

PULA INVULA

>> GROWING FOOD >> GROWING PEOPLE >> GROWING PROSPERITY >>



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NKGONO JANE SAYS...



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This past summer crop production season has been a very difficult and trying time for all farmers. There are some small areas in Mpumalanga, who have been blessed with good rains, but for the rest, it has been an unusually dry period and the rains have been patchy. It rains on some and it does not rain on others.

We have spoken to a number of older farmers during this period and they have the same message – continue to do the right thing. By that they mean that we should not panic and make silly decisions. When you are desperate, you take risks and this is dangerous. The planting dates in areas are determined over years and when you move outside of those dates you are running a high risk of losing the value of the inputs and the cost of the op-

erations. Rather wait and do not plant rather than plant a crop out of season. We have been aware of contractors (particularly in the North West) who are planting sunflowers into dry land during February. Firstly, we do not ever plant into dry land, and we cannot afford to plant when the season has already passed. These contractors are being paid with grants from the government – this irresponsible use of state funds should be construed as ‘fruitless expenditure’ and the perpetrators should be taken to task. Just because it is government money does not mean that we can waste it.

As far as the livestock are concerned, it looks as if this is going to be a difficult winter. When the rains come very late, as they have done this year, the grass tries to make seed (to ensure its future survival) and it does not make

good leaf. Although in many areas, the veld is looking green, there will not be the normal tonnage of dry material. Due to the poor crops, it is likely that the stover on the lands will not be plentiful either. We would like to suggest to you to take a very long and hard look at your livestock and sell off as many as you can – old animals, weak animals, unproductive animals. Just keep a few productive animals that you will be able to afford to feed until the next summer season. Remember also that the veld is not going to recover fast in the spring and so you might have to feed into October (we certainly hope not).

I pray that the rains will come soon and that the frost will be late. In the meantime, keep positive and continue to make rational decisions. Be Blessed. 🌧️

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A message of hope in a dry season



Farmers and farm workers at the Prayer Day for Rain at NAMPO Park on 27 November 2015.

Drought affects our lives in many different ways because water is such an important part of so many of our activities. We need water to live, and animals and plants do too! We need water to grow the food we eat and we need it for drinking, cooking, and washing and to make electricity... and so it goes on like a game of dominoes where one thing affects the next thing all the way down a long line – right down into the farmers bank account and his heart!

The farmer – looking out at his lands worries about his family, his workers and his business commitments

By now most of us know how the country has been brought to its knees in the face of one of the worst droughts and cruellest heat waves in living memory! What a time of trial and testing this has been for all farmers in southern Africa. Having experienced two years of terrible conditions, some farmers are fortunate enough to have had some rain in time to save some crops; for others unfortunately, the rains came too late to save anything! Some will not have planted – and it will be very hard for those with nothing, to survive financially without some form of help. And yet...

Life goes on! And we must too! We need to survive both as businesses and as individuals with families and employees to care for. We have to do our very best to survive and to make plans for the new season – we can't give up. The truth is we need to produce food for the population of our country and we need to survive so we can answer the deep calling to be custodians of the earth, to farm – mostly because we love to farm and don't want to do anything else! Drought has come in the past but it has always been broken in the end – we need to make sure it doesn't break us first!

Coping with the events of this past season has been like riding a roller coaster with emotions; up with hope, then down with worry – then into the depths of despair! Never before have our inputs and financial pressures been at greater risk because of drought two straight years in a row.

There is of course one beacon of hope this season: For those who have planted something and can nurture their crops to harvest time successfully, the excellent prices will make up quite considerably for the loss in



yields! Our breakeven this year could be about 1,5 t/ha of maize whereas in the past for example with last year's prices it was 2,5 t/ha.

When the season does draw to a close and we can assess more accurately what our harvests will look like, if there is something, it will be important to try to make one's sums as early as possible to establish what our incomes will look like and what the shortfall could be. Communicate with input providers in good time to keep them up to date and informed about your unique set of circumstances.

Remember there are many farmers in the same boat as you are and the service providers know and understand the agricultural environment. It is in their best interests to keep farmers' businesses going as long as there is reasonable hope for recovering a viable business operation.

Banks and agricultural co-operatives are not farmers and they also do not want to farm – they will not be eager to displace any farmer except under extreme circumstances where

they have lost confidence in the farmer's ability to manage his way through the tough times or where it is clear to them that there is no hope for recovery.

If they can see that you as a farmer are making plans, keeping records, living frugally and are prepared to risk what you have back into the farming, then they are more likely to view your situation positively. Communication is the key to everything. Discuss your position, talk to experts and get their advice for the road ahead and most important too – keep lobbying the politicians and your farmer organisations and representatives to get politicians and decision makers informed about how drought aid can change everything for your business – and for food security in the country!

The farmer – the man in the mirror

Take a good look at yourself. Decide how you are going to respond to external conditions with your own reserve of internal strength and faith. Try not to sit still too long and do

“*There are only three things that can kill a farmer: Lightning, rolling over in a tractor and old age.*”

nothing. Try not to dwell on the negatives too long. Things are what they are! There is nothing we can do to change the heat wave or to stop the drought – we cannot make the rains fall or cause the grass to grow...Spend time in prayer and meditation every day to find that inner calm and strength. Focus on what you do have and on what you can do.

Are you still healthy and strong with a brain that can still make plans? Have you still got some surviving cattle that you can fatten up? Will you still manage to harvest something? It will be worth far more than in a normal year? Do things that require labour and not money. Keep busy and do things you don't normally get around to doing. Tidy up the sheds and the farm yard. Check through all your implements; give them a coat of paint. This can be amazingly therapeutic for one's soul!

Consider doing things around your home, repairs and maintenance that your wife has been nagging you to do. Happiness in the household helps and will make her feel more inclined to support you through the hard times. Think about small ways to make some money which will help the cash flow situation – even if it is mainly to keep your hands busy and your mind occupied – and of course every few cents help!

The bottom line: Don't be too proud to work hard physically and to tell partners about your circumstances. Do whatever it takes to heal your business and feed your families. The energy you use will already make you feel focussed on your long term goal and fill you with real and passion to fight in a battle for survival.

The famous author Bill Bryson wrote: '*There are only three things that can kill a farmer: Lightning, rolling over in a tractor and old age*'. What about you? Will you fight for what you have and will you do everything possible to save your farm – or will despair and apathy win the battle? Are you going to stay indoors with the curtains closed or will you be found in your fields chasing the goats and crows, protecting every last grain of corn until harvest time like Mr Khumalo and Mr Ndhlovu near Ntabamhlope are this year? May your efforts be fruitful! 🌧️

Article submitted by Jenny Mathews, Pula Imvula contributor. For more information, send an email to jenjonmat@gmail.com.



Most common nutrient deficiency symptoms in maize



Maize showing signs of magnesium deficiency.

By improving our understanding of the maize plant, its nutrient requirements and uptake, we have a better chance of getting the greatest benefit from our fertilisation programmes.

Each different nutrient has an important effect on crop nutrition and it is important to find a correct balance between macronutrients and micronutrients for maize crops. Nutrients in the soil are taken up by the roots of the plant af-

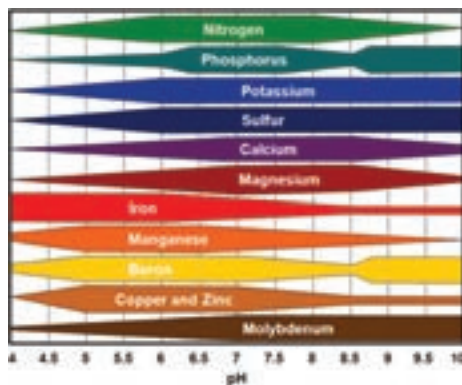
ter which they are translocated within the plant reaching the stems and leaves. Decreased water availability in the soil reduces the movement of the nutrients and when this is the case, plant growth is hampered.

Nitrogen (N)

Plants suffering from a deficiency of nitrogen tend to show stunted or sparse growth. The leaves turn a pale green. The oldest leaves show yellow discolouration and necrosis (the

dying of cell tissue) starting at the tip of the leaf. Low or high pH soils make the problem worse as do sandy and light soils because leaching takes place with the nutrients draining away through the soil too easily. This can be caused either by heavy irrigation practices or high rainfall.

Nitrogen is critically important for lush green growth of the maize plant and contributes towards significantly increased yields and better grain quality. A maize plant requires both nitrogen and phosphorous soon after germina-



Managing the soil pH.

tion to stimulate the growth of stems, leaves and ear structures. The majority of nitrogen is however needed during the period of maximum growth which is the month prior to tasselling and silking.

Phosphorous (P)

Young plants suffering from a deficiency in phosphorous are stunted and thin with dark green leaves. Leaf margins, veins and stems show tinges of purple which may even spread across the whole blade of the leaf. This reddish discolouration is usually visible mainly in the juvenile stage of the plant's life.

Acidic and very alkaline soils worsen the plants as do cold and wet conditions. Crops with poorly developed root systems struggle without enough phosphorous so it is very important to get the levels right to ensure good early plant development which will contribute towards even maturing and reduced grain losses at harvest.

Potassium (K)

The cobs of plants which have been deficient in potassium are noticeably narrowed or peaks and the grain on the tips of the cobs will have been poorly filled. The problem is worsened by acidic soils and sandy and light soils which leach very easily and quickly. Drought conditions and high rainfall or heavy irrigation are equally problematic when the balances of potassium are not correct. Potassium is important for healthy green foliage and ensures optimal root growth thus contributing towards increased yields.

Magnesium (Mg)

Symptoms of magnesium shortage in the maize plant are seen in the leaves which show up red and purple tints and have a streaky appearance. This often occurs after extended periods of cold and wet and in soils which are too acidic or sandy. Magnesium contributes towards healthy plant development early in the season and improves yield. It can also help with the maturation process of the plant and thus bring forward the date of harvest.

Calcium (Ca)

Calcium shortages become evident early on in the growing season and are seen on young leaves which exhibit a light green colour or even whitish spots or streaky lesions and can even be hooked back. Calcium is important for healthy foliage and contributes to improved quality of grain and increased yields.

Sulphur (S)

The maize plant will seem stunted with quite a straight up, erect appearance when sulphur

“Apply the correct fertilisers according to the recommendations ensuring that the proper application rates, methods and timing of application are used.”

is in short supply. This is made worse in acidic soils as well as light, sandy soils where leaching is a problem. It is also exacerbated by soils with low levels of organic matter or if the soils are poorly aerated or waterlogged. S contributes to green foliage and healthy growth of the maize plant and contributes to an effective uptake of nitrogen by the crop.

Boron (B)

Plants short of B present with stunted growth and either yellow or white spots develop on leaves with brown waxy raised streaks as the effects of the deficiency develop. It is worse in sandy and alkaline soils and also soils low in organic matter. This will also happen when there are too high levels of nitrogen or calcium. Periods of drought also worsen the problem. B is particularly important for cob and kernel development.

Zinc (Zn)

Zinc deficiencies are seen in the leaves of the maize plant which has pale yellow zones which start at the base of the leaves and run up the sides of the midrib while the leaf margin, tip and the midrib stay green. There may be a hint of red at leaf margins and on the stems of the plant. These symptoms generally show on older leaves, internode growth is reduced and gives the plant a stunted or dwarfed appearance. Zinc is important for good plant development early in the season and helps improve yields as well as speeds up the maturation of the plant to bring the harvest date forward.

Clearly, micro-nutrients play a very important role in the life cycle of a maize plant so for every farmer to be able to achieve top potential yields, it is important to take regular soil samples for analysis. On the basis of the information returned, apply the correct fertilisers according to the recommendations ensuring that the proper application rates, methods and timing of application are used.



Maize showing signs of potassium deficiency.

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A good reputation is more valuable than money



You must know what is in your business plan and understand it fully – understand how the figures work and what the potential is.

Effective management of a farming operation today requires that records be kept so that managers can make informed decisions about the profitability of their farms. Even more significant these days is that most farmers require loans in one form or another to operate their businesses.

Most lending institutions require a detailed business plan and personal information on everything the farmer owns, as well as the status of any of their long term and unpaid loans. They will probably also require a history in the form of production track records as well as future scenarios including farm production,

marketing and sales predictions. This can all seem very overwhelming to the beginner farmer but in fact A LITTLE know-how and A LOT of discipline is what is required and then it is just about taking one step at a time as one learns to negotiate and build relationships with the significant role-players in your farming environment!

Always remember that any reputation – be it a good one or a bad one – is created by continuously and consistently doing things in a certain way. Good things give you a good reputation; bad things give you a bad reputation and unfortunately it is very true what Benjamin Franklin once said, '*It takes many good*

deeds to build a good reputation, and only one bad one to lose it!' More recently Warren Buffet said, '*It takes 20 years to build a reputation and five minutes to ruin it!*'

When we go to any bank or other credit provider to try to obtain credit, they will look at your reputation in the form of your track record and history. If you have been farming for ten years, you must have some form of history which describes your ten years' experience and presents a picture of your business. If you are starting out as a beginner farmer, you must be very aware that you are indeed starting out on a journey that means you are starting to build a reputation. John Rockefeller said: '*The*



most important thing for a young man is to establish a credit...a reputation...a character'.

Every business which we farmers interact with on this journey has the potential to help build (or break down) our reputation, depending on the way we conduct ourselves in doing business. Are we honest? Do we do what we say we are going to do? Do we pay when we say we are going to pay? If they help us, do we honour that trust and give them reason to want to help us again at another future time?

Normally the first pre-requisite for borrowing money is having some form of security. The amount and type of security varies and depends on the amount of money to be borrowed. These days access to land can be sufficient but it is not always necessary to own land to qualify for a loan. More and more institutions are prepared to look at the credit history and reputation of the 'business operator' or farmer – this is just as important as the physical assets he owns. If one has a good credit history and is seen to be a low risk candidate, you have a much better chance of accessing credit than someone who owns land but has a reputation as someone who can't plan, budget or work well with money – or who is not reliable about repaying debts.

When trying to access credit without any form of credit history, the first impression you create is very important. You need to impress upon the credit provider that you have planned well and know what you are talking about.

This means KNOW your business. Do a full SWOT ANALYSIS of all the strengths (S), weaknesses (W), opportunities (O) and threats (T) in your business environment. Don't even think of going to ask for credit without a sound business

proposal or plan. You must know what is in your business plan and understand it fully – understand how the figures work and what the potential is. Don't make the all too common mistake of asking someone else to write your business plan up for you without being sure that what they say is accurate and feasible.

A business plan is not only for winning the confidence of a financier but is also a tool for yourself in defining a framework of your business and setting goals and benchmarks. A business plan is also never cast in stone – it evolves over time as you manage it and respond to the business environment.

Another important tool in your 'tool box' is a collection of useful references and testimonials. These are useful for any CV but too often people make the mistake of saving a testimonial from their school days and think that's all that is required. Testimonials, references and certificates from short courses should be collected wherever you have the opportunity of working with someone or learning from them. A CV is a 'living document' – it too is not 'cast in stone' and should be changing every year, with every new work or learning experience. (Teach your children this too!)

As a businessman seeking credit facilities and loans, you need references from other people or companies where you have already conducted satisfactory business; a mentor who will give you a good character reference and a reference from another respected member of the community.

It is also important that you represent yourself as a professional. Be seen to be organised and efficient. Show that you have not only prepared well but are enthusiastic and believe in yourself. Remember you have to convince them that you are a good 'bet', i.e. someone who is likely to make a success of the business.

You must also plan to maintain a presence wherever you find success and are financed. Be a good communicator and keep yourself at

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You must know what is in your business plan and understand it fully – understand how the figures work and what the potential is.

the forefront of their minds – even when you are dealing with an institution, find individuals there with whom you can communicate well and build a warm relationship.

Do not suddenly fall silent if conditions turn out poorly and you have challenges and disappointments. Stay in communication throughout the bad times, seek expert advice, discuss contingency plans, keep updating them on developments, be they good or bad. If conditions are beyond your control, for example, the result of the droughts some farmers have experienced in recent times, they are often more understanding than you would expect because they too are keeping their finger on the pulse of the agriculture environment and outlook and will often be willing to help and accommodate the farmer. BUT...if you go quiet and seemingly disappear, they will automatically become suspicious and wonder what's happening!

Reputation counts BUT **'You can't only build a reputation on what you are going to do!'** (Henry Ford). Just remember that at all times and in all your dealings you should be keeping detailed records and building healthy relationships. The track record and the potential are the two things which count most when you are applying for financing! 🍷

Article submitted by Jenny Mathews, Pula Imvula contributor. For more information, send an email to jenjonmat@gmail.com.

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The track record and the potential are the two things which count most when you are applying for financing!

Pula Imvula's Quote of the Month

'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.'

~ Hellen Keller

Scout and control weeds before and after planting

Weeds compete with plants for moisture, light and nutrients during the fallow or interim period between crops and during the growing season. Weeds also serve as alternative hosts for various insects and disease pests. It is important to learn which weeds will grow rapidly and greatly impact the potential planned crop yield.

To be able to assess the impact that weeds can have in crops the farmer must have a detailed assessment of the types of weeds present

in a particular cropping system. This can be achieved by implementing an integrated pest and weed control programme. Scouting is defined as a process of exploring to gain information. In this instance the information gained concerning the specific weed problems on your farm will enable a relevant weed control programme to be developed and implemented.

Scouting for weeds

It is highly recommended that farmers and agents or consultants buy a copy of *Common*

Weeds of Crops and Gardens the 2nd Edition available from the ARC Crops Institute. (ISBN-13 978-1-86849-399-9). Each weed type is well documented with photos of the seeds, early seed growth and mature plants and is an essential tool to identifying seeds so that clear identification and communication can be made between the farmer to the suppliers of herbicides and various mixes regarding the extent of the problem and the relevant chemical control of the specific weed problem in your crops.



Scouting and weed control after planting.



Weed control before planting.

“Knowing the history of each camp including the soil type, soil fertility status and weed problems will determine which crops can be planted in rotation.”

Efficient weed scouting requires a thorough knowledge of weed and crop biology, weed identification and growth habits, correct sampling methods and an economic impact evaluation of the infestation levels in a particular crop that will justify the expense of mechanical or chemical control.

Method

Scouting for pests or weeds is usually carried out by walking through the lands in a zigzag or M pattern and assessing and counting the various weeds found in a square metre steel square placed on the ground, for example, every 50 or 100 metres. The idea is to create a random but representative picture of the intensity and prevalence of the problem weeds. The scouting and monitoring should take place in the period between crops prior to planting and in maize production at the 4th to 5th leaf stage at a stage when annual broadleaf and grass weeds are less than 38 mm tall.

If maps of the lands can be generated then the actual location of the test areas can be marked either by visual estimation or use of a GPS system for future reference.

Remember that weed infestations at the edge of a land might not represent the popu-

lation of weeds found within the land. Sample carefully and objectively and take the size of the land into consideration when deciding on the number of points where measurements are taken. A rule of thumb would be to do each 25 hectares separately.

Weed infestations and individual weed populations can be classified broadly into four classes. Namely:

- **Scattered:** Weeds are present but very few plants in the lands.
- **Slight:** Weeds scattered throughout the land. An average of no more than one weed plant per metre of row. Economic loss unlikely but possible in certain areas.
- **Moderate:** Fairly uniform concentration of weeds across the land with average concentrations of no more than one plant per 30 cm. Economic loss likely unless control measures taken.
- **Severe:** More than one weed plant per 30 cm's of row for broadleaf weeds, three weed plants per 30 cm's for grasses or large areas of heavy infestations. Economic loss certain unless the weeds are controlled.

There are so many spray programmes available for genetically modified and normal crops that can be applied prior to planting, at planting and after planting. Keep in mind that the correct spray procedures must also be used in a no-till system or a conventional crop production system. Always consult your herbicide supplier or agent before undertaking any programme envisaged.

It is important to be able to control a potentially bad infection either prior to plant or after planting timeously to prevent major economic loss.

Records

Although it is possible to do ad hoc assessments of weed problems for control from year to year a written analysis over a few seasons will be of value. Keep records of every land on your farm and the different crops grown and record the weed assessment data so that you and your herbicide supplier can identify persistent weed problems and most importantly pick up as soon as possible any weeds types that are becoming resistant to a particular chemical programme.

The records should at least have the following data noted including, assessment period being pre or post planting, land location, cropping history, crop yields, pesticide use, herbicides used, soil type, soil test records, major pest and weed problems as well as the success rating of particular herbicides used.

Conclusion

As the use of herbicides is an expensive exercise when the whole costs of each spraying operation are taken into account it is important to accurately assess the problem in time. The increasing problem of resistance to herbicides must be kept in mind. Study the world trend by farmers to going back to mechanical weed control coupled with the optimum application of chemicals in order to reduce the overall costs of weed control but within the context of realising profitable yields on your farm. 🌱

Article submitted by a retired farmer.

Your equipment is only as good as how you maintain it

Agriculture is a very progressive industry with changes occurring year on year. Technologies change, equipment changes, theories and methodology changes and one which we are noticing more and more is climate change.

As farmers it may feel like we are constantly needing to 'adapt or die', and this is true. Farming is all about production; we need to produce as much as possible on as little land as possible at the least expense possible in order for the books to balance at the end of the season. Therefore in order to stay in the agricultural industry we do need to keep up to date with modern methodologies and techniques.

The planting operation is one which has probably advanced more than any other facet of farming in the last decade.

Let us take a look at wheat production for instance; in the past it was common practice to plant wheat by spreading the seed with a fertiliser spreader followed by a roller to compact the seed into the soil. This method did work, but there were many inconsistencies. Calibration was a guessing game and seed was broadcast very irregularly leaving spaces and gaps where weeds thrived.

We then progressed to using a fine seed drill; this is still commonly used today but with

much advancement including seed monitors, modified engineering, better fertiliser application and bigger machinery.

The most advanced wheat farmers today are using big air seeders to plant their crops. An air seeder works with a big vacuum that blows the seed down pipes which each lead to an individual planting disc for penetration into the soil. These planters are extremely accurate and are assisting farmers to have excellent seed application which gives good crop coverage and therefore leads to increased production.

Having modern machinery is one step in the right direction of achieving top commercial grain production, but if you do not know how to use the machinery correctly or maintain it correctly then your big investment will never pay off.

Sadly many farmers assume that machinery and equipment will last forever. This will never be the case as everything is subjected to wear and tear and therefore needs good care. A planter for example is one of the most valuable and most important pieces of equipment in your business. It also has the most moving parts, rotating joints, bearings and chains than any other machine which is why it needs the most tender love and care.

“ *The planting operation is one which has probably advanced more than any other facet of farming in the last decade.*

Planter care

Let us look at how to correctly care for our planter before planting time starts. The key word here is 'before' planting time.

- Make sure that all moving parts are turning and rotating freely with no resistance. If something is tight or under strain, disassemble it to locate the problem. Once you find the problem part, replace it with a new one and re-assemble correctly.
- Check the tension on all your chains. Make sure that a chain is not too tight as it could break or jump off the sprocket. Also make sure it is not too loose as it may slip over the teeth of the sprocket and have no effect. It is important that all chains are well oiled and lubricated before entering the lands. Use oil to lubricate chains and not grease as soil cakes on grease and could cause the chain to seize.
- Locate every grease nipple on the planter and be sure that you apply grease generously to each one. This can be repeated each morning during the planting time.
- Check tire pressure on wheels.
- Make sure that the vacuum is blowing or sucking strongly with no cracks on the pipe lines.
- Be sure that you have put the correct planting plates in the machine.
- Finally, double check your seed and fertiliser calibration to be sure that you will be planting accurately.

I believe that farm equipment is only as good as how well its owner maintains and cares for it. It may have all the bells and whistles of modern planting technology on board, but if it is not well maintained, then there is a good chance it may be on a fast track to the scrap yard. 🌧

Article submitted by Gavin Mathews, Bachelor in Environmental Management. For more information, send an email to gavmat@gmail.com.



Ensure that all moving parts are turning and rotating freely with no resistance.

How to choose the ‘Mr Right’ of wheat cultivars



Choosing the correct cultivar for your farm can optimise your yields.

This article highlights the choice of a suitable wheat cultivar as part of the general management of the wheat crop in a sustainable crop rotation system.

The major consideration in wheat is to increase the competitiveness and profitability of production and this can only be achieved by maximising the yield potential of the crop/soil/climate combination, while input costs are strictly managed.

Cultivar choice

Cultivar choice is an important production decision and could contribute to reducing risk and optimising yields. The following guidelines must be considered when deciding on cultivar choice:

- Identify the specific **production area** where wheat is to be planted, as this determines the adaptability and disease profile of suitable wheat cultivars. A list of bread wheat cultivars that are available for commercial purposes is published annually and is divided into three categories: cultivars for dry land production in the north, the southern production area and under irrigation.
- Determine the **sub-region** where productions are to take place. Photoperiod and vernalisation control the growth period, and cultivars must be adapted to climatic conditions such as growing season length, rainfall pattern and temperature during the growing season, soil water availability at planting and the first and last frost dates. The evaluation of cultivars over time is reflected in the recommended optimum planting spectrum for each cultivar. Utilise this optimum **planting spectrum** in an area to minimise production risks like drought, disease occurrence and crop rotation time constraints.
- Cultivars can adapt to **specific yield potential** conditions although the genetic yield potential of the available cultivars is higher than the yields currently realised under commercial conditions. These differences in yield are due to climatic and production conditions, crop management decisions, disease, insect and weed pressures. The ideal cultivar would yield the highest at all yield potential conditions indicating excellent adaptability.
- In selecting the correct cultivar to produce in a specific region, it is thus important to take into account **agronomic characteristics** (lodging, shattering and aluminium tol-

“Cultivar choice is an important production decision and could contribute to reducing risk and optimising yields.”

erance), disease susceptibility (rusts and Fusarium spp.) and Russian wheat aphid resistance of cultivars where applicable.

- **Grading and quality** of the bread wheat consists of four grades determined by the protein content, hectolitre mass and the falling number of the grain. Hectolitre mass and especially protein content are influenced by the environment, soil water and fertiliser management during the grain filling period up to maturity.

All bread wheat cultivars released for production qualify for all grades depending on the protein content, hectolitre mass and falling number.

Conclusion

To conclude:

- Plant a number of **cultivars** with a high yield potential and relevant disease and insect resistance.
- Revise **cultivar choice** annually to adapt to changing circumstances and to consider new cultivars.
- Use **additional information/guidelines** regarding cultivar characteristics, long-term yield data and relative yields that are available to the farmer.
- Select the optimal **planting time** for the chosen cultivar, use high quality treated seed at the recommended seeding density to ensure optimal emergence and seedling establishment. Be aware of the coleoptile length of a cultivar when planting depth is increased in a dry seedbed.
- Follow an effective **spraying programme** for the control of weeds, insects and diseases during the growing season and fertilise according to yield potential.
- **Timely harvest** of the crop and post-harvest storage can impact on optimal yield and grain quality and on price per ton received.

Article submitted by Dr. Willem Otto, Marketing: Sensako. For more information, send an email to willem.otto@sensako.co.za.

What you should know about buffalo disease

Buffalo disease (thus named because buffaloes transmit the disease) is an acute, usually fatal, disease in cattle and is similar to or displays the same symptoms as East Coast fever in cattle.

Buffalo disease (*corridor disease*) is caused by infection from *T. Parva* strains from buffaloes that are transmitted by infected *Rhipicephalus appendiculatus* as well as other *Rhipicephalus* species (brown ear-ticks) to cattle.

The African buffalo (*Syncerus caffer*) is a life-long carrier of this infection. Buffalo disease was discovered in Zimbabwe for the first time in 1934, and was reported in South Africa 20 years later. The disease-causing organism was identified as *Theileria* by Dr Neitz in 1955.

The first outbreak of the disease in South Africa occurred in the 'corridor' between the Hluhluwe and iMfolozi game reserves in KwaZulu-Natal. That is why buffalo disease is mainly known as corridor disease today.

The disease occurs sporadically in the eastern, central and southern parts of Africa where there is contact between cattle and infected African buffaloes and where the brown ear-tick, *Rhipicephalus appendiculatus*, or the lowveld brown ear-tick, *Rhipicephalus zambeziensis*, occurs.

These brown ear-ticks are the vectors (transmitting agents) of the disease. Next to foot-and-mouth, buffalo disease is the main disease that African buffaloes transmit to cattle with serious consequences – most of the infected cattle die. African buffaloes are also carriers of brucellosis and tuberculosis.

Transmission of buffalo disease

Buffalo disease is transmitted by infected (*Theileria* parasites) brown ear-ticks (*Rhipicephalus appendiculatus*) and the lowveld brown ear-tick (*Rhipicephalus zambeziensis*).

The brown ear-tick is a three-host tick. The tick therefore has three parasitic stages, namely lar-

vae, nymphs and adults. The adult female brown ear-tick feeds/parasitises on the host (cattle or buffaloes), falls off when she is full of blood and then lays eggs.

The eggs (they are not infected and the larvae do not transmit the infection) hatch and the larvae feed on the first host, fall off and moult, after which the nymph feeds on the second host, falls off and moults to produce the adult tick, which then feeds on the third host.

The transmission of the infection of the *Theileria* parasites by brown ear-ticks occurs from stage to stage. When the larva feeds on an infected buffalo, it falls off and moults, and the nymph then feeds on uninfected buffaloes or cattle, which transmit the infection (*Theileria* parasites).

The most effective transmission of the infection occurs when the nymph that fed on the infected buffalo falls off and the adult tick then feeds on susceptible buffaloes and cattle. The tick larvae that hatch from the eggs of the adult female tick are never infectious.





Photo 1: Clean (uninfected) buffaloes are very sought after. Such buffaloes are not infected with (carriers of) brucellosis, tuberculosis or foot-and-mouth.

Photo 2: This buffalo had tuberculosis. Grape-like tuberculosis lesions are very prominent in the buffalo's chest. Disease-free (clean) buffaloes are free of tuberculosis, buffalo disease, brucellosis and foot-and-mouth.

Photo 3: Buffalo calves in endemic buffalo disease areas where the *Theileria* parasite occurs are infected soon after birth by the brown ear-tick. Most of the calves survive and become lifelong carriers of buffalo disease.

Photo 4: The ear of a cow with numerous brown ear-ticks parasitising on the animal. The most effective transmission of buffalo disease infection occurs when the nymph tick feeds on an infected buffalo, falls off and the mature brown ear-tick then feeds on susceptible cattle or buffaloes. Photo: Dr Tom Strydom

Photo 5: Brown ear-ticks parasitising on a cow's ear. Photo: Dr Tom Strydom

They first have to feed on an infected buffalo to become infected.

Theileria parasites are not transmitted by the tick eggs (transovarially). Buffalo disease in cattle is very acute (severe with a short course), lethal and self-limiting (dead-end disease).

Infected brown ear-ticks can survive up to 18 months in the veld and transmit the infection. After an outbreak of buffalo disease in an area cattle should be removed from the area for two years to ensure that they do not pick up the infection.

Symptoms of buffalo disease in cattle

The course of buffalo disease in cattle is usually not long. The cattle typically die within three to four days after the first symptoms appear. During the disease the cattle become emaciated, develop diarrhoea and eat less or not at all. The condition of the animal can deteriorate.

Before the cattle die, they develop severe pulmonary oedema (fluid in lungs) and have difficulty breathing. The symptoms of East Coast fever in cattle are more or less the same, but clearer than with buffalo disease, and the animal does not die as quickly.

Approximately 80% of cattle with buffalo disease die. A carrier condition in surviving cattle has not yet been proven. The cattle lose the infection before the next seasonal nymph stage is ready to pick up parasites.

Prevention and control of buffalo disease

Buffaloes infected with buffalo disease are allowed in only two disease-controlled areas in South Africa: in the north of KwaZulu-Natal and the eastern Lowveld of Limpopo and Mpumalanga. This is over and above the infected buffaloes in the Kruger National Park.

Buffalo disease is a state-controlled disease in South Africa and is regulated and controlled in accordance with the Animal Diseases Act (Act 35 of 1984). The biosecurity requirements with respect to buffalo disease must at all times be strictly adhered to in order to prevent and control the disease.

Cattle and buffaloes are not permitted to live and graze in the same area. Buffaloes must be separated from cattle by effective game-proof fences. Since 1998 it has been compulsory for all buffaloes that are moved to be first tested for buffalo disease, foot-and-mouth, brucellosis and tuberculosis.

All four the diseases mentioned are state-controlled diseases. If the buffaloes test negative for all the disease, they may be moved. Buffaloes bred from infected buffaloes in the past in the so-called 'disease-free breeding projects' had to test negative four times in a row for all four the above diseases.

The buffaloes also had to pass a year's detention in the presence of brown ear-ticks on their destination farm and then undergo a fifth negative test before they could be certified disease free.

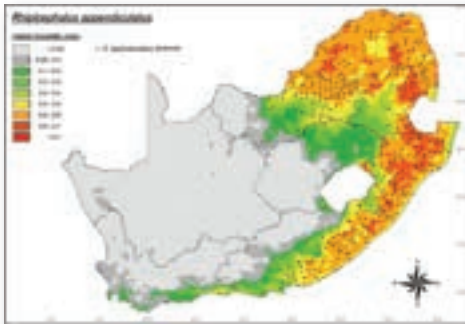
Buffalo breeding projects using infected breeding animals were cancelled in 2011. Infecting cattle with buffalo disease through infected brown ear-ticks and then treating them under controlled conditions (buparvaquone, sustained release tetracyclines or butalex) currently appears to be the best practice for immunising cattle against the disease.

This leads to immunity against buffalo disease, but also to a parasite carrier condition in the cattle. This practice is not permitted in South Africa, as a carrier condition is created in the cattle. Regular and sustained dipping of the cattle to eliminate the brown ear-ticks and prevent them from parasitising on the cattle is successful. Transplacental (the buffalo foetus becomes infected in the womb) transmission of buffalo disease should be guarded against. Buffalo calves must be tested for buffalo disease.

Management of a buffalo disease outbreak in cattle

Buffalo disease currently occurs in cattle in the two areas indicated and in areas adjacent to these two. Outbreaks of buffalo disease must be reported to

What you should know about buffalo disease



A map of South Africa with the geographical spread of the brown ear-tick (*Rhipicephalus appendiculatus*), which is the vector (transmitting agent) of buffalo disease. The dots represent 1 556 confirmed incidences of the presence of brown ear-ticks. Map: Arthur Spickett



Buffalo disease is apparently restricted to two areas in South Africa (the red-yellow dot and surrounding areas) where infected buffaloes (carriers) and the brown ear-tick are present. These two areas are the eastern Lowveld of Mpumalanga and Limpopo adjacent to the Kruger National Park, and certain areas of northern KwaZulu-Natal.

the nearest state veterinarian. Should buffalo disease be confirmed, the following control measures will be introduced by the state veterinarian:

- The farm is quarantined. No animals may enter or leave the farm.
- A dipping programme that destroys the brown ear-ticks is introduced for cattle in accordance with existing protocol. This will reduce the buffalo disease transmission.
- The source of infection, which is usually straying buffaloes, must be removed.

There are effective therapeutic drugs available that are used for infected cattle elsewhere in Africa to treat the cattle-adapted *Theileria* strains. This treatment is not permitted in South Africa, because the treatment does not sterilise the infection.

This treatment can cause buffalo disease carrier conditions in cattle and the cattle can take over the role of the buffalo if the *Theileria* parasite adapts to cattle. There is then a definite risk of the infection reverting to East Coast Fever and January-disease

syndrome. Currently there is no effective vaccine against buffalo disease available for cattle in South Africa.

Testing of buffaloes for buffalo disease

A battery of tests is used to test buffaloes for buffalo disease. The molecular diagnostic test is the most advanced test. If the parasite level in the buffalo is very low and there are mixed infections of *Theileria* parasites, the blood test is compromised.

This battery of tests comprises the microscopic demonstration of the parasites in smears of the lymph nodes, spleen or blood, the identification of parasite-specific antibodies in the blood, as well as the demonstration of the deoxyribonucleic acid (DNA) of the parasites in blood samples.

The state veterinarian is responsible for the final interpretation of the test results, which is based on the current test results, the previous test history of the animal, where the buffaloes come from, the presence of brown ear-ticks on the farm and the test results of the buffalo herd on the farm.

The investigations on 'problem farms' take place under the supervision of the local state veterinarian, and can include the following actions:

- Ticks are collected from the buffaloes and the vegetation to check whether the vector (brown ear-tick) is present.
- Local cattle with implanted microchips for the identification of the sentinel cattle are placed on the same grazing as buffalo suspected of being infected with buffalo disease to monitor the possible transmission of infection.
- Uninfected brown ear-ticks are placed on buffaloes that tested positive for buffalo disease to feed on them. These ticks are then placed on cattle under controlled conditions to determine whether they are infected.

Buffalo farming on farms

Buffalo farming in the private sector in South Africa has increased considerably over the past few years due to a variety of factors. It is estimated that there are more than 20 000 buffaloes in private hands at present.

At the last count there were 1 918 properties registered for farming with buffaloes. It is estimated that more than 90% of these buffaloes occurring on farms and in nature reserves are disease free (clean buffaloes) and the farms are outside the foot-and-mouth and buffalo-disease-controlled areas.

All buffaloes occurring in the endemic infected areas of foot-and-mouth and buffalo disease are behind game-proof fences in the national parks, provincial reserves and game farms/buffalo projects in private hands. All the above places are in the declared disease-controlled areas.

The long and the short of buffalo disease...

Buffalo disease is a tick-transmitted infection of the protozoal blood parasite *Theileria parva*. Infected African buffaloes are natural carriers of the *Theileria* parasites in their blood. The buffalo usually shows no visible signs/symptoms of the disease and does not become visibly sick either.

Buffalo disease is also called corridor disease or buffalo-related *Theileriose* (*Theileria parva* infection). Buffalo calves in the endemic (regional) areas where *Theileria* occurs are infected by the brown ear-tick shortly after they have been born.

The majority of the buffalo calves survive and become effective life-long carriers of the *Theileria* parasite. Infected brown ear-ticks (*Rhipicephalus* spp) transmit the disease-causing micro-organisms to cattle and to susceptible uninfected (clean) buffaloes.

Roughly 80% of cattle that are infected die. It is not clear whether cattle that survive perhaps also become carriers of buffalo disease. Buffalo disease is apparently restricted to two areas in South Africa where infected buffaloes (carriers) and the brown ear-tick are present. These two areas are the eastern Lowveld of Mpumalanga and Limpopo adjacent to the Kruger National Park, and certain areas of northern KwaZulu-Natal.

The rest of South Africa is currently free of buffalo disease. Cattle that are infected with buffalo disease usually die before the parasites develop to the stage in their life cycle where they are infectious to brown ear-ticks that parasitise on the cattle at that stage.

Buffalo disease is self-limiting and therefore usually has a 'dead end' in the cattle. Buffalo disease must be distinguished from East Coast fever (eradicated in South Africa in 1955) – both these diseases are caused by the same parasites, but from different strains.

Cattle with East Coast fever live long enough for the brown ear-ticks feeding/parasitising on them to be infected. Because of this, East Coast fever-infected cattle can retain the infection in the absence of buffaloes and thus serve as a source of East Coast fever infection.

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Photo 6: Most cattle (roughly 80%) with buffalo disease will die if they are infected.

Photo 7: The buffalo bathes in mud and this sometimes helps to reduce the external parasites on his skin.

Photo 8: Buffalo disease is self-limiting in cattle if they are infected and therefore usually terminates in the cattle.

Photo 9: Modern buffalo farming is very sought after and popular in South Africa.

Photo 10: The larva (six legs), nymph (eight legs) and adult (eight legs) stages of the brown ear-tick. The nymph and adult brown ear-tick transmit buffalo disease infection.

Photo 11: A cow with buffalo disease. The cow breathes with difficulty and in a strained manner due to the pulmonary oedema. Photo: Dr Hein Stoltz

Article submitted by Dr Jan Du Preez, Managing Director: Institute for Dairy Technology, for SA Graan/Grain March 2015. For more information, send an email to jan.dupreez@mpo.co.za.

PREMATURE BUDDING:

Farmers must know where the risks lie

Premature budding, or vivipary, occurs when the maize kernels that are already physiologically ripe start to bud while they are still on the stalk. Kernels start germinating physically and radicles and germs form. This usually happens when adult maize kernels with a moisture content of less than 20% become wet again and high temperatures prevail at the same time.

The combination of dry grain, rain and upright maize ears that can catch water can be a prelude to vivipary. The risk of budding occurring in ears with a higher moisture content is small.

Premature budding on maize ears is usually not a major problem under normal production conditions, but farmers' attention should be drawn to the fact that in serious cases grain quality can be affected and problems with the drying and storage of grain can occur.

Poor grain quality can reduce a farmer's profit. Profit can drop dramatically if a producer's grain is downgraded because of grain quality.

Wet autumn conditions therefore hold a risk with respect to the premature budding of maize kernels.

The germination of the maize kernel is regulated by hormonal balance. These hormones control the balance between the kernel's ability to store nutrients and to germinate. The regulation of this balance prevents the kernel from germinating while it is still on the mother plant.

The relationship between the two plant hormones, abscisic acid and gibberellic acid, is critical in determining how dormant a seed is and whether the seed will germinate. This balance is affected by the moisture content of the



Kernels start germinating physically and radicles and germs form.



Premature budding occurs when the maize kernels that are already physiologically ripe start to bud while they are still on the stalk.

kernel and by stress conditions in the environment while it is developing.

Examples are heat and drought stress. Gibberellic acid is also produced by fungi that cause ear rot. This hormone production activates the defensive genes of the seed, but can also interfere with the abscisic acid/gibberellic acid ratio and thus promote premature germination.

Extremely dry conditions currently prevail in large parts of the maize-producing areas, and this can cause many kernels on maize ears to reach the critical point that determines the balance between storage and germination much more rapidly than usual. Should the dry period be followed by rain, the ideal environment for premature budding can be created.

Management guidelines

- Monitor fields carefully.
- Harvest timeously if problems occur, even though you may have to dry the grain.
- Little budding (less than 5% of ears) should not cause grading problems.

Because genetics differ and plants therefore react differently to environmental conditions, it is better to look at a cultivar package for hedging risk. 🌧️

Article submitted by Leonard Oberholzer, Monsanto, for SA Graan/Grain March 2015. For more information, send an email to Leonard.oberholzer@monsanto.com.

Animal health

– the grain farmer's burden or investment?

To many grain farmers the stock factor is a material part of their farming activities. Like with grain branches, 'precision farming' must be implemented in the stock branch to ensure maximum profit. The stock branch deserves to be more than just a 'piggy bank'.

When the rain has fallen and the tractors/combine harvesters start running, it is difficult to concentrate on the stock branch. However, many a grain farmer has suffered in terms of reproduction/production losses and deaths.

Next to nutrition, animal health plays a vital role in ensuring optimum production. You should therefore ensure that you compile a simple yet focused herd health programme in collaboration with your local Virbac technical sales adviser and/or veterinarian and follow this carefully. Remember – no calf/lamb grows more poorly than the one that has not been born, and those that are born should be treated in such a way as to ensure maximum income.

A purposeful health programme should include the following:

Immunisation programme

A timeous and effective immunisation programme is essential. Vaccination is like (hail) insurance – you take preventive steps and stop the main diseases, or you save the money on vaccination and take the hit if preventable diseases like blue tongue, pulpy kidney, Rift Valley fever and many others attack. If you wait until the disease breaks out, it is too late in most cases to start vaccinating. The choice is yours.

“A timeous and effective immunisation programme is essential.”

Parasite control programme

A timeous and effective parasite control programme (internal as well as external) should be part of your farming operations. Cattle do not easily die of internal parasites, but they cause poor reproduction and production that are not always visible, and thus cause indirect losses.

Direct losses (deaths) in sheep are more common if treatment does not occur timeously

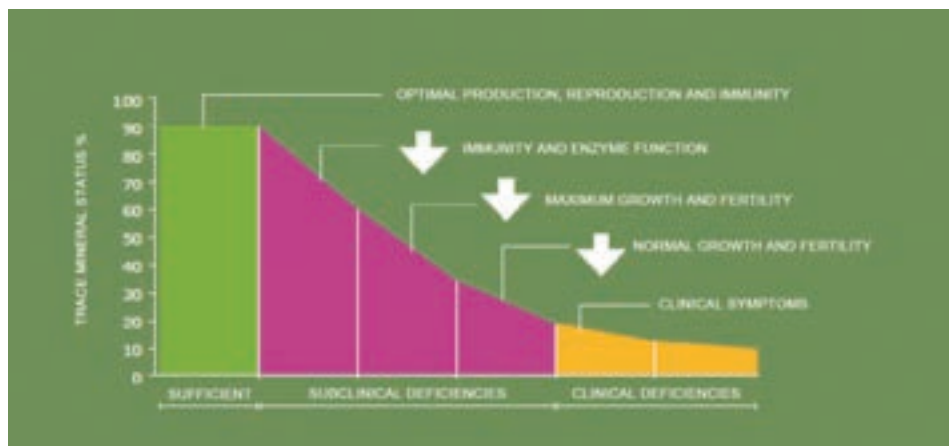


Figure 1: Impact of deterioration of trace mineral status on animal performance.
Dr Gordon Carstens, Texas A & M University, Texas, USA

and effectively. Indirect losses in terms of reproduction and production are common. Make sure that you know when and which parasites on your farm pose a threat and treat the animals in time with an effective product.

Trace mineral and vitamin supplement programme

A timely and effective trace mineral and vitamin supplement programme is essential. It is common knowledge that South Africa has a general shortage of trace elements, or that the absorption of these elements is limited by antagonists (particularly in the case of Ca, Fe and S).

Varying lick absorption aggravates the problem. By the time the physical trace element deficiencies have been diagnosed, a lot of 'invisible' damage has been caused – see **Figure 1**. The following saying applies here: 'the devil is in the detail'. Make sure that your animals receive licks that contain trace minerals. However, make sure that during critical periods with increased trace mineral requirements like calving/lambing, mating and weaning your animals receive a top-up through a proven, injectable trace mineral supplement, as well as a vitamin A and E supplement.

Diagnosis and treatment

The timely diagnosis and effective treatment of diseases is an aspect that is often neglected and that can lead to great losses. By identifying sick animals in time and treating them correctly you save money in that deaths are limited and animals recover more quickly. A dedicated, trained supervisor among your stock can save you a lot of money.

General actions

Timely and effective general actions apply here. Bulls/rams that are infertile, for example, will never get cows/ewes pregnant. Test rams/bulls before the start of the breeding season for fertility and venereal diseases to prevent an unpleasant surprise during lambing/calving. Timely pregnancy tests can contribute considerably towards eliminating 'passengers' and ensuring that animals receive the right nutrition.

It is completely feasible to combine the above in a workable herd management programme, but unfortunately it is not always so simple to compile a 'general' programme that applies from the Cape to Cairo. There are so many factors that play a role in compiling a programme, for example the area in which you farm, the season, the production system that you follow and breeding seasons (or the lack thereof).

Virbac has a widely distributed and well-trained team of technical sales advisers to assist you with this. In addition, Virbac also has a wide range of quality products to meet most of your animal health needs.

Feel free to contact your nearest Virbac technical sales adviser or the head office for assistance in compiling your personal herd health programme, general advice and product information.

Article submitted by Danie van Niekerk, Product Manager: Virbac Animal Health, for SA Graan/Grain March 2015. For more information, send an email to danie.vanniekerk@virbac.co.za.

A closer look at drought stress in maize

The current season is characterised by widespread drought stress in the maize production area. The effect of stress on the eventual crop is closely related to the moisture requirements during the different growth stages.

The moisture requirements reach a maximum level during pollination and then drop again until maturity. If wilt conditions occur for ten to twelve days during the pollination period, it can result in total crop loss.

Maize plants produce male (pollen) as well as female (silk and ear) floral parts on the same plant. The maize plant's flower is very unique compared to the flowers of others plants due to the fact that the floral parts are located quite a distance from each other.

Drought stress usually accompanies high temperatures and this is usually the most significant factor in the eventual yield obtained in maize, particularly if the stress coincides with the pollination period (**Figure 1a and Figure 1b**).

Drought and heat stress during any other stage in the life cycle of the maize plant does not have such a major effect as during the pollination period. The pollination and subsequent fertilisation period are viewed as the most sensitive periods in the life cycle of maize. Stress at this stage usually has some direct effect on the propagation mechanism of the maize plant. Optimum weather during the silk and pollination stages are viewed as the basis of a successful crop.



Poor pollination, silks still attached to kernel bases.

Yield fixation

The potential ear size (number of rows) is fixed during the true twelve-leaf stage (chest height) and the number of kernels per row is determined from the twelve-leaf stage to roughly a week before the silk appears.

Drought stress

The most sensitive period with respect to drought occurs from about two weeks before the silk appears.



An example of poor pollen-and-silk synchronisation due to heat or drought stress.



Long silks indicate possible drought or heat stress during pollination period.



Inadequate pollination due to silk jamming.

fore pollination to two weeks after pollination. Where visible wilting occurs in the two weeks before pollination, yield losses can amount to 3% to 4% per day. Visible wilting during pollination can result in losses of 8% to 10% per day, while visible wilting during the two weeks after pollination can lead to losses of up to 6% per day. If wilt conditions occur for ten to twelve days during the pollination period, it can result in total crop loss.

The effect of severe drought stress usually manifests in the slow pace of silk elongation. Silk has the highest water content of any plant tissue in the maize plant. Silk elongation usually commences about seven days before pollination.

However, keep in mind that silk elongation can occur only if the turgor pressure/water potential in the plant is satisfactory. Should the plant show symptoms of wilting, the silk is also



Bollworm eating the silk.

wilted, as it competes with all the other plant tissue for moisture. Insufficient turgor pressure/water potential will lead to the silk growing more slowly, usually resulting in delayed or even the absence of silk emergence.

In the case of stress conditions silk can also dry out to such an extent that it becomes totally unreceptive to pollen. No pollen germination will therefore occur on the silk. Drought conditions during the pollination period can accelerate and shorten anthesis. Should the silk then appear late too, poor pollen-and-silk synchronisation results and the maize plant is insufficiently pollinated/fertilised.

Successful fertilisation is manifested by the silk abscising from its point of attachment at the base of the kernel after a few days. Should the ear be shaken without the husk leaves, the silk will fall off – if the silk is still attached to the base of the kernel, it is an indication that fertilisation did not succeed. Plants with very long silk indicate poor fertilisation of the kernels and the phenomenon is usually observed where drought conditions prevailed during the pollination period (**Photo 1a and Photo 1b**).

Photo 2 is an example of poor pollen-and-silk synchronisation due to heat or drought stress. Pollen had already been shed without any silk appearing.

The most sensitive period with respect to drought occurs from about two weeks before pollination to two weeks after pollination.

Heat stress

The damage caused to maize by high temperatures goes hand in hand with drought stress. An example is very warm areas like Upington, where pollination/fertilisation occurs normally because the turgor pressure/water potential of plants is adequate due to irrigation. It is therefore important for the silk not to wilt. Normally, heat stress is accompanied by low to very low humidity.

Under irrigation a microclimate is created, with better and higher humidity. The silk is sensitive to heat stress even at a lower temperature (30°C to 32°C) because it is mainly made up of water, particularly when it is accompanied by poor humidity. In contrast, the pollen is actually dry and less sensitive to heat and/or drought stress.

The viability of pollen is affected negatively only by temperatures of 35°C and higher, while temperatures of higher than 38°C can kill the pollen. Pollination usually occurs early in the morning, when the temperatures have not yet reached high levels. Pollen lives for a day, but the anthesis period lasts for approximately seven to ten days. As long as there is sufficient soil moisture to meet the plant's needs, successful pollination therefore usually occurs readily.

Other causes of poor pollination

- Insects eating the silk – as is found in some cases of bollworm infestation.
- Silk that does not emerge and forms a ball on the inside of the husk leaves (*silk jamming*). The phenomenon usually causes reasonable differences between day and night temperatures in the period during which the silk must emerge.
- Herbicides sprayed outside the recommended period or mixed without other incompatible chemicals. A common example is glyphosate that is sprayed in the calyx after the true eight-leaf stage. In all cases instructions on the label should be followed carefully and it is also important to note warnings on labels.

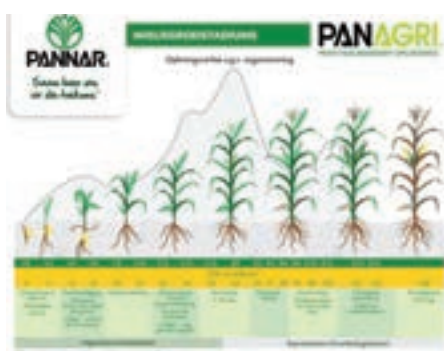


Figure 1a and 1b: Yield losses due to moisture stress.

Article submitted by Pieter Rademeyer, Product Manager: Pannar Seed, for SA Grain/Grain April 2015. For more information, send an email to pieter.rademeyer@pannar.co.za.



Grain SA interviews...

Thomas Ncongwane

sprayers for application of herbicides and insecticides. I also acquired knowledge on the calibration of a planter for fertiliser application and planting correct plant population. I also attended several courses organised by the Department of Agriculture in the Mpumalanga Province.

What training have you received to date and what training would you still like to do?

I attended Workshops, Farmer Days and courses organised by both Grain SA and the Department of Agriculture. At Grain SA I attended the Introduction to Maize Production and Tractor Maintenance course. At the Department of Agriculture I attended the Vegetable Production course. I would still like to receive training on Financial Management.

Where do you see yourself in five years time? What would you like to achieve?

In five years time I want to own a farm with its own farm equipment like tractors and implements and I want to assist other farmers to plough their arable lands. I would like to employ more people to create job opportunities and I would also like to have a direct market to sell my produce and to make sure that I produce good quality products.

What advice do you have for young aspiring farmers?

I want to say to the young aspiring farmers that they must take farming seriously and follow the correct production practices. Nowadays it is easy to farm because we farm with machinery like planters and we use knapsack or boom sprayers to spray herbicides and insecticides on our crops so that we can produce good quality products. It is not like in the olden days when we use to plant by hand and remove weeds with hand hoes. There is money in farming, one just needs to be patient and do everything according to the book. 🍀

Jerry Mthombathi, our Nelspruit Development Co-ordinator, recently spent some time with Thomas Ncongwane on his farm in the Gert Sibande district, in the Mpumalanga Province. This 46 year old farmer takes farming seriously and currently farms with maize and vegetables.

Where and how many hectares are you farming? What do you farm with?

I farm at Brandyball on the way to Kromdraai in the Gert Sibande District of Mpumalanga. I farm on 10 hectares arable land. This year I planted six hectares of maize. I also farm with vegetables on two hectares and this year I planted tomatoes, cabbages, spinach and beetroot.

What motivates/ inspires you?

I grew up with farming as my parents were farmers who farmed with both livestock and cash crops. Something that inspires me to farm is that we now use herbicides to control weeds instead of removing them by hand hoes like in the olden days.

Describe your strengths and weakness

Strengths: I own 50 cows which I sell at approximately R5 000 per cow. I own 150 goats and sell them at R1 200 each. There is dam on

top of the mountain and I can thus use sprinkler irrigation. Produce is purchased directly from my farm and in January 2015 I planted *Eragrostis Cuvula* on 1,5 hectares for my cows to graze on during winter.

Weakness: I don't have a strong market for selling my vegetables and sometimes when my products are not sold I am forced to harvest it and feed it to my livestock. I also do not have my own farming equipment like a tractor, ploughs and other equipment.

What was your crop yield when you started farming? What are your respective yields now?

When I started farming I used to harvest 2 tons of maize per hectare and now I am getting between 10 tons and 12 tons per hectare. With my spinach I used to earn between R2 000 to R3 000 per harvest but now I am earning more than R30 000 per harvest. With tomatoes I used to earn R1 500 and now I earn R20 000 per harvest.

What do you think was the main contributor to your progress and success?

Since I joined Grain SA in 2013 I have accumulated a lot of knowledge especially on the safe use of chemicals, calibration of knapsack

Article submitted by Jerry Mthombathi, Development Co-ordinator of the Grain SA Farmer Development Programme, Mpumalanga. For more information, send an email to jerry@grainsa.co.za.

THE CORNER POST

WILLIAM MATASANE

**Dream, wish and
work on your land**



The 2010 Grain SA/Absa Developing Grain Producer of the Year, William Matasane, has proven that where your focus lies, is where your opportunities will arise. As a school boy he often visited his grandfather, who was a farm worker, during school holidays. Here he became intrigued with the food chain that begins in the ground on a farm. The idea of providing food for the people of the country made him dream of becoming a farmer.

He started off his working career in the food industry as a waiter and worked his way up to assistant manager of the restaurant at the Allemanskraal Dam Holiday Resort. With a grant from the DRDLR and a loan from the Land Bank, he purchased his first farm, Verblyden. He has since paid off this loan and acquired two adjacent farms. Here he produces maize, sunflower and soybeans and also owns sheep and cattle. His wife, Alina is his right hand on the farm and handles the administrative side of the farming enterprise.

William is a proud member of Grain SA and admits he was lacking in knowledge and skills before becoming involved with the organisation. Thanks to the excellent Farmer Development Programme and knowledge gained by attending study groups and farmers days, his knowledge concerning maize and sunflower production, resource planning and farm management has increased tremendously. He would however still like to learn more about Safex and grain trading to manage the marketing of his crop. The award he received in 2010 proved to him that his hard work did not go unnoticed. 'Grain SA does not just give awards away. They evaluate carefully to see who

deserves it,' he mentions. This father of four has since then also become a member of the 1 500 Ton Club of Grain SA.

Like so many farmers, William also has a tough season behind him with the severe drought, but still managed to harvest 1,4 t/ha on maize and 1,7 t/ha on sunflowers. 'It is difficult to make money with the current maize price, as input costs are rising. My grey hairs all come from crop farming,' he says with a smile. 'Climate makes farming difficult as it is only the Higher Hand that can make clouds that bring rain – there is nothing a farmer can do and this keeps me humble.' The yield on his first sunflower crop was 0,2 t/ha, while he achieved 1,2 t/ha on his first maize crop. In 2010 he harvested 1,5 t/ha - 2,5 t/ha on sunflower and close to 5 t/ha on maize, an achievement not many farmers in the Senekal area manage.

Because of the decreasing profit margins in grain production, William has increased his cattle component and would like to expand the livestock side of his business with chickens, pigs and a dairy component. He currently runs a commercial beef cattle herd of 200 and is grateful that a stream runs through the farm as this ensured water and grazing for the cattle during the drought. Stock theft amongst sheep is a problem in this area, so he keeps his flock small. He remembers advice his grandfather shared: You should purchase one head of cattle for every hectare of land you cultivate. When problems arise, you can sell cattle to avoid losing your farm. This advice has proved helpful during the drought.

For the future this humble farmer hopes that government will become involved in agriculture by working with farmers to ensure food

security. He would like to help create more jobs and establish food security, but meaningful assistance like subsidies from government would make this easier. He would also like to see an agricultural representative at Safex who can see to the interests of the farmers. He feels strongly that politics has no place in agriculture. 'Politics is for the man in the office, sitting in the shade. It has no place in the ground – the ground is for food security,' he says.

His advice to young and emerging farmers:

- Start small and grow gradually.
- Farming is not a get rich quick scheme. It takes hard work, long hours and dedication before you will make a little money.
- Focus on increasing your knowledge – ask questions.
- Be passionate and humble.
- Be a farmer – live on the farm, dream on the farm, get your hands dirty and do the work.
- Do the right thing at the right time.
- Plan for the future.

For his own future he dreams of being a financially secure commercial farmer whose son is part of the farming enterprise. William says each investment he makes now, is a contribution to his children and grandchildren's future. 'Maybe one day my son or grandson will say, I am a commercial farmer because of what my grandfather did. I am acquiring things so that my children and my children's children can have a better future.'

This month's edition of The Corner Post was written by Louise Kunz, Pula Imvula contributor. For more information, send an email to louise@infoworks.biz.

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