives one the chance to name a guardian for your children in the event of an early or unexpected death

If you are a parent to young children, it is especially important to prepare for the unthinkable. Not one of us likes to think of dying young but as a parent one needs to ensure that one's children will be cared for and raised with good values. It is wise to **name a guardian for your children** in case they are left with no parent before they turn 18. If this is not done, the courts will be asked to step in and decide who is to raise your children.

3 It reduces taxes on what you leave behind

Estate planning means finding the best ways to transfer assets to your heirs while creating the smallest possible tax burden for them. In South Africa as in most other countries, death and taxes go hand in hand. The deceased estate has to pay inheritance taxes namely estate duty and capital gains tax.

- **Estate duty** taxes the transfer of wealth (assets) from the deceased's estate to the beneficiaries. Estate duty is charged and collected on the estate of every person who dies. It is up to each individual to find out what this means against his or her estate. The duty assessed has to be paid within one year of the date of death.
- **Capital gains tax** is tax levied on any capital gain (profit) on the sale or transfer of an asset from one owner (in this instance, the deceased) to a new owner.

It is possible with careful planning and good advice to reduce the income tax beneficiaries might have to pay. Without a plan, your beneficiaries will be paying a large percentage of their inheritance to the South African Revenue Service.

4 It lowers the risk of family strife and ugly legal battles

Stop fights before they start. I am sure many of us have heard sad and ugly stories of the bitterness and fighting that has arisen between previously loving family members when they dispute an estate. One sibling thinks they deserve more than another, or another sibling tries to get control of the money and others feel they cannot be trusted. This is a sad scenario which can be avoided with an estate plan in place. The plan enables one to choose who manages your affairs, who controls finances and who runs your business if you become mentally incapacitated or after you die. It also empowers you to make specific provisions for example:

- To provide for a younger child not yet able to provide for his/herself;
- To give less to a beneficiary whose education you funded while paying less for other siblings; or even
- To give more to a child who has done most of the work supporting or caring for you and the family.

This time spent planning gives you the opportunity to decide who will benefit in the most sensible and fair manner possible. When people don't have their paperwork in order it becomes a nightmare for everybody left behind. In a worst-case scenario loved ones may miss out on life insurance benefits, tax deductions or overlook settling outstanding accounts just because they didn't know about them. Get your paperwork in order and have your important documents available for your loved ones.

- Analyse and document your financial position.
- List your property and assets i.e. land and vehicles.
- Draw up an inventory list of all your furniture and personal belongings.
- Draw up a record of all bank accounts held in your name.
- List all policies held in your name.
- Draw up a list of chosen beneficiaries.
- Name an executor of your estate who will manage your will – consider who you most trust to administer your estate effectively.
- Source advice from specialists to minimise costs and taxes payable.

Planning is bringing the future into the present so that you can do something about it now.
– Alan Lakein

PRACTICAL ACTIONS TO TAKE THAT WILL MAKE MANAGING YOUR AFFAIRS EASIER

- Have a file in which you store important documents so they can be found easily.
- Complete a power of attorney form – this is not something that will be used by heirs, but it is nonetheless an important document for your loved ones to have should you become incapacitated because of an illness or accident.
- Save a copy of your will.
- Save copies of your identity documents and passport.
- Keep records of all banking accounts including numbers and passwords.
- List all your policies with detailed names and account numbers.
- Keep a record of running accounts – especially debts still outstanding.
- Store records of each vehicle licenses with details of financing arrangements and licence numbers etc.
- File real estate records such as title deeds, lease agreements etc.
- If you use the services of an accountant, record their details in the file.

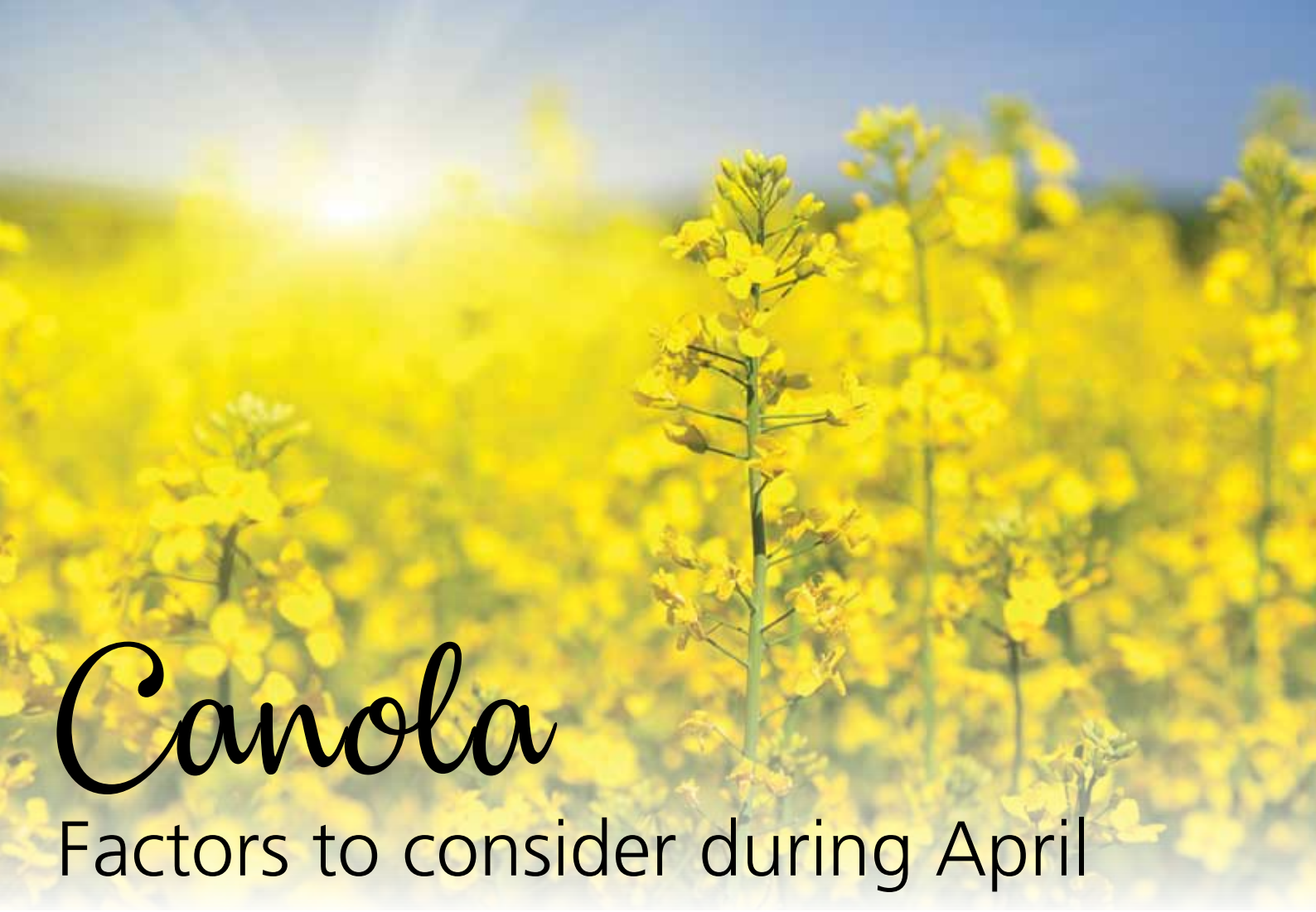
CONCLUSION

Remember your last will and testament cannot only be done once and set aside. **It is a living document and needs to be reviewed and revised whenever there is a change in your circumstances**. This means changes like getting married, divorced or widowed, having a new baby, any new purchases or sale of any assets or with the acquisition of a new business or new farmland. It is not only up to you as head of your home and breadwinner to care for your family during your lifetime, you need to plan for the maximum transfer of your wealth to the next generation in the most sensible and harmonious manner possible. ■

WORDS OF WISDOM

Character cannot be developed in ease and quiet. Only through experience of trial and suffering can the soul be strengthened, ambition inspired, and success achieved.

~ HELEN KELLER



Canola

Factors to consider during April

2020 IS WELL ON IT'S WAY AND THE SOUTHERN CAPE HAS BEEN BLESSED WITH GOOD RAINS OVER AN EXTENDED AREA. THIS MEANS THAT WEEDS WILL BE GERMINATING WHICH HOST PESTS AND DISEASES.

Cutworm damage was widely reported this past season, causing damage to young canola stands. Eliminate weeds that can serve as refuge for the cutworm moths to lay eggs and aphids to start building colonies. These weeds also utilise precious underground moisture that we must conserve for this year's crop. These weeds can be eliminated either by shallow cultivation or chemically.

> *When deciding on a cultivar, look at more than one season`s performance. If the cultivar has performed well in different regions, it is an indication of adaptability.*

CHEMICAL USE

The products of choice, glyphosate or paraquat, must be utilised judiciously as the overuse of chemicals with the same mode of action can lead to the development of herbicide resistance. Glyphosate, especially, tends to be used more than once in a season on the same land and many reports of ryegrass resistant to even high rates of glyphosate have been reported in the Western Cape. Should resistant ryegrass occur alternate with paraquat, which has a different mode of action. Consideration can also be given to the so called 'double knock' system developed in Australia, where a glyphosate spray is followed by a paraquat application 10 to 14 days later. In this way weeds not controlled by the one product will be killed by the other.

Chris Cumming, Protein Research Foundation Consultant. Send an email to cummingza1946@gmail.com

SUCCESS

I trust that any farmer intending to plant canola this year has procured good quality seed of cultivars that are well adapted to his region. The success of canola production has its foundation in achieving an even and uniform stand. Even refers to plants evenly spaced over the soil surface with no bare patches. This will contribute to suppression of later germinating weeds, something that canola's growth habit can achieve better than any other crop. Uniform refers to canola plants all being the same size, which in turn will make many management decisions, i.e. time for topdressing, fungicide spraying or when to windrow so much easier. That is why I consider the period just prior to planting and the planting process the most important in canola production.

FACTORS TO CONSIDER

There are many factors to consider when deciding on what canola cultivars to plant. Obviously, seed of the cultivar of choice must be

readily available. Some cultivars that have performed well in the cultivar trials conducted by the Department of Agriculture, Western Cape only become freely available in the second or third year. When deciding on a cultivar, look at more than one season`s performance. If the cultivar has performed well in different regions, it is an indication of adaptability.

Cultivars

The PNS recommends that, as far as possible, farm retained seed should be avoided. The hybrid cultivars have proved that, under favourable conditions, yields of in excess of 3 t/ha can easily be achieved. Hybrid vigour, however, is not retained in second year seed resulting in yield penalty, higher risk to fungal diseases and uneven growth and ripening. Rather consider planting at a slightly lower rate of seed per hectare (2 kg/ha to 2,5 kg/ha) before saving money by planting farm retained seed. A stand of 30 to 40 plants per m^2 is more than sufficient to produce above average yields.

Should early season rains make it possible to plant early (start April) in the Rûens, cultivars with a longer growing season can be considered, as short growing season cultivars can flower too soon. In the Swartland and warmer areas in the Southern Cape, shorter growing season cultivars generally perform better. Some shorter growing season cultivars are now available that produce yields that compete with the longer growing season cultivars.

The conventional and Clearfield (CL) resistant cultivar groups have a higher yield potential than other cultivars and their growth mass contributes greatly to weed suppression. The triasine tolerant (TT) cultivars produce less bio-mass, which implies that a higher stand count is required. Although the TT`s tend to produce lower yields than the conventional or CL cultivars, they are popular where sulfonylurea (SU) resistant weeds occur.

In regions with a high blackleg disease risk, select cultivars with a higher blackleg resistance rating, as supplied in the Department's trial results. The use of farm retained seed, with a low blackleg tolerance, can result in up to 50% yield losses. There are currently no cultivars available with Sclerotinia resistance. Monitoring and preventative sprays, should conditions become favourable from just prior to flowering (cool, wet conditions), must be utilised.

Climate

In the 2019 season canola that was planted early generally outperformed later planted canola. There is no guarantee that the 2020 season will follow the same climatic pattern as last year, but due to global warming and unmistakeable changes in our rainfall distribution, it makes sense to establish a good stand early. Canola in the vegetative growth stage can survive extremes in rainfall and temperature and, as has been proven time and again, can recover when conditions improve to give at least an average yield. One of canola's major advantages is that it spreads a farmers risk profile in that cereals tend to determine yield potential at an early stage (as early as the 5-leaf stage), whereas canola, with its indeterminate growth pattern, can take advantage when later rains occur.

Coverage

Although conservation agriculture is well established in the Western Cape, one of the primary aspects of the system is maintaining a good coverage of plant material on the soil surface, which is not conducive to establishment in the early seedling stage. Small seeded canola does not have the required seed reserves to easily grow through a dense stubble mulch on the soil surface, often resulting in long, spindly seedlings which are more prone to both insect pest and seedling diseases. The answer would be to retain good soil coverage until as close to planting of canola as possible and then to reduce the load by grazing, baling or dragging a harrow or tyres over the land to spread and reduce the stubble load. The aim is to have an even spread of stubble over the land without heavy clumps of stubble that can be problematic with the planting process and also retard germination of the canola. Heavy loads of stubble reduce the soil temperature resulting in slower germination and longer exposure to insects and diseases.

Canola seeds are small, making it important to ensure good contact between the seed and soil.

Pests

Stony and cooler south facing slopes are more prone to snail and slug infestations. By inspecting the lands by looking under clumps of stubble, preferably early in the morning, one often can determine what pests are present. Another method is to place a plastic sheet (empty fertiliser bag) or damp hessian bag on the soil for a few days to monitor for slugs or snails. This will make the decision regarding the application of snail bait easier.

CONCLUSION

Use this time prior to planting to ensure that the planter is in top condition. Planting depth is critical to ensure a good, even stand. Uniform emergence eventually ensures uniform ripening with minimum seed losses during harvest. Best results are obtained with a uniform planting depth in moist soil. A planting depth of 1 cm to 2 cm is generally ideal. Canola seeds are small, making it important to ensure good contact between the seed and soil. A press wheel is used to assist in ensuring good contact. Starter fertiliser should not come into contact with the seed in the plant furrow. Fertiliser can either be placed below the seed or away from the seed to the side. Good luck with the year ahead and may we be blessed with a 'normal' season and abundant rains. ■

Harvesting and handling of SUNFLOWERS

THE 2019 SUNFLOWER PRODUCTION SEASON PRODUCED 680 000 TONS OF DELIVERED SEED FROM 515 350 HECTARES WHICH GIVES US A NATIONAL AVERAGE OF 1,32 T/HA. THE CURRENT FUTURES PRICE IS AT ABOUT R 5 800/TON. THIS IMPLIES A GROSS PER HECTARE VALUE OF R7 656 AT THE NATIONAL PRODUCTION LEVEL. LET US HOPE THAT YOUR YIELDS THIS SEASON OUTPERFORM THE NATIONAL AVERAGE SO THAT YOU WILL REALISE A HIGHER NET MARGIN OR PROFIT ON YOUR CROP.

Written by a retired farmer

One of the ways to improve your yield and income is to harvest your sunflowers at the right time and handle them as best as possible without any moisture damage and seed degrading taking place before and after combining.

HARVESTING AT THE OPTIMUM TIME

Short season hybrids, in a normal year, will have heads that become yellow at about 105 days after planting and become brown at about 120 days after planting. During this two-week period, you can assess your possible final yield per hectare and make timely arrangements with your combine contractor for combining or be sure to have your own equipment fully prepared to take off the crop at the optimum moisture content.

On farm storage and drying facilities can be made ready if available. Most of the smaller farmers will need to combine and deliver the crop immediately to the co-op or private silos. This is probably the best option for smaller farmers to reduce or even eliminate the risk associated with drying your own crop or temporary storage on a shed floor.

Harvesting sunflowers with a high moisture content normally results in higher yields, less bird damage and less head dropping or seed shattering.

Farmers should invest in a moisture meter so that accurate readings can be made in the field. Sunflowers can be combined at 20% and dried to 10% but this is a very high starting point. Some silos will only accept them at between 12,5% to 13,5% moisture from the lands. Seed moisture levels of 12,5% or lower are a more optimum level to start harvesting.

Make sure that you know what the maximum moisture percentage content is allowed for deliveries directly from the land to the co-op silos so that a very valuable load will not be turned away. Remember that sunflowers need to be at about 9,5% for storage up to six months and must be continuously aerated or moved from silo to silo to prevent any fungus build-up. Sunflowers over 12,5 % can have a fungus build-up within 48 hours of being dumped into a pile and can start a fire spontaneously.

COMBINE SETTINGS

Make sure that your combine operator and machine can lower the drum speed, to between 300 and 500 revs per minute (rpm), to avoid any seed shattering. The blower must also be able to be set to blow out the maximum stalk, leaf pieces, florets, empty seed kernels and fine hairs from the combine sample without removing the smaller seeds. It is this combination of foreign material in the harvested seed sample that leads to moisture retention and spontaneous combustion even within the short period of 'just over a weekend' storage on a shed floor.

SAMPLE CLEANING

Seed sample cleaning is the secret to any temporary storage should your local silo not be able to take a load immediately.

If you have your own handling facilities including driers and aerated storage silos it is crucial to be able to fully clean the seed sample before drying or storage. There are very effective reasonably priced seed cleaners on the market that can be purchased and used by smaller sunflower farmers. They must be used immediately after the seed from the land is poured into an intake pit prior to being dried or stored. Movable cleaning machines, which are attached to a floor auger, can also be used to process and clean a batch of seed that has been temporarily dumped on a level concrete floor.

DRYING CLEANED SEED

High oil sunflower seed is made up of about 35% to 42% oil and 18% to 20% protein. The oils contain 55% to 75% linoleic and 15% to 25% oleic acids which can be highly volatile. For those farmers who have drying machines it essential to monitor the flow rate and temperature settings more carefully than when drying maize or wheat seed.

At even 2°C higher that the optimum you will start to smell the oil in the air around the drier. It is the first warning that your temperature is too high, or the flow rate is too low in a continuous flow system. Batch driers must be closely monitored for temperature and moisture content to avoid spoiling a whole batch which can be a very expensive mistake. Constant supervision of the drying process and monitoring the seed condition at short periods must be the watchword.

One does not want to remove any valuable oil or moisture beyond 9,5% as this will lower the final mass or value of the delivered seed when assessed at the silos.

CONCLUSION

After having grown a good crop of sunflowers do some careful planning for harvesting at the optimum seed head stage and know what important steps to take to handle or store your crop. ■

Same or higher yield expected for groundnuts

THE AREA PLANTED TO GROUNDNUTS IN SOUTH AFRICA HAS BEEN FLUCTUATING OVER THE YEARS, MAINLY DUE TO DRY WEATHER CONDITIONS. THIS SIGNIFICANTLY AFFECTS PRODUCTION.

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

A majority of the groundnuts are planted in the western parts of the country, with about 34% in the Free State, 32% in the North West and 29% in the Northern Cape. A small minority is grown in Limpopo (5%). This article looks at groundnut production over the years and what can be expected for the 2019/2020 season.

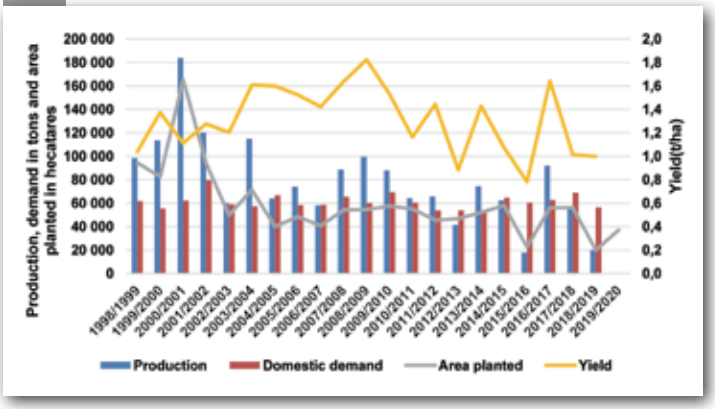
The Crop Estimates Committee (CEC) has estimated groundnut area for 2020 to be 37 100 ha, which is 85,04% or 17 050 ha more than the 20 050 ha planted for the previous season (**Figure 1**). This is still a bit lower than the original intentions to plant, which was 48 000 ha. The final production for the 2018/2019 production season amounted to 20 030 tons, which is extremely low compared to the season before and local demand.

Local demand for groundnuts has been consistent over the years with an average of 70 000 tons per year. Yield over the past two seasons has been about 1 t/ha and the expectation is that it will be the same or higher for the new season.

Figure 2 shows South African imports and exports of groundnuts. South African groundnuts are highly sought after on the world market due to the taste and shape. On average, about 25% of South Africa's crop is exported. Whenever we plant less throughout the years, we can see that the imports also increase i.e. 2016/2017 and 2019/2020.

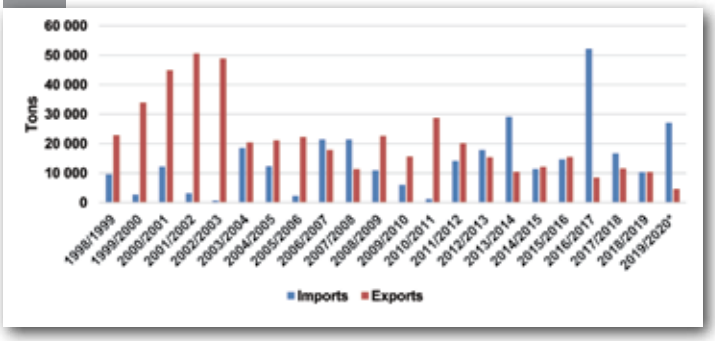
Figure 3 shows producer parity prices of processed and graded choice grade groundnuts. South African farmers can earn a healthy premium from locally produced groundnuts. However, unlike other crops there is no Safex price discovery mechanism for groundnuts, therefore affecting transparency of the market. Most groundnuts farmers, plant with a market already secured mainly for edible groundnuts and crushed groundnuts, as seed and for the animal feed industry. Contract prices are based on a fixed or minimum price. ■

1 ***South African groundnut area planted per production season.***



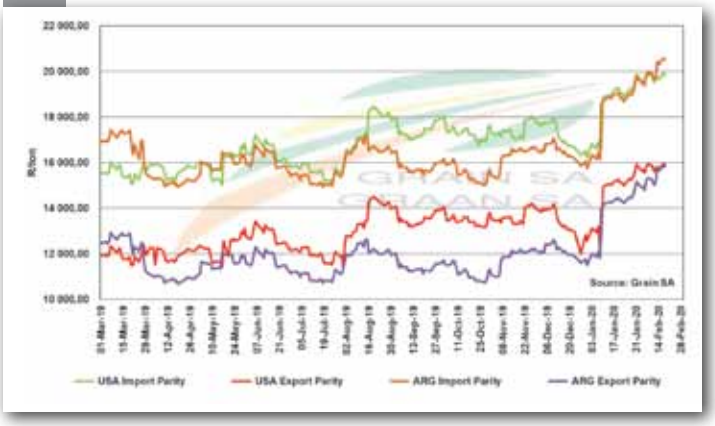
Source: SAGIS

2 ***South African imports and exports per marketing season.***



Source: Grain SA

3 ***Producer parity prices of processed and graded choice grade groundnuts (40/50).***



Source: Grain SA

Increase PROFITS and reduce fixed costs

IN THE DECEMBER 2019 PULA IMVULA WE DISCUSSED AND EMPHASISED THE DIFFERENT TYPES OF COSTS NAMELY FIXED, OVERHEAD AND INPUT COSTS. WE ALSO INDICATED A FEW MEASURES TO CONTROL THESE COSTS, BUT THE EMPHASIS WAS MAINLY ON INPUT OR PRODUCTION COSTS.

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

In this article we will be looking more specifically to fixed costs and will discuss depreciation in a bit more detail, being a specific type of fixed cost.

Farmers are production orientated and are not to blame for that, but the results are that we then forget about the fixed costs and to manage them especially in difficult times. To refresh our memories. Fixed costs are those cost incurred when running a business but need to be paid even in times of hardship and when nothing was produced. Fixed costs are fixed, and it is also very difficult to allocate a true fixed cost to a specific farming enterprise. Examples being for instance loan repayments, insurance on buildings and vehicles and machinery, accounting fees, bank charges, training costs, depreciation. Even your salary (living costs) can be considered a fixed cost – you must live even if there is no production.

In general, fixed costs are greater with crop production than with livestock farming. This is due to the higher value of all the vehicles, machinery and equipment needed for crop production. For example, the fixed cost of a tractor valued at R1 million could be as much as R8 000 per month. The fixed costs involved could be depreciation, insurance, license fees, and the storing costs (cost of a shed) of the tractor.

According to the formula **PROFIT** = **INCOME** - **EXPENSES** (or costs), it is obvious that to reduce costs is the only way to affect profits positively. Thus, costs must be managed. When considering this equation consideration is quite naturally to pay attention to production costs whilst we tend to forget about fixed costs. However, when a famer finds himself in dire straits regarding his/her finances it is most of the time due to high fixed costs especially the repayment of loans. Remember, fixed costs must be paid even if no rain has fallen and there is no crop.

Thus, these costs must also always be managed, in view of the aim to always keep these costs as low as possible. How can this be done?

Also keep in mind all assets deteriorate over time. They have a finite useful life and must eventually be replaced. A tractor, while working, has normal running costs to keep it going. The question is however 'what happens when the tractor needs to be replaced?' Will you have the funds available or will you have to borrow money with all the risk and additional costs involved?

The cost of the deterioration of an asset over time is known as depreciation. The theory behind depreciation is that you must save the annual depreciation cost every year to enable you to replace the asset when needed to be replaced. In practice we unfortunately know very few business owners who do this and when the asset needs to be replaced there is a shortage of funds and borrowing becomes a necessity. In farming it is at times quite understandable that money is not saved. How can one save money when for instance during a drought you must buy feed for your livestock?

Legally, according to accounting practices, depreciation is considered a cost and can be subtracted from your business profit. This practice is widely used by accounting officers to reduce profits and then also taxes to be paid to government. Different ways to determine depreciation for different types of assets have been devised based on the principle that all assets do not depreciate at the same tempo. A tractor used every day will have a shorter lifespan than one only used for ploughing during the relevant season.

Thus, it is important to remember to also manage the fixed costs and production costs of your business to increase profits. ■

HOW TO KEEP COSTS LOW

A few examples of questions to consider.

- Are you not maintaining too high a standard of living in view of your farm profit?
- Do you consider the possibility to adapt your lifestyle or are you in competition with your neighbours?
- Do you manage your living costs strictly according to a budget or do you buy impulsively?
- Before taking up a new loan, do you consider your cash flow properly and the need for perhaps another or a new tractor? Remember, the more vehicles and machinery, the higher the license fees and/or insurance and depreciation and storage costs.
- Do you limit the number of loans you take up?
- Do you negotiate a lower interest rate to be paid on a loan?
- Do you pay your payments in time?
- Do you consider repaying a loan in a shorter time?
- Do you ever consider sub-contracting actions instead of buying your own harvester?

The art of MARKETING your maize

IT IS FAIR TO SAY THAT MANY MAIZE FARMERS HAVE HAD A NEAR PERFECT 2019/2020 SUMMER SEASON, AND MANY ARE STILL FACED WITH THE CHALLENGE OF MARKETING THEIR CROP FOR THE BEST POSSIBLE PRICES. IN TRUTH, MANY FARMERS WOULD ALREADY HAVE DONE A GOOD DEAL OF THE REQUIRED MARKETING THROUGHOUT THE GROWING SEASON AS THEY HAVE ASSESSED THE POTENTIAL OF THE CROP AND MONITORED PRICES ON THE FUTURES EXCHANGE.

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

HOW DOES ONE BEST POSITION ONE'S MAIZE CROP FOR MARKETING?

1. Begin at the beginning – focus on caring for the crop from the minute the seed is in the ground and make sure the maize crop is not compromised by having to compete with weeds. This is especially important in a wet season as the weed competition, as well as pests and plagues, occur far more easily than normal. Once weed infestations get out of hand, they can cost the farmer a lot of money in loss of crop potential.
2. If a farmer is marketing maize on the futures exchange, it's important not to wait right until harvest time to make marketing plans. This is when prices are traditionally at their lowest. A good rule of thumb once potential yield has been determined, is to market the crop in three batches i.e. **one third, one third and one third**. So, if the estimated crop is 3 t/ha then market 1 ton, 1 ton and 1 ton. It is possible to fix your first third even before planting – especially if coming from a year of high prices caused by e.g. drought and low stocks. (**Very important**: Your local agribusiness should have experts ready to give advice and actually assist with this process as they can fix prices on your behalf. The same facility is applicable to the marketing of a sunflower crop).
3. Generally, it is a good idea to fix the **next third** when the maize crop reaches the tasselling stage, and the **final third** can be fixed either at hard dough stage or during harvesting.
4. This marketing process does imply specific marketing costs for the farmers as by using an agent or broker, the farmer has effectively transferred the marketing and price volatility risk to the agent. They protect themselves in turn by hedging the tons fixed with them. The farmer then covers these hedging costs.
5. If trading grain on the futures markets the following costs apply (as at 10/02/2019): The initial margin cost on fixing 1 ton of grain for a future price costs R328/ton. A farmer has to fix a minimum of 100 tons at a time i.e. one contract = 100 tons maize. So, one contract will cost a farmer R328 000. There are many complex aspects to this way of marketing grain, commercial farmers need to talk to experts and make it their business to understand this environment, so they have the best opportunity to secure the best prices.
6. Alternatively, the cheapest way to market maize is to deliver grain to a buyer and be paid a spot price – this is effectively the cash price for that day – it applies at that moment and could be different by the following day. This will effectively eliminate marketing costs as well as storage costs. The only costs to the farmer will be whatever handling fees are incurred at the point of sale.

A farmer exchanging mealies for maize meal.

CONCLUSION

Every farmer has to decide for himself what he can afford in terms of marketing costs and price risk. The bottom line is **farmers must plan their marketing strategy**. It is important to know where, when and how the maize crop will be sold off. ■

Avoid **SCLEROTINIA** by managing tilling practices correctly

BESIDES DROUGHT, SCLEROTINIA IS CURRENTLY THE MAIN CAUSE OF LOW YIELDS IN CERTAIN SEASONS IN LARGE PARTS OF SOUTH AFRICA WHERE SOYBEANS ARE CULTIVATED. UNFORTUNATELY IT IS TRUE THAT IT IS REGARDED AS A 'GOOD PRODUCER DISEASE'. THE SOYBEANS OF GOOD PRODUCERS ARE USUALLY PLANTED UNDER OPTIMAL TILLING PRACTICES, WHICH RESULT IN LUSH PLANTS THAT CLOSE THE FOLIAGE QUICKLY, AND ARE BASED UPON MOISTURE CONSERVATION AND THE MAXIMUM USE OF PHOTOSYNTHESIS FOR GOOD YIELDS.

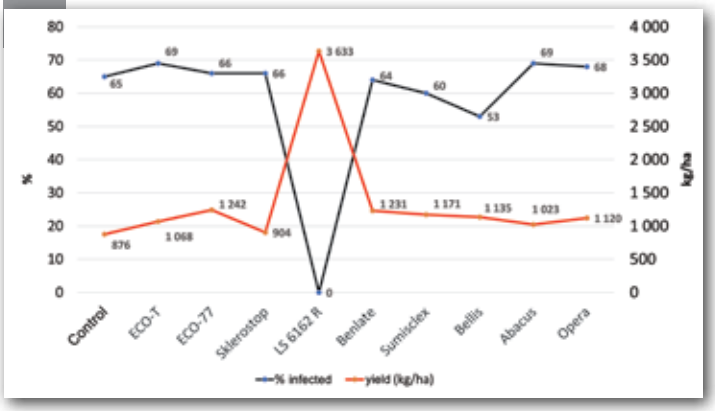
These so-called optimal growth conditions are, however, one of the main reasons why Sclerotinia occurs. The microclimate that forms under the foliage is ideal for the development of the disease, with subsequent infection and a lower yield.

During good seasons when enough rain falls, the disease is particularly prominent in soils where it was seen during previous seasons. It often catches producers off guard, since a potential harvest of more than 3 t/ha in February/March on dry land can quickly change to a yield of less than 1,5 t/ha.

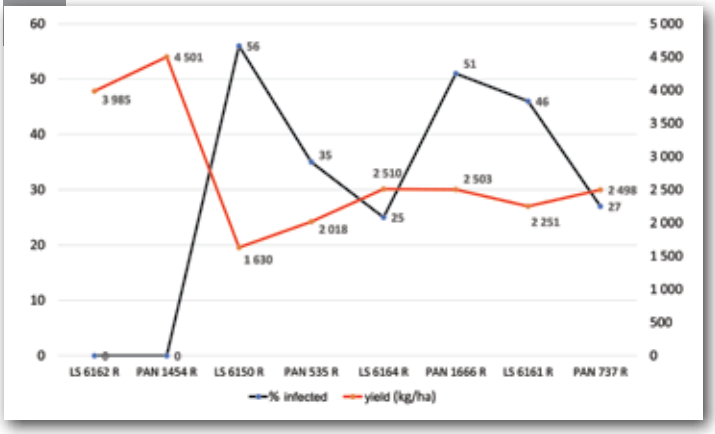
The incidence of Sclerotinia can be further linked to the fact that during good seasons there are times when rain falls daily, with cloudy weather lowering temperatures. This is conducive to the development of the disease.

By the time the symptoms of Sclerotinia are noticed in the field, it is already too late to do something about them. The disease has by then already spread inside the plant and it cannot be sprayed easily with fungicides.

1 ***The percentage of Sclerotinia infection and the yield of soybean trials at Kinross in 2008/2009.***



2 ***The percentage of Sclerotinia infection and yield of eight cultivars at Kinross in 2009/2010.***



Wessel van Wyk, agronomist specialising in soybeans and PRF contractor. First published in SA Graan/Grain April 2019. Send an email to zenzele@netactive.co.za

PROACTIVE CONTROL MEASURES

Certain chemical companies claim that their products can indeed reduce the spreading of the disease, but the fact remains that there is already enough infection to lower yields drastically. Proactive measures are essential in an attempt to control the disease.

A lot of the research about Sclerotinia has until now focused mostly on developing fungicides to control the disease, to breed cultivars that are resistant and to use tillage practices like lower plant populations, wider row widths, later planting dates and less susceptible cultivars. However, the problem with all these efforts is that the fungicides (regardless of how good they are) cannot be applied where the disease develops, because the dense foliage of soya causes the place of infection – usually on the first two nodes from the soil – to be unreachable with the spray.

With breeding for resistance it was found that multigenes were involved, which makes it very difficult to breed resistant cultivars. The tillage aspects suggested are in most cases not conducive to higher yields and therefore yield losses will occur in a season where the disease did not appear, due to the suboptimal tillage practices.

SUSCEPTIBILITY

These days a great deal of work is done to 'test' the susceptibility of current cultivars to Sclerotinia. However, even that is not of much value, since this research is conducted in greenhouses and cannot be compared to what happens under field conditions.

Some of the completed work shows that some cultivars are less susceptible than others. Researchers visiting many of these producers annually know that certain cultivars that, according to the so-called screening, are either very susceptible or, conversely, less susceptible, do not actually end up that way in the field. These observations are due to the fact that cultivars in greenhouses are infected artificially and the behaviour of the cultivar in the field is not taken into account.

Sclerotinia infection on soybeans (left) – with no infection on the fast grower (to the right of the black line).

Severe Sclerotinia infection in the field.

Symptoms of Sclerotinia on the stem of the plant.

The whole idea behind the avoidance of Sclerotinia is aimed at the growth stage of a specific cultivar when the conditions for the development of the disease are optimal. For ascospores to germinate and infect the plant, a 'wound' is required on the plant. This wound occurs where the flower petals are starting to dry where the pods form or where the flowers are abscised.

Dry flower petals serve as food for the spores to germinate, and if there are pods already and no flowers, it is highly unlikely that the plants will be infected.

MATURATION GROUP

Managing the planting date and the type of maturation group in which the cultivar falls is very important when trying to prevent Sclerotinia. Research has shown that where an MG-4.0 to MG-4.5 cultivar is planted under 'normal' planting dates from middle October to end November, it is already in the R5 stage (start of pod filling) and therefore there are no flowers on the plants when conditions become favourable for Sclerotinia infection.

The fact that an MG-4.0 cultivar flowers very early (35 days in moderate to warm areas and 40 to 45 days in cool areas) means that the plant is then still relatively small and that the foliage has not yet closed up completely. Therefore, conditions are not yet favourable for sclerotia to germinate and infect the plants.

Proper research was conducted at Kinross in Mpumalanga from 2008 to 2013, where various chemical products, biological products, planting dates and different cultivars were tested on a fast-growing MG-4.0 cultivar (in this case LS 6162, which later became LS 6444).

The results were astonishing (see **Graph 1** and **Graph 2**), and producers who previously had numerous problems with Sclerotinia planted earlier cultivars with great success to avoid the disease. The big problem was, and still is, that one cannot plant only one cultivar, because harvesting has to be extended for practical reasons. This is usually not possible with one cultivar – particularly when planting dates are continuous and the soybeans are then harvest ready all at the same time. The other problem was that it is simply impossible for a soybean cultivar with such a short growth cycle to compete

4a

A soyplant (long grower) in the R2 to R3 growth stage and therefore highly susceptible to Sclerotinia.

4b

A short-season grower at the same point in time, already in the R6 stage and not at all susceptible to Sclerotinia. The two photographs were taken on the same day.

5

This photo shows that the fast grower has already started to deteriorate without any Sclerotinia. The other longer grower can still be infected.

6

A cultivar trial conducted with Gerrit Roos near Wonderfontein last year. The only cultivar that did not get Sclerotinia was the one marked with the arrow. As one can see, all the other cultivars are basically black with Sclerotinia. The cultivar without the black spots is a short grower that avoided Sclerotinia.

with the yields of longer growers. In years where Sclerotinia was not a problem, longer growers produced better yields than short growers.

BIOLOGICAL SUBSTANCES

In 2008/2009 three biological products (Eco-77, Eco-T and Sklerostop) and five chemical products (Benlate, Sumislex, Bellis, Abacus and Opera) that were applied to a long-season cultivar, LS 6150, were compared to the short-season cultivar LS6162 (LS 6444). See the eventual percentage of infection and yield of the different treatments in Graph 1.

The products were all applied according to the indications on the label, and where certain substances had to be incorporated, this was done. The trial was planted on 19 November 2008 and the fast cultivar started flowering (R1 stage) on 29 December (41 days after planting).

On 22 January LS 6162 was in the R5 stage and LS 6150 was in the R2 stage and Sclerotinia infection started showing in places on these cultivars, regardless of all the chemical and biological products that had been applied. The first sprayings of these products were done on 15 January at the R1 stage and the second spraying took place four weeks later on 11 February. At this stage the infection was very severe in all the treatments except for the fast cultivar, where no Sclerotinia was found (**Photo 1** on page 17).

PLANTING DATES

Minor infection was spotted in the field of a producer not far from the trial that had also been planted with LS 6162 on 10 December, since the

THE PESTICIDE LABEL:
Your passport to success and safety

Dr Gerhard H Verdoorn, operations and stewardship manager, CropLife South Africa. First published in SA Graan/Grain April 2019. Send an email to gerhard@croplife.co.za

ALL PESTICIDES SOLD IN SOUTH AFRICA ARE SUBJECT TO THE FERTILIZERS, FARM FEEDS, AGRICULTURAL REMEDIES AND STOCK REMEDIES ACT, 1947 (ACT NO. 36 OF 1947), WHICH HAS STRICT REQUIREMENTS:

- Pesticides must be registered in terms of the Act.
- They must be in sturdy, approved containers that do not leak if the pesticide is poured out.
- The composition and physical properties must be as approved.
- The pesticide must have the desired effect, as indicated on the label.
- The pesticide must be provided with an approved label.

Pesticide labels must adhere to the same prescriptions as medicine packaging and must draw the attention of the user to the risks, positive properties and uses of the product. The label is the most important part of the pesticide – without it the product cannot be used effectively or safely.

COMPONENTS OF THE PESTICIDE LABEL

The label is subdivided into three parts, namely the main or sales panel, the warnings and preventive measures, and the instructions for use. Some labels are simple enough so that everything fits onto one page, while others look like a small brochure because of all the technical information on crops, applications, dosages, special instructions and mixability.

THE MAIN PANEL

This is the part of the label on which the eye focuses, because the details of the registration holder and the logo are usually displayed very prominently here. In terms of the regulations of Act No. 36 of 1947 the main panel must contain the following items:

Brand name of the pesticide and its trademark, or the trademark of the registration holder or distributor, for example 'Piet's Pesticide'.

General purpose of the pesticide, for example 'suspension concentrate insecticide for controlling aphids on vegetable crops as indicated'.

Active ingredient and **classification** (whether chemical or biological) with its concentration in the formulation, for example 'cypermethrin (pyrethroid) 200 grams per litre'.

Registration number of the pesticide and **reference to Act No. 36 of 1947**. The registration number of pesticides always start with a capital letter L, followed by four or five digits, for example 'L12485, Act No. 36 of 1947'.

Resistance grouping, referring to the relevant resistance committee, namely IRAC (for insects), FRAC (for fungi), and HRAC (for weeds), for example 'IRAC 2A'. This is for the user's forward planning so that pesticides from the same resistance group are not repeatedly used consecutively and resistance then develops against them. A description of the resistance groups is available on free smartphone apps.

Particulars of the registration holder must always be given, regardless of whether the company markets the product itself or whether it is marketed by another company, for example 'Piet Poggenpoel **cc**, 45 Marquard Street, Kamieskroon 8015, registration number 2019/210010/40, telephone number 028 333 4444'.

Distributor details may be required if another company has the right to distribute the pesticide, for example 'Distributed by Sarel Tuin, Private Bag X001, Port Nolloth 8045, telephone number 028 333 5555".

Batch number, date of manufacture and/or expiry date. Most registration holders place these details on the container itself, because labels are printed in bulk and batch numbers and dates of manufacture may differ, for example 'Batch number 2.02/02/2019, date of manufacture Jan 2012'. The batch number and date of manufacture may not be the same. Act No. 36 of 1947 prescribes that pesticides have a shelf life of two years after the date of manufacture, unless it is shorter or longer than two years, and then a date of manufacture must also be indicated.

Emergency number is for emergencies like poisonings and spillages, for example 'In case of emergency, contact Griffon Poison Information Centre 082 446 8946 (24 hours)'.

Client service number is the helpline for technical enquiries, for example 'Client enquiries 028 333 4455'.

UN number is the hazard classification according to the United Nations' guidelines that determine how the pesticide must be packaged and how much of it may be transported in terms of the rules on the transport of hazardous substances, for example 'UN number 3077'.

The colour band and pictograms are the warning part of the main panel (**Figure 1**). Colours are allocated to pesticides on the basis of their acute toxicity.

A red band (Group IA and IB) means extremely toxic and toxic, a yellow band (Group II) means harmful, a blue band (Group III) means handle carefully, and a green band (Group IV) means no danger if the substance is used as prescribed.

Pictograms are read and interpreted as follows: Read from the middle to the left for mixing warnings, namely the use of breathing apparatus, a face mask, rubber gloves and rubber boots. The left-hand image indicates that the mixed pesticide must be kept under lock and key, out of the reach of children. Read from the middle to the right

1 *The skull and crossbones are always indicated on red bands (Groups IA and IB), while an ordinary cross is indicated on yellow bands.*

for application warnings, namely the use of breathing apparatus, a face mask, rubber gloves and rubber boots. Hands must be washed after application.

Other warning pictograms include 'hazardous to water and water organisms', 'hazardous to livestock and poultry', 'hazardous to birds and game', and 'no aerial application'. The number of pictograms that are printed will depend on the danger classification of the pesticide – there are more pictograms for extremely toxic and toxic pesticides and fewer pictograms for the other hazard groups.

THE SIDE PANELS

The side panels of pesticides are the difficult portions to read, because that is where all the technical information on the substances is provided. Failing to read this information could have fatal consequences, as warnings, preventive measures and instructions for use are the core of effective and safe use of the pesticide.

WARNINGS AND PREVENTIVE MEASURES

These are the standard items that point out the risks of using the product pose to the user and some of them will be on all pesticide labels. 'Keep out of reach of children and pets', 'poisonous when ingested', and 'poisonous to animals and birds' are general, standard warnings that will appear on all labels. Some warnings and preventive measures may be very important to producers:

Abstention period

The abstention period (also known as the preharvest interval) is the waiting period after the last application before the crop can be harvested or may be used as animal feed. This is an essential period to allow the active ingredient to metabolise to acceptable levels.

Special crop-oriented warnings

This is a warning that the pesticide may not be used on certain cultivars, for example, because of possible crop damage.

Special warnings

Special warnings about weather conditions, soil moisture conditions and the prevention of drifting. Indications are given regarding the maximum wind speed at which pesticides may be applied, as well as the problems that may be experienced with high temperatures and inversions.

Special measures to prevent poisoning of bees

This refers to avoiding the application of pesticide when bees pollinate the crop or when bees are present in the crop. It also often indicates that the pesticide may only be sprayed until just after bud forming.

Special reference to aerial application

Aerial application may be done only with pesticides that have been registered for this purpose. If this is the case, detailed reference is made to the requirements of the South African National Standard for the aerial application of pesticides (SANS 10118).

Special instructions in the event of poisoning

These are instructions for stabilising persons who have ingested the pesticide and instructions to medical staff with respect to the treatment of patients.

Mixability

Pesticides may sometimes be mixed with other pesticides or adjuvants in order to improve effectiveness. If this is the case, it will be indicated as such on the label.

Preparation of spray mixtures

Here are specific instructions on water quality like hardness and pH, as well as on how to adjust this with buffer and softening agents. It will also give indications of the mixing sequence, because if the pesticide mixture is prepared incorrectly, a lot of foam can develop in the tank, or the concoctions can be incompatible.

Most people ignore these two important aspects of the label and this can cause producers a lot of problems. An example here is if the abstention period is not maintained and exporters discover unacceptable residue in the crop. That crop then has to be more or less written off because it may not be sold. Bees often die in large numbers because the precautions for bees are not complied with. The warnings and precautions are like an insurance policy against hazards and risks: Read them and adhere to them.

INSTRUCTIONS FOR USE

Information on application contained in the instructions for use was developed at great expense and with a lot of effort by the registration holder to ensure that the pesticide will have the desired effect if it is applied correctly. Several core items appear in this section:

The pest, plant disease or weed that can be controlled with the pesticide

The species are often indicated by their ordinary names as well as their scientific names. An indoxacarb label will, for example, list the maize stalk borer, the African bollworm, the African army worm and the fall armyworm as target species. The reason for this is that each pest species must be exposed to the pesticide in field trials to prove that it is effective. A worm is not just a worm: It has a specific name

and biology that might be obstinate enough to resist the pesticide and then it would not be listed as a target species.

The crop for which the pesticides are registered

Pesticides are tested on specific crops for effectiveness against the target organisms, but also to determine whether they are compatible with the crops. Another very important test is to determine what the abstention period must be to ensure that the residue levels are within the maximum residue limit, as determined by the Department of Health. Pesticides should never be used for crops that are not indicated on the label. Also look carefully at the cultivars: Sweetcorn is often excluded from the use of certain pesticides because it differs completely from ordinary maize.

The dosage of the pesticide to be applied

A major mistake that producers often make is to ignore the dosage instructions. This can lead to poor results, crop damage or the development of resistance. Sometimes dosage is a problem – particularly if an inexperienced person is confronted by an instruction that indicates that a certain number of litres must be applied per hectare, and he wants to apply it in a small spot with a backpack sprayer. It would be best to contact the registration holder to find out how much of the pesticide must be mixed per litre of water.

Accurate dosage is naturally an inseparable part of the calibration of spraying equipment, but that requires a separate article. Carefully check the indications for dosage on the basis of clay content for pre-emergence herbicides and some post-emergence herbicides that are applied to the soil. Clay has a major impact on the herbicide molecules that are made available. The more clay in the soil, the less herbicide is available and the more the dosage must be adjusted upwards.

Application technology

Application methods and technology are also indicated on the instructions for use. For example, it is important for a pesticide to be used only for aerial spraying on a crop if this indicated in the instructions for use. This will also refer back to the section where the SANS 10118 is discussed.

Compulsory additives

Some pesticides as registered for application in combination with others in order to be effective. There are often indications for adding adjuvants like wetting agents and spreaders. If the label indicates this, follow the instructions.

CONCLUSION

The label is almost the most important part of the pesticide – without it the product cannot be used effectively or safely. CropLife South Africa strongly recommends that producers think carefully about labels, because failure to read them has the same effect as planting poor seed or deliberately poisoning the environment. Read and learn. Virtually all labels on all pesticides are available on Agri-Intel's website at *www.agri-intel.com*. ■

Avoid sclerotinia by managing...

soy plants were at the R1 to R2 stage. The fact that infection was not so drastic can be attributed to the foliage not yet being closed completely and therefore the micro climate was not so conducive to the development of the disease. The producer eventually harvested 2,2 t/ha here.

In the field across from the trial field, the producer planted the same cultivar on 21 December after he had harvested wheat there, and again, no Sclerotinia was observed here. The producer eventually harvested 2,8 t/ha here.

These observations are of immense value, because they just proved again that no cultivar is immune to Sclerotinia, but that with planting date and a fast cultivar, you can avoid the disease. The fact that the soybeans planted late also did not get Sclerotinia, is because the plants were much smaller and the conditions for the disease were never optimal for it to develop.

In one season it was proven that both the fast cultivar and the planting date play an enormous role in the avoidance of Sclerotinia.

In the 2009/2010 season different cultivars, varying from MG-4.0 to MG-7, were planted on 22 October and compared to each other (see the eventual percentage of infection and yield of the different treatments in **Graph 2** on page 16). All the treatments (except the MG-4.0 treatments) got Sclerotinia – in some cases as much as 53% was infected and a 1,55 t/ha yield was achieved.

RESEARCH

Research was continued with new products in the subsequent three seasons, and in two of these seasons there was no Sclerotinia due to the drought conditions. The product Contans was also tested for the first time in South Africa. Unfortunately the research was stopped in 2013 and the fungi could not 'multiply' in only one season to have an effect on the sclerotia of Sclerotinia.

When discussing the control of Sclerotinia, Contans will be the route to follow, since it destroys the sclerotia. The larger the population of Contans fungi, the more effective it will be in controlling the disease.

New research was resumed in 2018 after producers had suffered severe damage in the 2017/2018 season. In cultivar trials planted with certain producers it was only the MG-4.0 cultivars that produced good yields. In fact, the infection was so bad that certain cultivars produced less than 250 kg/ha.

New MG-4.0 cultivars with unbelievable yield potential are currently available. If producers were able to make use of consecutive plantings, but with a couple of weeks left open between planting dates, maybe one can get away with planting only these types of cultivars without hampering the harvest.

However, the later planting will first need to be tested to see if the yield does not drop so much that it is not worthwhile. It will also need to be established whether these types of cultivars, which will then flower in February/March, can still avoid the Sclerotinia. ■

Pannar rolls out
NEW WHITE MAIZE HYBRIDS

WHEN GROWING MAIZE, OR ANY CROP IN FACT, THE GOAL IS TO MAXIMISE RETURN ON INVESTMENT (INPUTS). IT IS IMPORTANT TO CONSTANTLY REVIEW THE BASIC PRINCIPLES OF MAIZE PRODUCTION TO TRY TO FIND EFFICIENCIES YOU MAY BE OVERLOOKING.

Christin Hunter, Marketing Communications Manager, Pannar Seed. For more information, send an email to christin.hunter@pannar.co.za

Planting new higher yielding products can be a highly effective way of farming more efficiently and increasing your return on investment. At Pannar, we are proud to help farmers feed South Africa daily. We are committed to the continued success of our customers. As a multi-crop specialist, Pannar offers a broad crop portfolio characterised by good yield potential, adaptability and stability which minimises the risk in crop production. Coupled with our local expertise, we offer sound advice to farmers based on their unique needs.

In this article we highlight our new white maize hybrid releases for 2020. Pannar offers a range of maize hybrids with different maturities, disease tolerance profiles and traits. Depending on your requirements, you can choose between normal conventional hybrids or hybrids with genetically modified traits e.g. hybrids with stalk borer resistance, glyphosate herbicide tolerance or staked gene hybrids giving you both stalk borer protection and glyphosate tolerance. Glyphosate tolerance gives you the advantage and flexibility to control weeds effectively before and after emergence – giving your crop a good chance to establish and achieve its full potential. Speak to your local Pannar sales representative to discuss the best hybrid package for your region and needs.

NEW WHITE MAIZE HYBRIDS

The Pannar white hybrid package is characterised by good performance, adaptability and stability for good risk management. The white package offers exciting new top hybrids for the coming season. In the ultra early growth class, PAN 3R-573R is a new addition for the high-potential eastern production region as well as for growing under irrigation. In the medium early range PAN 5R-891BR (containing the second-generation stalk borer protection trait (MON89034)) and PAN 6R-779BR are two new exciting white hybrids.

PAN 3R-573R with glyphosate tolerance exhibits a typical ultra early plant type and characteristics with an upright growth habit, upright leaf and good standability. PAN 3R-573R tends to be prolific and produces a high ratio of grain to stover. It is well adapted to high plant populations with good general disease tolerance and good grain quality. A good choice for irrigation and recommended under dryland for the higher rainfall eastern regions with a high yield potential. In areas where high levels of NCLB are encountered, the YieldBoost® fungicide spray programme is recommended to curb the disease and protect the yield potential.

PAN 5R-891BR and **PAN 5B-491B** are medium early hybrids with the advantage of second-generation stalk borer protection. PAN 5R-891BR includes the added benefit of glyphosate tolerance. Both hybrids are highly prolific, widely adapted and maintain very good stable performance at different yield potential levels. They are recommended as the main white maize planting especially for the dryer production regions. PAN 5R-891BR and PAN 5B-491B deliver very good performance on high potential sandy soils in the western production areas with a clay content of <10% in the topsoil. PAN 5B-491B is the top performer in the ARC trials on the water table soils of the western Free State for the 2018/2019 season. This platform demonstrates strong seedling vigour that is advantageous to establish a good plant population.

PAN 6R-779BR fits into the medium growth class and has very good yield stability. It is a good choice for the high potential soils. PAN 6R-779BR tends to produce a single flex-ear, that can compensate for optimum production conditions. With its upright leaves, it is recommended at a plant population 10% to 20% higher than is normally planted in the area. This hybrid has excellent standability and exhibits good tolerance to Northern Corn Leaf Blight.

Pannar's range of various crops and broad selection of cultivars within each crop enable our sales and agronomy teams to recommend exactly the right product to meet farmer's unique needs across almost all planting date and production area combinations. When these exceptional products are paired with our expertise in local production conditions and exceptional agronomic support, Pannar's farmers are well poised for success. ■

PAN 3R-573R

PAN 5R-891BR

The Corner Post

TIMON FILTER

Cooperation is the key to success

CLARENCE DAY, AN AMERICAN AUTHOR AND CARTOONIST, SAID THAT ANTS ARE GOOD CITIZENS AS THEY PLACE GROUP INTERESTS FIRST. THESE TINY CREATURES WORK TOGETHER AND PROVE THAT TEAMWORK IS REALLY AT THE HEART OF GREAT ACHIEVEMENT. TO TIMON FILTER FROM PIET RETIEF, COOPERATION AND TEAMWORK IS WHAT MAKES THE DIFFERENCE BETWEEN SURVIVING AND THRIVING.

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

FEEDING BODY AND SPIRIT

Timon was raised in a farming community and although his family was involved in the timber industry, he knows and loves agriculture as he had a lot to do with farming through missionary work.

He was approached by Jurie Mentz, provincial co-ordinator at Grain SA, in 2017 and invited to become part of the mentorship programme as an opportunity had arisen in that area. 'When Jurie asked me to mentor two study groups I was unsure if I was qualified, but as soon as I heard what Grain SA's vision was with the mentorship programme – to empower emerging farmers to sustainable self-supporting commercial production – I was on board.'

This vision was in line with Timon's calling – his ancestors relocated from Germany to bring the gospel to the Zulu nation. He knew that trying to feed people spiritually when they had a physical hunger would not be effective. 'We had to find a way to feed people physically and spiritually.' It was important to help find a way to eat from the land on which they were living. 'We discovered that maize gardens were the way to go.' Becoming part of this programme helped develop his passion.

He and his wife, Margi, have now embarked on the quest of self-sufficiency. They currently reside on a small plot about 30 ha outside of Piet Retief where they provide for their daily needs with food created by their own land and animals. 'We decided to practise what we preach – you can't tell people to live off the land and then buy what you need!'

WORKING TOGETHER TOWARDS SUCCESS

Initially Timon worked with 165 farmers divided in to two study groups in the Piet Retief/Pongola region. In his second season as mentor, the groups were divided into four, but due to a lack of finance only 86 of the farmers could continue. 'Those that continued realised that with this programme they had to take responsibility for their own piece of land otherwise there would be no harvest'.

To Timon the most important quality a mentor needs apart from knowledge and passion for agriculture, is a passion for people. 'If you do not love the people, you won't succeed, and you will not care whether or not they succeed.' He mentions that one of the biggest challenges in this area is the conflict amongst the people which can easily make you despondent. 'If you are passionate about agriculture and the people, you will learn to look past this and focus on the goal.'

There is an old Swahili proverb that says: 'A boat doesn't go forward if everyone is rowing their own way.' Timon realised that for the programme (and the farmers) to succeed he would have to figure out a way to make them 'row together'. He tried to explain to them that if they work together they could share costs. 'I tried to get the groups to see that if the cooperated they could buy equipment together to share and become more independent. When you farm on such a small scale you cannot buy your own tractor and implements.'

In the second season he already saw a vast improvement in the cooperation amongst the study group members. He is therefore really sad that the Jobs Fund funding had not been granted for the new season as great strides have already been made in improving cooperation and agricultural skills. There were 129 farmers who were ready to enroll.

He thoroughly enjoyed the personal visits to see first-hand how the harvest is growing. When there were problems or disaster struck he tried to encourage them, but was usually the one inspired. 'A farmer needs faith otherwise he will not even put the seed in the ground, but it was amazing to see their resilience and how easily they bounce back from adversity, believing the next season will be better.'

One of his highlights was being accompanied to a hut filled with maize where previously only a few bags had been harvested. 'I won't easily forget their enthusiasm about the fact that they not only had enough to eat for a whole year but could also sell some of it to have money for the next season's fee.'

A PACKAGE DEAL

Timon's involvement in the programme was however not limited to mentoring as he was also employed as a trainer and has already presented eight different courses.

As a trainer he has to make sure that subsistence farmers realise their potential through the development of their knowledge and skills. 'The dream is to get them to develop from smallholder farmers into commercial farmers.' In training the basics of maize production is covered – the A to Z of how maize grows. and what the best conditions for growth are. 'It is important that they know how the plant grows and that it needs food and water for optimal growth.' Aspects like the importance of soil profiles and the nutritional value of the soil is also covered.

'Through the course, farming for profit, farmers should realise that planting maize should not just be for survival. Even if they farm on 1 ha, it is still a business.' Some of the other important courses look at dry beans, administration and mechanisation – tractor and farm implement maintenance.

Timon will now focus on the training part of Grain SA's Farmer Development Programme to ensure that skills and knowledge continue to develop. He hopes that the younger generation will become more interested in agriculture to ensure that this industry thrives. ■

INSPIRED BY NATURE, DRIVEN BY SCIENCE

WHITE MAIZE HYBRIDS OFFERING TOP-END YIELD POTENTIAL

Pannar's white maize package is widely adapted, showing stable top-end yield potential across various environments and seasons. The solid performance of our white hybrids will go a long way towards reducing variability in production and profitability, while the expert advice provided by our sales and agronomy teams will ensure you reap the maximum return on every bag.

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