PULA IMVULA

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

GRAIN SA
GRAAN SA

MAY
2015

MONSANTO

PULA IMVULA

Editorial team

GRAIN SA: BLOEMFONTEIN
Suite 3, Private Bag X11, Brandhof, 9324
7 Collins Street, Arboretum
Bloemfontein
▸ 08600 47246 ◂
▸ Fax: 051 430 7574 ◂ www.grainsa.co.za

EDITOR IN CHIEF
Jane McPherson
▸ 082 854 7171 ◂ jane@grainsa.co.za

EDITOR AND DISTRIBUTION
Liana Stroebel
▸ 084 264 1422 ◂ liana@grainsa.co.za

DESIGN, LAYOUT AND PRINTING
Infoworks
▸ 018 468 2716 ◂ www.infoworks.biz

infoworks
your ideas can fly

PULA IMVULA IS AVAILABLE IN THE FOLLOWING LANGUAGES:
English,
Afrikaans, Tswana, Sesotho,
Sesotho sa Leboa, Zulu and Xhosa.

Grain SA Farmer Development Programme

DEVELOPMENT CO-ORDINATORS

Danie van den Berg
Free State (Bloemfontein)
▸ 071 675 5497 ◂ danie@grainsa.co.za

Johan Kriel
Free State (Ladybrand)
▸ 079 497 4294 ◂ johank@grainsa.co.za
▸ Office: 051 924 1099 ◂ Dimakatso Nyambose

Jerry Mthombothi
Mpumalanga (Nelspruit)
▸ 084 604 0549 ◂ jerry@grainsa.co.za
▸ Office: 013 755 4575 ◂ Nonhlanhla Sithole

Vacant
Mpumalanga (Belfast)

Jurie Mentz
KwaZulu-Natal (Louwsburg)
▸ 082 354 5749 ◂ jurie@grainsa.co.za
▸ Office: 034 980 1455 ◂ Sydwell Nkosi

Ian Household
Eastern Cape (Kokstad)
▸ 078 791 1004 ◂ ian@grainsa.co.za
▸ Office: 039 727 5749 ◂ Luthando Diko

Lawrence Luthango
Eastern Cape (Mthatha)
▸ 076 674 0915 ◂ lawrence@grainsa.co.za
▸ Office: 047 531 0619 ◂ Cwayita Mpotyi

Liana Stroebel
Western Cape (Paarl)
▸ 084 264 1422 ◂ liana@grainsa.co.za
▸ Office: 012 816 8057

Du Toit van der Westhuizen
North West (Lichtenburg)
▸ 082 877 6749 ◂ dutoit@grainsa.co.za
▸ Office: 012 816 8038 ◂ Lebo Mogatlanyane

Vusi Ngesi
Eastern Cape (Maclear)
▸ 079 034 4843 ◂ vusi@grainsa.co.za
▸ Office: 012 816 8070 ◂ Sally Constable

THIS PUBLICATION IS MADE POSSIBLE BY THE CONTRIBUTION OF THE MAIZE TRUST

Nkgono Jane says...

IN THIS ISSUE...

Farming is a complex business and we all continue to learn. The quote this month is so true – basically that we must learn from past mistakes and make new mistakes (if we are going to make mistakes at all). If we continue to make the same mistakes without learning from them then we are not going to progress very fast or very far.

Recently I had the privilege of visiting different farmers in Mpumalanga, Eastern Cape, Free State and KwaZulu-Natal – from the one hectare farmers to those planting more than 500 ha. The farmers who are moving forward are those who learn from past mistakes (or the mistakes of others) and strive to improve each year. Farming remains challenging as each season differs from the previous and so you do not know what to expect. However those who are progressing are making sure that they are doing all they can to reach perfection – good land preparation, planting good seed at the right spacing to ensure the correct stand, fertilising the crop according to the recommendations, spraying for weeds from pre-emergence until the crop is assured, taking advice about marketing, caring for their equipment and trading ethically.

Unfortunately there will always be some people who try to take short-cuts and they are easy to identify – the lands are dirty with weeds, the colour of the plants is not healthy and the plant population is too high or too low. Unfortunately there are also those who think that they can do devious financial transactions and will not be caught out. There is only one way to prosper in your life and that is by thinking the right thoughts, speaking the truth and taking the right actions – in the end this pays off and you can be a successful person of integrity. You will be respected for you efforts and your values.

It is time to reap the rewards of the past season. I have great empathy with those farmers in the western parts who have a poor crop – my prayer for you is that you should be able to plant again and have a good crop next year. For those of you who have a good harvest – enjoy it and please remember to put away some for the coming year. Borrowing money should only be a last resort – it is better to do everything from your own funds so that you are fully in control.

See you at NAMPO!

CONTRACTING... food for thought

We have all heard the phrase "farmers are price takers, not price makers". In almost all other industries, the costs to an organisation, determines the selling price of its products.

Farmers have no say in the selling price of their crops. Fertiliser, seed, chemicals, diesel and the costs of mechanisation, escalate dramatically each year – without having any influence on the price of grain.

Emerging farmers are furthermore severely restricted, with regards to funding for mechanisation – given the fact that many only have access to small pieces of land. The smaller the hectares the more costly it becomes to mechanise (per hectare). Funding institutions, including government, have to consider the ability to repay loans as well as compliance to sound financial business practice. This is one of the biggest challenges facing emerging and smaller developing farmers.

So, another "industry" has emerged – **contracting**. Some contractors are farmers themselves, who assist neighbours once their own lands have been cultivated. Some farmers have converted their core business to contracting. Entrepreneurs have also started businesses for the sole purpose of contracting, with large investments into mechanisation. The risks involved in contracting are much less than what the farmer has to deal with.

Contractors play an essential role in agriculture. However, there is a danger that the rates for contracting can become excessive – out of reach for many farmers. **Contractors must guard against "making hay while the going is good"**. At present, the rates per hectare vary dramatically from province to province. It is understandable for harvesting, with different yields in different rainfall areas, but not for tillage, planting and spraying where yield has no effect. Marginal variations with regard to soil types can be expected but not to the extent that is currently seen. The free market system normally flushes out any exceptions over time, but not before there are casualties on both sides – farmer and contractor.

It is very difficult to determine a standard benchmark per hectare. There are many factors that set each business apart. The size, age and cost of tractors and implements vary for each contractor – just as each commercial farmer's mechanisation and cost structure differs from the next. Variations in hectares affect the fixed costs per hectare for tractors and implements. Each contractor also has its own unique overhead structure. (One example – different size tractors and different types of planters and harvesters require different skills – this will have an impact on the salary bill).

The purpose of this exercise is to have a look at a few scenarios to determine what it could cost a farmer, if he was able to acquire his own mechanisation, to farm a specific size land. This is not meant to "prescribe" to the contractors – it is just "food for thought" – for both farmer and contractor.

Hopefully it will serve as a point of departure, for thought and discussion in order to "normalise" rates before it is too late for some.

Table 1 - 3 reflect the summary of costs with some workings. The basis of the

Table 1: Summary of costs.

Tractor		Power demand	Based on purchase price	Fixed cost/ hour	Variable cost/hour	Total fixed cost/ha	Total variable cost/ha	Total cost/ha
Plough	98+kW	High	950 000	80,600	95,06	140,27	165,44	305,71
Offset	98+kW	High	950 000	80,600	95,06	105,36	124,26	229,62
Seedbed	63+kW	Medium	650 000	55,300	63,12	33,36	38,08	71,44
Plant	98+kW	High	950 000	80,600	95,06	43,90	51,78	95,68
Row crop	63+kW	Medium	650 000	55,300	63,12	50,83	58,01	108,84
Spray	63 kW	Low	350 000	49,710	36,32	8,12	5,93	14,06

Table 2: Summary of costs.

Implement		Based on purchase price	Width metre	Speed km hour	Area metres	Area metres 5% effect	Hectares/ hour	Hours/ hectare	Fixed cost/hour	Variable costs/ hour	Total fixed costs/ha	Total variable costs/ha	Total costs/ha
Plough	7 tine chisel	80 000	2,6	2,6	6 760	5 746	0,575	1,740	50,35	16,72	87,63	29,10	116,72
Offset	26 disk HD	160 000	3	3	9 000	7 650	0,765	1,307	95,94	38,25	125,41	50,00	175,41
Seed-bed	6,5 m 25 tine	160 000	6,5	3	19 500	16 575	1,658	0,603	130,39	86,04	78,67	51,91	130,58
Plant	6 row, 9 m	395 000	5,4	4	21 600	18 360	1,836	0,545	340,91	181,21	185,68	98,70	284,38
Row crop culti-vator	6 row	80 558	3,2	4	12 800	10 880	1,088	0,919	48,50	32,22	44,58	29,61	74,19
Spray	12 m	45 715	12	6	72 000	61 200	6,120	0,163	45,87	15,24	7,50	2,49	9,99

Table 3: Summary of costs.

Total costs	Tractor cost/ha	Implement cost/ha	Total cost/ha	Kilograms of maize required per/ha at R2 300/ton
Plough	305,71	116,725	422,43	183,67
Offset	229,62	175,412	405,03	176,10
Seedbed	71,44	130,576	202,02	87,84
Plant	95,68	284,379	380,05	165,24
Row crop cultivator 6 row	108,84	74,191	183,03	79,58
Spray	14,06	9,985	24,04	10,45

workings reflected was sourced from the extensive, detailed information found in the "Guide to Machinery Costs" dated November 2014 which is available on the Department of Agriculture's website, www.daff.gov.za.as. (Reference is made to this site, in the ARC-LNR Maize Information Guide 2014 prefaced by Dr. J Le Roux. It serves as a standard point of reference for completeness sake and uniformity.

The tables include and exclude the following: The lifespan of tractors is assumed at 12 000 hours, and implements at 2 500 hours to 3 000 hours, with annual usage of approximately 1 000 hours and 250 hours respectively (roughly 10 years).

Fuel prices are NOT included in these workings, since the oil price is so volatile and most contractors quote price per hectare excluding fuel. Salaries are not included.

Fixed costs include depreciation, licences, insurance and a provision assuming that the machines are financed at 9,5% per annum. (Depreciation is a provision made for the replacement of the machine over its lifespan, less a residual (resale) value of 10%. In other words 90% of the cost of the machine is written off over ten years.

Variable costs include repairs and maintenance. The "guide" explains that it is difficult to determine since there are so many variations that need to be considered. The numbers are based on a standard percentage of cost.

Hopefully this will provide both farmer and contractor with some "food for thought."

The profit margins on small farms are so small. Farming is about passion, faith and tireless commitment – it is not a "get rich, quick" business, however, it would be nice if farmers could make a respectable living from their efforts, without being further exploited because they do not have the required mechanisation.

Let us all work together, help each other and find the right balance – for the sake of one another, for the sake of agriculture, for the sake of food security and for the sake of our beloved South Africa.

Article submitted by Raymond Boardman, Farmer and Mentor from Ventersdorp, North West Province. For more information, send an email to rhboardman@gmail.com.

OPTIMAL EQUIPMENT
– *justifiable mechanisation*

The acquisition of agricultural machinery and equipment should be done in a wise and responsible manner. It is completely a business decision when you purchase a new piece of equipment for your farming operation.

What you buy should be based on a number of important factors; A) do you need it; B) is it justified by the size of land you work; C) can you afford it; and D) will it improve and grow your farming operation. Purchasing farm equipment should not be a rash decision but rather a carefully considered business move. In this article we will unpack the basics of purchasing machinery which is suited to your specific needs.

It is very tempting to look at new machinery which is shiny and modern, so tempting that we may even consider buying the item. But, this should not be what drives a decision. Consider the following factors before making a decision:

Do you need it?

Only purchase if you need the piece of equipment. If you have a cropping operation then there is no point in buying hay making equipment. Yes, there may be advantages in terms of making feed bales from crop residues, but it is not essential to a cropping operation. Rather save that capital outlay for something that is truly needed such as a boom spray or planter. Consider what you have. If there is a planter standing in your shed then you will only need a new one when that one no longer operates efficiently. Take care and maintain all of your equipment so that you can avoid tying up valuable capital in machinery. There always comes a time to upgrade machinery, but this must be done with careful consideration.

Is it justified by the size of land you work?

You do not need an eight row planter if you are only going to be planting three hectares of maize in the season. It is extremely important to know your limitations. If you are working between one and three hectares then nearly your entire operation can be done by using only hand held equipment.

These are the equipment you should use: planting hoes, knapsack sprays, wheelbarrow fertiliser applicators and hand picks for weed

Use equipment that suits your needs.

Repairing the planter and making sure the planter is working perfectly.

control. The only work that you may need to do with a tractor is pre-season disking. If your operation is between three hectares and 100 hectares then you will need some small mechanisation such as a small planter, a three point boom spray, a fertiliser spreader and of course a small tractor. Even for this size land not all equipment is justified. You can employ the use of contractors to combine your lands because to purchase a combine harvester for such a small piece would not be worth it.

There are many good examples of smaller farmers who establish co operatives in order to avoid making big equipment purchases alone. This method works very well if it is managed correctly. Farmers club in to finance a tractor or planter and all the members have shared use of it in the planting season. It is important to plan a program before the season starts. This should state an order of use. All members need to abide by the program.

When working 150 hectares and above it is justifiable to purchase certain pieces of your own equipment. You should still use the contractors to perform some of the larger tasks like harvesting. But you should certainly get the essential pieces of equipment.

Can you afford it?

This is always one of the biggest questions to ask. Make sure that you believe you can afford it. Dealerships will usually try by all means to make it possible for you to afford the equipment. I suggest not taking out any residuals or other financing ploys when it comes to buying a new piece of equipment. This can leave you with a pile of debt at the end of the financing period. Only purchase the equipment if you believe you can repay it, not the bank or the dealership.

Will it improve and grow your business?

The acquisition of new equipment should always add something to your business. You need the machine to pay itself off. If you have upgraded your planter from a 4 row to a 6 row planter then you will be able to plant more hectares in the same amount of time. Therefore you should look for more hectares to plant to grow your business and pay your new planter off quicker. Perhaps you can now get your job done quicker which will allow you to use your equipment to do some contracting work which will also help to cover your outlay. The quicker your machine is paid off the quicker it can start to make real money for you.

Purchasing equipment is unavoidable in the farming world BUT it needs to be justified. A wonderful platform to learn about new equipment and machinery is the NAMPO Harvest Day held annually near Bothaville in the Free State Province. At this exhibition you will find everything from small to huge. There are physical demonstrations on the land to give you a good idea how the equipment works. It may even be a good place to get quotes and purchase as there are many discounts and specials at NAMPO.

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

Plant your success

Grain farming is very complex these days and success depends on various factors. The most important part of the cycle is probably the choice of crops and the best germ plasma.

The latest technology is used to develop Monsanto's DEKALB® product range and it consists of a good variety of maize hybrids to plant a winning package. Farmers can now also choose from one of three seed treatment packages to give seed a boost from the time of planting for optimal yield.

Monsanto uses modern technology to cultivate new cultivars. Advanced cultivation techniques like genetic selection, marker technology and seed chipping are used to select the best genetics for the producer's advantage. DEKALB hybrids can therefore minimise risk and protect your financial investment because you can choose a package that is adapted for the environment, have leading gene traits and disease tolerance.

This year you can visit the Monsanto team again at NAMPO's seed hall for a nice chat and also visit the new seed demonstration plots.

Tours will take place twice a day at 10:00 and 15:00. Clients can also subscribe there for Monsanto's annual competition and stand a chance to win a planting package of R100 000.

"Our clients can use our products with confidence, because it is supported by many years of research and testing as well as our product stewardship programme," says Magda du Toit, communication manager of Monsanto SA.

Please visit us at NAMPO or contact your DEKALB seed agent or broker to look at new cultivars and how it can fit into your planning for next season.

Article submitted by Magda du Toit, Corporate Communication Manager, Monsanto SS Africa. For more information, send an email to magda.du.toit@monsanto.com.

Omnia Farmer Development Scheme

Unproductive arable land due to unproductive farming systems a direct blow to rural development and agribusiness at large

In general South Africa has a low agricultural potential compared to other agriculturally competing countries, it is therefore imperative that the available agricultural land be effectively and efficiently utilised. According to the Department of Rural Development and Land Reform from 1994 until 2012 6,971,293 hectares of agricultural land has been transferred to black emerging farmers (and otherwise general non farming beneficiaries), however and disappointedly only a marginal number of the beneficiaries are involved in agribusiness.

In a recent article (February 2015) by one Dr Anthea Jeffrey of the Institute of Race Relations quoted Mondli Makhanya in a 2009 article; "Most people don't want land to farm. At the risk of being lynched, tarred, and feathered by ideologues, I will posit that South Africans have little interest in land…Should we be expending so much energy and effort on land redistribution when the instinct of rural South Africans is to head for the city and seek employment and upward mobility there?"

Makhanya's analysis was powerfully borne out in 2013, when official figures showed that **only about 8% of some 76 000 successful land claimants** had chosen to have their land restored to them. The remaining 71 000 or so (92%) had opted for cash instead.

By Minister Nkwinti's own admission, between 73% and 90% of land reform projects have **failed**. Put differently, what this failure rate means is that the government has thus far spent close on **R30bn** on the transfer of some **7m hectares of commercial farmland, most of which is no longer in productive use."**

Now the clear picture is that more land will be transferred to new owners in the future and the agribusiness community have to strike a working chord in the sector if we are to realise business growth. The proportion of farm lands belonging to small-scale growers is still going to take a reasonable long time before very large farms are consolidated into business sensible economies of scales. This will to an extent have an impact of the mannerism of doing business for most input suppliers including us at Omnia.

Research on the extent of financial loss realised especially by agricultural input suppliers and specifically fertiliser suppliers due to redistributed productive land turning unproductive is limited and almost non-existent. It is, however, important to note that financial losses are already witnessed due to reduced fertiliser demands in other areas as once highly productive lands are no longer productive. Parts of Northern KwaZulu-Natal (Vryheid), already exhibit such signs.

It can also be regarded as common sense that any loss of productivity on currently productive lands will lead to stagnant in farm productivity and lower demand in agricultural inputs. Involvement of business in the emerging farmer sector should therefore not only be viewed or limited to a developmental undertaking but must be part of a **business strategic imperative**. Cases of collapse in input supplier systems in other parts of the continent have been well documented as a result of land exchanging hands between established farming systems and new farmers; Zimbabwe is a case closer to home.

Political factors are amongst the most strategically relevant components of the larger environment facing today's local agricultural business. In scanning the macro-environment and, especially the indirect impact of political factors such as land reform and land redistribution on the company bottom line due to lost possible revenues as a result of productive agricultural land turning unproductive, a strategic response to keep redistributed agricultural land in production is of the utmost importance and key to remaining competitive as players in the industry value chain.

Omnia scheme

Omnia fertiliser through our product offering and our motto: "Creating customer value by leveraging knowledge", have been involved in the emerging farmer sector, formally over nine years as an intermediary for funding and also a providing mentoring support as well as linkages to business support within the agribusiness value chain.

Omnia doesn't sell finance but we leverage our industry position to attract funding into farmer development schemes this as a show-proof to Omnia's commitment to the sector. To date Omnia runs a commercially funded (loan) scheme covering 22 000 ha spread across North West, Free State, Mpumalanga, Gauteng, Eastern Cape and Limpopo (from a 5 000 ha scheme nine years ago). The success of this growth is attributed to continuous mentoring support and the use of technology based solutions on the farm.

Article submitted by Aron Kole, Manager: Operations & Sales, (New Business Development) and Tshepo Maeko, General Manager (New Business Development), Omnia. For more information, send an email to KoleAKole@omnia.co.za or TMaeko@omnia.co.za.

Be prepared
when attending a CCMA hearing

In a previous article we have indicated that the Commission for Conciliation, Mediation and Arbitration (CCMA) was established as an independent, apolitical, dispute-resolution body. The aim being to promote fair labour practices and resolving labour disputes within the working environment.

We have also indicated that employees can refer cases of dismissal, wages, working conditions, unfair labour practices, workplace changes, discrimination and cases of sexual harassment to the CCMA. At the present it is notable that all the more employees seek support from the CCMA where they feel they have been wronged by the employer, especially in the case of a dismissal.

Therefore employers must be aware that the possibility of being reported to the CCMA is quite high. The question is then what must I do if I am summoned to appear at the CCMA for a hearing. An employer has two ways of dealing with such a hearing. If you are a member of an Employers Organisation they will then represent you at the hearing or if not you may represent yourself.

In either of the two possibilities the key aspect is to be prepared. **"Fail to prepare means prepare to fail"**, which means that you can cause a lot of damage to your case if you or your employers organisation representative appear at a hearing ill prepared. The strategy must always be to be prepared not only for the conciliation phase, but also for any arbitration and award thereafter. You must be quite sure that you have a mandate to reinstate an employee or pay the employee financial compensation.

To be prepared thoroughly your paper work must be as required. Whether you represent yourself or are represented by your employer's organisation it will be to your advantage if the following is available:

- An organogram of your business;
- The code of conduct for your business which includes all rules and regulations;
- Your disciplinary procedure and disciplinary code; and
- The personal file of the affected employee with the application form, contract of employment, copy of ID document, any other relevant documents such as copies of certificates, all leave documents, all documents regarding disciplinary actions, and so forth.

The following is also necessary:

- A copy of the notice from the CCMA that the case has been referred to them;
- Copies of any correspondence between you and the CCMA;
- A summary of the chain of events;
- A copy of the minutes of the disciplinary and appeal hearings;
- Pay sheets for the last six months;
- A copy of the termination letter in the case of a dismissal;
- Your CCMA mandate document; and
- A pro-forma settlement agreement in case the parties settle.

When a case has been referred both parties will be summoned to attend a meeting at the CCMA. Should one of the parties be absent the commissioner could continue with the case in absence of the one party. Ensure that you take all relevant documents with you. Compile a checklist. Also make two further copies of the important documents, one for the commissioner and one for the employee.

Remember at the hearing it is always the employer's responsibility to prove that the dismissal or labour practice were just. Thus, the employer is the defendant. Due to the nature of the functions of the CCMA the empathy is normally with the employee. A lack of support and evidence via a proper paper trail has cost many an employer dearly. Without proper records you portray a negative image as a manager, something you must avoid. Even if you have only one employee you must ensure that your labour records are 100% as required.

To be successful the agricultural environment requires from our modern day farmers, regardless of the size of his/her business, to at times exchange the 13 mm spanner for a sharp pencil. Remember a proper human resource policy plus proper human resource records equates to proper human resource management and thus a greater chance of success at CCMA disputes.

Article submitted by Marius Greyling, Pula Imvula contributor. For more information, send an email to mariusg@mcgacc.co.za.

Pula Imvula's Quote of the Month

"Success does not consist in never making mistakes, but in never making the same one a second time".

~ Josh Billings

Resistance of weed against herbicides

The resistance of weeds, insects and plant pathogens against herbicides and pesticides is to a great extent a technical problem that can be quite easily overcome with the correct selection of substances to control the problem organism and by making relevant adjustments to conventional production practices.

From a different perspective, resistance is a powerful natural phenomenon that can be managed through human intervention aimed at minimising, eliminating and managing the problem. Ignorance regarding the existence of resistant weeds, insects and plant pathogens, or postponing suitable management practices where resistance is known, can lead to explosions in resistant populations and the subsequent loss of crop yields.

What is resistance?

Herbicide resistance is the inability of a herbicide to control (kill) a weed that was controlled with the same herbicide at registered dosages in the past. Resistant weeds become a problem when the resistant biotypes in a weed population increase in numbers, while the sensitive biotypes are killed by the same herbicide – the producer's perception is of progressively poorer control of a certain type of weed over several seasons.

An important factor in the potential impact of resistant weeds is that the resistance develops much more quickly (within three to five years) than the time required (approximately ten years) for researching and developing brand-new chemicals (herbicides) to overcome the problem.

New chemicals, i.e. new groups of chemicals with unique action mechanisms, appear in the market very seldom. With a few exceptions, perhaps in the case of *bicyclopyrone*, no brand-new herbicides appeared in the past roughly twenty years, including with respect to insecticides and fungicides.

In the case of *bicyclopyrone* the reliance is probably on a combination of action mechanisms (possibly well known) located in one type of molecule – this was developed by Syngenta for use in maize and sugar cane (source: *The Pesticide Manual, BCPC*, 2012). This approach, i.e. one type of molecule with more than one action mechanism, is seemingly a good strategy for combating weed resistance.

How resistance develops in weeds

In most cases that are known at this stage, herbicide-resistant weeds have developed within three to five growing seasons. To illustrate this process, it can commence as follows in a growing season:

- For example: One individual of the resistant biotype compared to 1 million of the sensitive biotype in a population of a certain type of weed – in the first growing season 90% of the sensitive biotype is controlled, but the resistant biotype is not controlled and produces seed.
- In the next growing season (year two), there are 1 000 of the resistant biotype and 90% of the sensitive biotype is once again controlled – perhaps the producers will at this stage complain about poorer control than in the previous growing season, but it would be easy to attribute this to other factors, or to not even identify it.
- In growing season three (year three), larger numbers of the resistant biotype than the sensitive biotype will survive on the field after herbicide application – control of the specific type of weed is visibly poor, resistance is suspected and ideally a management programme is implemented immediately.

Weed resistance tends to develop most quickly where the herbicide has a single site of action in plants, for example: sulphonyl urea herbicides that inhibit the enzyme acetolactase synthase (ALS); FOPS and DIMS, which inhibit the enzyme acetyl coenzyme A carboxylase (ACCase); glyphosate, which inhibits the enzyme enoylpyruvylshikimate phosphate synthase (EPSPS); glufosinate, which inhibits the enzyme glutamine synthase.

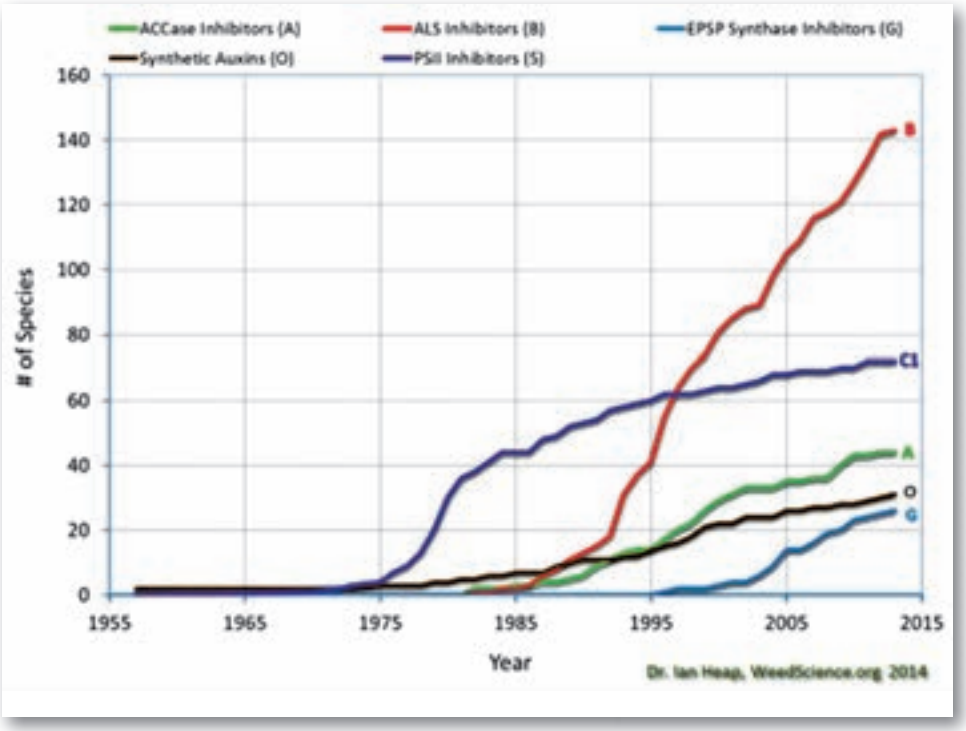
In the case of sulphonyl urea herbicides, resistance developed the quickest in most types of weeds – more than 140 resistant types are currently known worldwide, while in the case of glyphosate relatively few types of weeds have so far become resistant, namely 24 (see **Graph 1**).

Where new cases of resistance are reported at a relatively slow pace, it can be an indication that more than one action mechanism in a herbicide is involved – examples in Graph 1 are glyphosate (EPSPS inhibitor) and synthetic auxins (e.g. 2,4-D and MCPA).

Resistance is not always due only to a natural mutation (change) in the site of action, for example the structural change in an enzyme (the site of operation) that causes the herbicide not to react there and inhibit the enzyme.

Another way in which resistance develops is when plant characteristics and processes cause a threshold-value concentration not to build up at a site of action. A resistant biotype can, for example, contain more hairs and wax on the leaves than the sensitive biotype, so that less herbicide is absorbed and reaches the site of action. The same happens when the herbicide, after absorption by the plant, is broken down and/or fixed on the way to the site of action, i.e. it is neutralised in the plant.

Graph 1: Increase over time in herbicide-resistant weeds – the worldwide situation for some of the main herbicide groups (= mechanisms of action).



Flax-leaf fleabane plants (Conyza bonariensis) in a vineyard near Stellenbosch. Photo: Charlie Reinhardt.

Determining the weed resistance status of a weed at Tukkies (name of research project: South African Herbicide Resistance Initiative [SAHRI]).

Main preventive steps

An important reason why weeds become resistant is the repeated, high-frequency use of herbicides, particularly those that have a single mechanism of action, i.e. using the same substance over and over, without alternating it with other types of herbicides. Crop rotation is one way of breaking the cycle of repeated use of one type of herbicide.

Note: Merely using more than one type of herbicide, whether in a tank mixture or consecutively in a particular season or seasons, is not the answer – it is important that the variety of herbicides that are used should involve a variety of mechanisms of action. Mesotrione and tembotrione, for example, belong to the triketone group and are products of two companies, but have the same mechanism of action; the same applies to the sulphonyl urea chlorsulfuron, triasulfuron and metsulfuron; and to the ACCase inhibitors dichlofop-methyl and sethoxydim.

Misconceptions about weed resistance: (1) Herbicides cause genetic mutations (deviations) that cause the weed to be resistant – false. Research has long since shown this to be a misconception, and there is proof that such mutations develop spontaneously in nature. (2) Overdosage or underdosage leads to resistant weeds – false. Both over and underdosage can promote the development of resistance, i.e. they can lead to unnatural increases in resistant biotypes that developed naturally.

Weed resistance in South Africa

Dr PJ Pieterse (2010) of Stellenbosch University published an excellent summary of the status of weed resistance in South Africa – see list of sources. Most cases of resistance have been reported in the Western Cape. Like in Australia, resistance there appeared in vineyards and orchards first, and in time spread to small grains.

Pieterse (2010) mentions six weeds that are resistant to ACCase-inhibitor herbicides; nine to ALS-inhibitor herbicides; three to glyphosate and one to 'hormone'-type of herbicides (e.g. 2,4-D and MCPA).

The development of weed resistance in the Western Cape was and still can be attributed to the now familiar problem of reliance on a limited number of herbicide groups (= mechanisms of action). Little research has so far been done on weed resistance in the summer rainfall area. Since September 2012 Tukkies has launched a research project to investigate weed resistance countrywide – see **Photo 2**.

The writer is the project leader of this project and invites readers to contact him on 083 442 3427 or at dr.charlie.reinhardt@gmail.com with respect to cases of resistant weeds and weeds that are just difficult to control.

Sources

Heap, I. 2012. The international survey of herbicide resistant weeds. http//www.weedscience.com (accessed March 2014).

Pieterse, PJ. 2010. Herbicide resistance in weeds – a threat to chemical weed control in South Africa. S. Afr. J. Plant Soil 27(1). Special edition: 25th anniversary.

Article submitted by Prof Charlie Reinhardt, Extraordinary Professor, University of Pretoria and Dean: Villa Academy, for SA Graan/Grain May 2014. For more information, send an email to dr.charlie.reinhardt@gmail.com.

Integrated crop and pasture-based livestock production systems

1

Specific pasture crop species can play an imperative role in conservation agriculture (CA) based crop-pasture-rotations.

Besides improving the physical, chemical, hydrological and biological properties of the soil, these species, including annual or perennial cover crops, can successfully be used as animal feed. Livestock production systems are in many ways dependant on the utilisation of pasture species, in this case as a pasture ley crop, and can therefore become an integral component of CA-based crop-pasture-rotations.

It is imperative however to identify a pasture species fulfilling the requirements of a dual purpose crop, i.e. for livestock fodder and soil restoration.

Digitaria eriantha – Smuts finger grass (*Smutsvingergras*)

In 1924 General Jan S. Smuts identified a group of *Digitaria* plants on his farm Doornkloof near Pretoria and brought this under the attention of Miss S.M. Stent, a taxonomist in the Department of Agriculture.

According to Smuts, this group of plants differed from other finger grasses in the area because of its acceptability by animals. Material collected from these plants brought upon a new species namely *Digitaria smutsii*.

The grazing value of *D. smutsii* became very popular (early 1930's) under the influence of research done by Drs Pentz and Pole-Evans. In 1981 the botanical name of this grass became *Digitaria eriantha* cultivar Irene, which is still available today.

Agro-ecological distribution

In the early days it was commonly planted in the districts of Pretoria, George, Rustenburg, Kroonstad, Grahamstown, Vereeniging, Cedara (KwaZulu-Natal), Potchefstroom, Kokstad, Ermelo and Bloemfontein.

One of the reasons for its popularity is its adaptability to a variety of climatic and soil conditions. Although it will survive rainfall conditions of as low as 450 mm per annum, it is mainly grown in cooler areas with a rainfall of 550 mm and higher. This grass is also known to survive frost and will grow on almost any soil.

Management and utilisation

Because of Smuts finger's fluffy seeds, it should be established in a well-prepared, fine and firm seedbed. Proper rolling before and after seeding will benefit germination and establishment. Establishment can be done with pure Smuts finger grass seed, at 4 kg/ha to 7 kg/ha, or in mixtures. The popular Potch-mixture can be planted in different combinations:

- Equal parts of Smuts finger grass, Rhodes grass (*Chloris gayana*), white buffalo grass (*Panicum maximum*) and bottlebrush grass (*Anthephora pubescens*), in fertile soils and medium rainfall areas.
- Equal parts of Smuts finger grass, Rhodes grass, white buffalo grass, in fertile soils and high rainfall areas.
- Equal parts of Smuts finger grass and Rhodes grass, in practically any soil and medium to high rainfall areas.

Smuts finger grass is naturally a slow establisher and for that reason the combination with Rhodes grass is a good choice because Rhodes is quicker to establish. In 12 to 18 months the Smuts finger grass will increase and the composition will have become equal and with time the Rhodes might disappear completely to leave a pure stand of Smuts finger grass.

Smuts finger grass is a grass type which can be strategically used in the growing and dormant seasons of a fodder flow programme. The inherent palatability, regardless of being fertilised or not, is ideally used as a green pasture in the summer growing seasons and undoubtedly as a foggage (*staande hooi*) in winter. It can also be used as a hay crop and for seed production.

Smuts finger grass is often used as a foggage in the autumn and early winter months; especially when the veld is shortly grazed and the maize residues are not available yet. Other than just using Smuts finger grass to relieve the pressure on the veld, the production of the grass can be manipulated through the fertilisation, depending on the expected dry matter requirement during specific times of the year.

An important condition for using Smuts finger grass as foggage is that the pasture has to be rested from mid-January for the rest of the growing season. If this pasture is to be fertilised before it is used for foggage, then mid-January is also the most suitable time to do this.

When Smuts finger grass is to be used as a green pasture, it is very seldom that it is ready for grazing before the middle of November. Once grazing commences it can be used until end of April and if good foggage is prepared, it can be used until the end of May.

Photo 1: Inflorescence of Digitaria eriantha (Smuts finger grass).
Photo 2: Smuts finger grass pasture.
Photo 3: Leafiness of Smuts finger grass.
Photo 4: Smuts finger grass ready for grazing.
Photo 5: Preserved Smuts finger grass in the form of bales.
Photo 6: Smuts finger grass being used as foggage in June.

2

3

Rotational grazing with high grazing pressure is essential to optimally utilise Smuts finger grass, especially with sheep. Cattle can however utilise this pasture efficiently using a continuous grazing system. If Smuts finger grass is fertilised well, year old weaners or slaughter lams are the most profitable group of livestock to be kept on such pastures.

Smuts finger grass is regarded as a very good hay crop, particularly with regards to the palatable leaves and stems. The grass however, cannot be cut, dried and baled on the same day, as these processes take a bit longer than *Eragrostis curvula* for instance. If these aforementioned processes are completed before being spoiled by rain, then extremely high quality hay can be produced.

Management challenges

The production and grazing capacity of this grass depends greatly on the soil type, fertilisation level, rainfall and management. A common growth trend is noted for Smuts finger grass, where it starts growing around the middle of October and stops growing in March/April.

The most active growth stage is the middle of November until end of January. The growth distribution on a percentage basis is as follows: 15% for November, 35% for December, 28% for January, 12% for February, 6% for March and 4% for April.

As can be seen, most management activities such as cutting, baling and fertilisation need to be conducted in December/January if this pasture is to be used as a dual-purpose pasture. This is however in the middle of the peak rainy season, which highlights the evident management challenges. Even though this pasture crop is grown on a variety of soils, it will not survive waterlogged conditions.

Animal production aspects

Dry matter (DM) production values of as high as 12 tons/ha to 18 tons/ha has been achieved under optimal climatic conditions and good fertilisation practices. The common production values expected for summer rainfall areas in the western parts of the country where the rainfall is between 400 mm - 800 mm per annum, can be as low as 1,5 tons/ha to 7 tons/ha.

For optimal production under grazing conditions, it is imperative that Smuts finger grass should never be grazed shorter than 50 mm from the soil surface. A rest period of 30 to 60 days is essential for sufficient regrowth to occur before the next grazing cycle.

The grazing capacity of Smuts finger grass can vary between areas receiving different rainfall, and can be anything between 0,5 - 2,5 mature large stock units (LSU)/ha. The digestibility of this grass can vary between 60% - 65% in the summer and drop to as low as 40% in winter. During the growing season a crude protein content of between 12% - 22% can be achieved with good fertilisation and rainfall, but can however be as low as 5% in winter with no attention.

Integrated crop and pasture-based livestock production systems

4

5

6

Soil conservation and health benefits

Smuts finger grass is a highly recommended pasture ley crop for shallow and stony soils. The major limitation to this recommendation is that the grain cropped land, will need to be removed from crop production for at least five years since this grass establishes slowly.

Even if Smuts finger grass is known to establish slowly, the primary value of this pasture is endless, particularly from an animal nutrition perspective as provided by hay, foggage, silage and summer and autumn grazing. It is often noted, that the secondary value of such a pasture lies in the higher degree of soil nutrient build-up through animal dung when highly palatable and nutritious pastures are grazed.

With the increased occurrence of degraded natural veld, Smuts finger grass can also be regarded as an important grass to be used to reinforce such poor quality veld. As previously mentioned, this grass has an inherent palatability and a wide adaptability which makes it a suitable grass to interseed into degraded areas.

Grain crop production

After establishing a typical ley crop system using Smuts finger for a period of around five years, the soil should be sufficiently restored to cultivate annual grain crops under a CA system. Herbicides kill the pasture quickly and the pasture residues remain on the soil surface providing cover that limits erosion, enhance water infiltration and reduces their rate of mineralisation.

Once a decision is made to terminate the ley, all pasture components should be considered as "weeds" that need to be removed. They should no longer be regarded as a source of fodder for livestock.

Depending on the pasture species and situation (e.g. dry or wet area), the pasture could be killed a season before planting grain crops to allow the soil profile to be replenished with water. The water requirement of the first crop planned after pasture will influence the timing of removal of the pasture.

Reliable and timely seasonal rainfall forecasts may assist in this planning. Following the pasture phase, grain crop yield will be restricted unless the soil water profile is replenished. After removing the pasture, weeds in the fallow must be controlled to conserve soil water to maximise the benefit of the ley.

A suitable no-till planter should be used to plant the grain crops directly into the residues of the pasture crop, without any other cultivation practice disturbing the soil. Normal integrated fertiliser (based on soil fertility levels and yield targets), weed and pest control practices should be followed.

A profitable pasture

Smuts finger grass is regarded as one of the best quality and adaptable grasses in South Africa. Even though it takes some time to establish properly, it will always be known as one of the most profitable pastures in a long term ley cropping system. It is a strong perennial pasture, with a vigorous root system which can ultimately improve soil quality and contribute to livestock and grain crop profitability and sustainability.

Article submitted by Wayne Truter, University of Pretoria, Chris Dannhauser, Grass SA, Hendrik Smith, Grain SA and Gerrie Trytsman, ARC-Animal Production Institute, for SA Graan/Grain May 2014. For more information, send an email to wayne.truter@up.ac.za, admin@GrassSA.co.za, hendrik.smith@grainsa.co.za or gtrytsman@arc.agric.za.

What does *foot rot involve?*

Foot rot in a heifer. The foot is swollen, painful and hot.

Foot rot makes it difficult for sheep to walk.

Foot rot in a sheep. Because of the pain and inflammation the sheep eats less and this leads to a loss of condition.

Goats and sheep should be checked regularly, preferably every day, to diagnose foot rot in time and provide treatment.

Foot rot is relatively common among sheep in South Africa. The Merino and related sheep breeds seem to be more susceptible to foot rot than mutton breeds like the Romney.

No sheep breed is completely resistant to the disease. In every sheep breed there are animals that offer more resistance than others, and this seems to be hereditary. The resistance apparently relates to the structure of the hoof and the extent to which the animal's hooves splay open when it walks.

Cause

The bacterium *Dichelobacter (Bacteroides)* nodosus causes foot rot. Foot rot is more common in the presence of the white bankrupt-worm *(Strongyloides papillosus)*, which penetrates the skin of the legs and injuries to the legs caused by grasses (such as Kikuyu barbs).

Transfer

Sheep that have recovered from foot rot attacks can carry the germ in their legs for up to three years. These carrier animals serve as source of infection. Germs can survive in infected camps for up to two weeks.

Germs are transferred through contact with infected mud or grass. Continuous wet conditions are required for the germs to spread. Regular irrigation of grazing where the sheep feed can also create conditions favourable to the occurrence and spreading of the germs. Where conditions are favourable to the disease, foot rot can spread rapidly through the herd.

Signs of the disease

Usually a number of sheep in the herd start limping at the same time. The sheep limp, stand on their knees and many of them even lie down. Because of the pain the affected sheep eat less and this leads to a loss of condition and wool growth.

One to all four legs can be affected. The skin between the hooves is red and moist. The tissue between the hooves is swollen, smells badly and is greyish-yellow and putrid. The hoof becomes soft and starts to crumble. The affected hooves are hot, painful and in time become misshapen.

The condition can lead to foul-in-the-foot and permanent lameness.

Prevention and control

- Vaccines can be used with quite good results. The vaccines must be administered repeatedly and the immunity that develops, does not last long. Consult the veterinarian on details regarding the immunisation programme for foot rot.
- Cut the sheep's hooves regularly before the foot rot season.
- Let the sheep stand in a foot bath containing 5% formalin and 10% zinc sulphate weekly for one to two minutes. Make sure that only the sheep's hooves get wet. Make sure that the sheep's legs are clean before they enter the foot bath.
- Sheep should be kept away from muddy parts as far as possible.
- Keep sheep away from infected camps for two weeks.
- Affected sheep should be isolated and not admitted to the herd.
- Make sure that you do not buy carrier sheep. Do not return treated sheep to healthy herds immediately.
- Consult the veterinarian about the treatment of the sick sheep with anti-microbial and other drugs.

Article submitted by Dr Jan du Preez, Managing Director, Institute for Dairy Technology, for SA Graan/Grain May 2014. For more information, send an email to jan.dupreez@mpo.co.za.

Want to know more about stripe rust?

South Africa first experienced an outbreak of wheat stripe rust in 1996, caused by the biotrophic fungus *Puccinia striiformis f.sp. tritici.* A single race was initially identified and currently there are three races that have been found in South Africa.

The most dominating pathotype in the different wheat producing areas is *6E22A+*. This race was first identified in 2005 and unlike preceding stripe rust races in South Africa, it is virulent on the resistance gene *YrA*.

Stripe rust is more prevalent when weather conditions are cool and wet as this is ideal for the proliferation of the fungus. Therefore, susceptible cultivars grown in cooler areas such as the eastern Free State are vulnerable to stripe rust infection.

Stripe rust is a variable pathogen consisting of pathotypes with different virulence spectra. Optimum weather conditions for the proliferation of stripe rust are temperatures between 10°C and 15°C and the presence of free water. During periods of hot and dry weather, infection ceases, but it often restarts during cool and moist conditions.

What can you do you when you suspect infections?

Firstly, a correct identification of the disease needs to be made. A typical sign of stripe rust is the presence of small, yellowish pustules on leaves and sheaths arranged in conspicuous stripes (**Photo 1**). In cases of severe infection on susceptible plants, pustules also form on wheat heads, and are easily identified by their yellow colour (**Photo 2**).

If stripe rust is correctly identified in the field, the use of chemicals is sometimes essential. However, certain factors should be taken into consideration such as, the growth stage of the crop, susceptibility of the cultivar/s used, yield potential and the costs involved in fungicide applications.

The timing of fungicide application is critical since plants are most vulnerable during the early growth stages and this is when most of the damage occurs. Spraying after the soft dough stage is often unnecessary as the chances of the disease affecting yield is low.

If the cultivar is susceptible, with a high yield potential, the timing of the fungicide application should ensure that the crop is protected especially during the kernel filling period.

Table 1: Registered fungicides for the control of stripe rust in South Africa (AVCASA, 2013).

Product name	Active
Amistar Xtra	Azoxystrobin/cyproconazole
Improve 250 SC Indicate 250 SC	Azoxystrobin/epoxiconazole
Granit EC	Bromuconazole
Duett Endura Plus Soprano C	Carbendazim/epoxiconazole
Flusilazim 375 SC Lyric C Punch C Sparta SC	Carbendazim/flusilazole
Early Impact	Carbendazim/flutriafol
Propazim 250 SC Propiconazole Plus 250 SC	Carbendazim/propiconazole
Folicur C 300 SC	Carbendazim/tebuconazole
Artea	Cyproconazole/propiconazole
Endura 125 SC Opus	Epoxiconazole
Capitan 250 EW	Flusilazole
Impact	Flutriafol
Richter	Hexaconazole
Ag-Propiconazole Bumper 250 EC Propicon 250 EC Propicon 500 EC Propiconazole 250 EC Propimax EC Propizole 250 EC Sanazole 250 EC Tilt	Propiconazole
Prosper Trio	Spiroxamine/tebuconazole/triadimenol
Tebuconazole 250 EC Tebuconazole 250 EW TebuDew Orius 200 EW Orius 250 EW Corona 250 EW Folicur 250 EW TebCure 250 EW Tebuzole 250 EW Volteb 250 EW	Tebuconazole
Badger 15 FS	Triadimenol
Flite	Triticonazole

Table 2: Wheat cultivars recommended for the different regions and their reactions to stripe infection (ARC-SGI, Cultivar Evaluation Guidelines, 2014).

Dryland – Summer rainfall region		Dryland – Winter rainfall region		Irrigation – Summer rainfall region	
Cultivar	**Reaction**	**Cultivar**	**Reaction**	**Cultivar**	**Reaction**
Elands	MS	Baviaans	R	Baviaans	R
Gariep	S	Kariega	R	Buffels	R
Komati	MS	Kwartel	R	Duzi	R
Matlabas	S	PAN 3408	R	Kariega	R
PAN 3118	S	PAN 3434	R	Krokodil	S
PAN 3120	MR	PAN 3471	R	Olifants	R
PAN 3144	MR	Ratel	R	PAN 3434	R
PAN 3161	R	SST 015	R	PAN 3471	R
PAN 3355	MR	SST 027	R	PAN 3478	R
PAN 3368	MR	SST 047	R	Sabie	R
PAN 3379	MS	SST 056	MR	SST 806	R
SST 347	MS	SST 087	R	SST 822	R
SST 356	R	SST 88	MR	SST 835	MR
SST 374	MRMS	Tankwa	R	SST 843	R
SST 387	R			SST 866	R/MS
				SST 867	MR
				SST 875	R
				SST 876	MR
				SST 877	R/MS
				SST 884	R
				SST 895	R
				Steenbras	S

R = Resistant
MR = Moderately resistant
MS= Moderately susceptible
S = Susceptible

Photo 1: Stripe rust symptoms on wheat leaves.

Photo 2: Wheat head infected with stripe rust.

Even during the absence of stripe rust, the crop needs to be thoroughly monitored up to the fully emerged flag leaf stage for signs of the disease.

Table 1 indicates fungicides that are registered for control of stripe rust in South Africa as well as the active ingredients of these fungicides. It should be remembered that it is better to apply a fungicide early rather than late. It is generally recommended not to spray after the soft dough stage as infections seldom result in a significant yield loss.

Higher water rates of 300 litre/ha aid fungicide coverage.

Resistant cultivars

Planting stripe rust resistant cultivars can be beneficial to farmers and the environment as there will be little or no need for fungicide applications to control the disease.

A list of the recommended wheat cultivars and their stripe rust resistance status for the different regions are listed in **Table 2.**

Conclusion

- It is advisable for producers to use recommended resistant cultivars.
- Regular monitoring of fields by walking through random strips in the field is essential to detect the disease at an early stage.
- Fungicides are effective, provided that the timing and fungicide application is correct. Correct timing is essential, as fungicides cannot undo damage caused prior to spraying. However, further damage can be prevented.
- Multiple fungicide applications may be required on highly susceptible cultivars.

Article submitted by Krishna Naicker, ARC-Small Grain Institute, Bethlehem, for SA Graan/Grain May 2014. For more information, send an email to NaickerK@arc.agric.za.

Grain SA interviews...
Mr TH Tobo

Meet Mr TH Tobo a hard working and goal orientated farmer from the Kwa Ndunge village in Bizana, who currently farms with maize, dry beans, soybeans and sorghum. Mr Tobo attributes his achievements to the Grain SA study group he attends. “Preserve the soil so it can preserve us,” is the advice Mr Tobo wants to give young aspiring farmers.

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

I farm at Kwa Ndunge village in Bizana on PTO land granted from the chief. At present (2014 - 2015 season) I have planted 10 ha of the following: 8 hectare maize, 1,2 hectare dry beans, 0,4 hectare soybeans, and 0,4 hectare sorghum. I am looking forward to increase the hectares in the 2015 - 2016 season with grain crops.

What motivates/inspires you?

There is a rule that says a human being must have at least three meals a day – that is what motivates me. I don't want to see South Africans starving because of the shortage of food or food scarcity. When I look at the fertility of the soil that motivates me more. There are countries that haven’t got that abundance of good annual rainfall including some areas of our country.

Describe your strengths and weaknesses

Strength: I am hard working and want to achieve my goals.

Weakness: I get disappointed when I do not reach my goals.

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

I managed to harvest one ox sledge of bad cobs per hectare which is the equivalent of 250 kg maize today. Today, I am no longer talking of kilograms. At least 3 tons/ha to 4,5 tons/ha is what I always achieve. Since I have joined the Grain SA study group, I have achieved that yield.

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

To be part of the Grain SA study group is one of the biggest achievements in my success.

> *“Preserve the soil so it can preserve us.”*

Training, especially the Maize Production course broadened my scope of farming. During those years I was not aware that soil sampling is vital in order to achieve good crop production as well as conserving our natural resources.

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

I have completed the Maize Production course, Contractors course, Tractor and Implement Maintenance course. I would love to get more training on soya and sorghum production. Education is not a requirement, it is a necessity. I mention soya and sorghum because it is the crop that is looking new in production areas. It disappeared in the mid 70s. I am also blessed with the training that I completed in 2014 on Soy Sip Production on the arrival of soy cows.

Where do you see yourself in five year’s time? What would you like to achieve?

I see myself as a commercial farmer producing quality products for the country. As a farmer my aim is to achieve high yields. My higher aim is to see the soy cow as a leading nutritious factory in the region. At present it is still in an introductory phase where 96 learners are fed free per week.

What advice do you have for young aspiring farmers?

My advice would be to join a study group because it is there where we share our knowledge with our mentors. I also want aspiring farmers to be aware of soil preservation because climate change needs the modern way of farming. “Preserve the soil so it can preserve us.”

Article submitted by Ian Househam, Grain SA Provincial Co-ordinator, Kokstad. For more information, send an email to kokstad@grainsa.co.za.

The Corner Post

Grain SA Farmer Development Statistics

The focus of our programme is essentially human empowerment through training and skills development. We transfer information and skills to the farmer members of our programme through various projects, on-farm support to individual farmers and through the Pula Imvula Magazine. We support our farmers from ten offices across the country. They are situated in Bloemfontein, Ladybrand, Lichtenburg, Belfast, Nelspruit, Louwsburg, Kokstad, Mthatha, Maclear and Paarl. Each of these offices are responsible for the following:

Study groups

The establishment and servicing of study groups is really the entry point to our development programme. There are thousands of people in South Africa who have access to arable land of different sizes and through the study groups we expose them to the type of production practices that will enable them to make optimal use of the land they have available. We currently have 133 study groups throughout South Africa which consists of approximately **6 814 study group members**. Through monthly meetings with these study group members we expose them to information about the entire grain sector as well as the principle of conservation agriculture.

Demonstration trials

In the less commercialised areas it is necessary to have demonstration trials so that the developing farmers can see the results of good production practices. The farmers can experience the practices and then apply them to their own land. We have again been fortunate to be assisted by many input supply companies with the establishment of the demonstration trial. These companies not only provide the seed, fertiliser and chemicals, but also assist with the planting and management of the trials, and share their knowledge with the farmers in the areas. During 2014 we planted **61 demonstration trials** throughout South Africa. Once the sites for the demonstration trials have been established, it is very important for the developing farmers in that region to be exposed to all the aspects of planting and tending to the crops that are to be planted on those sites. The farmer days offer an opportunity for the farmers to meet other farmers, input supply companies and all other role-players in the industry – and the farmers gain much information and exposure on these occasions. The total number of farmers days held during 2014 **was 83 farmers' days which were attended by 4 593 farmers and industry role-players.**

Advanced farmer programme

All developing farmers cannot be supported at the same basic level. Through the study groups, the starter farmers are supported with information and training to get them into production and to cultivate a basic understanding of the industry. However, there are farmers who are now beyond the type of support that they get through the study group structures. These farmers are already farming on a semi-commercial scale, but they are in a position to be left entirely to their own devices in the commercial world. Through this individual support programme we try to support the outstanding candidates who have emerged from the study group system. These farmers need one-on-one support in terms of production management and receive one year of intensive support. Every year a new group of farmers will be identified and supported, and they should then be able to continue on their own with some telephonic assistance by the regional officers. When the farmer is producing in excess of 250 tons per year and meets the commercial production standards they are handed over to the care and support of the commercial farmers in that region to fast track the integration of the black farmers into the commercial sector. There are currently approximately 6 814 study group members, **174 advanced farmers and 150 recap farmers being assisted** by the Grain SA Farmer Development Programme.

Training

Over the past ten years we have developed course material that covers almost all aspects of crop farming, mechanisation and management. Each of these courses has a manual and each student is given a copy. The courses usually run for 2 to 5 days and trainers train the students under their own production circumstances and in the language of their preference (wherever possible). The courses are part of a full support programme – after the course the farmers are supported through the study group meetings and visits by advanced farmers to ensure that the information from the course becomes useful to the farmer. During 2014, a total number of **2 315 developing farmers received training.**

Grain SA schools programme

The children of today are the adults of tomorrow. We all understand and agree that agriculture is the cornerstone of most developing economies. We need to inspire the children about feeding and clothing the future generations. Through this programme we are managing to touch the lives of many children and we hope to make a difference to their perceptions about agriculture – its role in our lives. It is essential that we encourage children to be aware of the value of agriculture as a source of food and fibre, and major role-player in the economy, as an employer, and as a career choice.

The schools programme of Grain SA is funded by the Maize Trust, the Winter Cereal Trust and the AgriSETA.

This month's edition of The Corner Post was adapted from the Grain SA 2014 Annual Report by Jane McPherson, Programme Manager of the Grain SA Farmer Development Programme.

Grow to your **FULL POTENTIAL** with **DEKALB®** by your side

Do you want to make a resounding success of your farming?

Then you need a partner who is ready to walk with you all the way to success. With **DEKALB®** from Monsanto, you have a comprehensive range of high-quality white and yellow maize for exceptional yields. **DEKALB®** also offers you a choice of hybrids featuring **YieldGard®**, **Genuity® YieldGard® II** and/or **Genuity® Roundup Ready® Corn 2** technology in maize for protection against stalk borers and weeds. Get **DEKALB®** for good quality, excellent standability and the best yields!

Call Monsanto today to find out more.

Yellow Maize	*White Maize*
DKC80-40BR GEN	*CRN3505*
DKC80-12B GEN	*DKC78-35R*
DKC80-30R	*DKC77-61B*
DKC62-80BR GEN	*DKC77-85B GEN*
DKC64-78BR GEN	*DKC78-17B*
DKC73-76R	*DKC78-45BR GEN*
DKC62-84R	*DKC78-45BR*
DKC73-74BR GEN	
DKC73-70B GEN	
DKC73-72	
DKC66-32B	
DKC66-36R	
DKC80-10	
DKC61-90	
New	*New*
DKC61-94BR	*DKC78-27*
	DKC78-87B
	DKC78-83R
	DKC78-79BR
	DKC77-77BR
	DKC79-25B

DEKALB® – More than maize!™

Monsanto tel: 011 790-8200 | www.monsanto.co.za
Clients are welcome to contact our client services on 011 790-8201 or customercare.sa@monsanto.com.

MONSANTO

uppe marketing A09762/GSA