PULA IMVULA

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

GRAIN SA
GRAAN SA

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PANNAR®

PULA
IMVULA

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Nkgono Jane says...

IN THIS ISSUE...

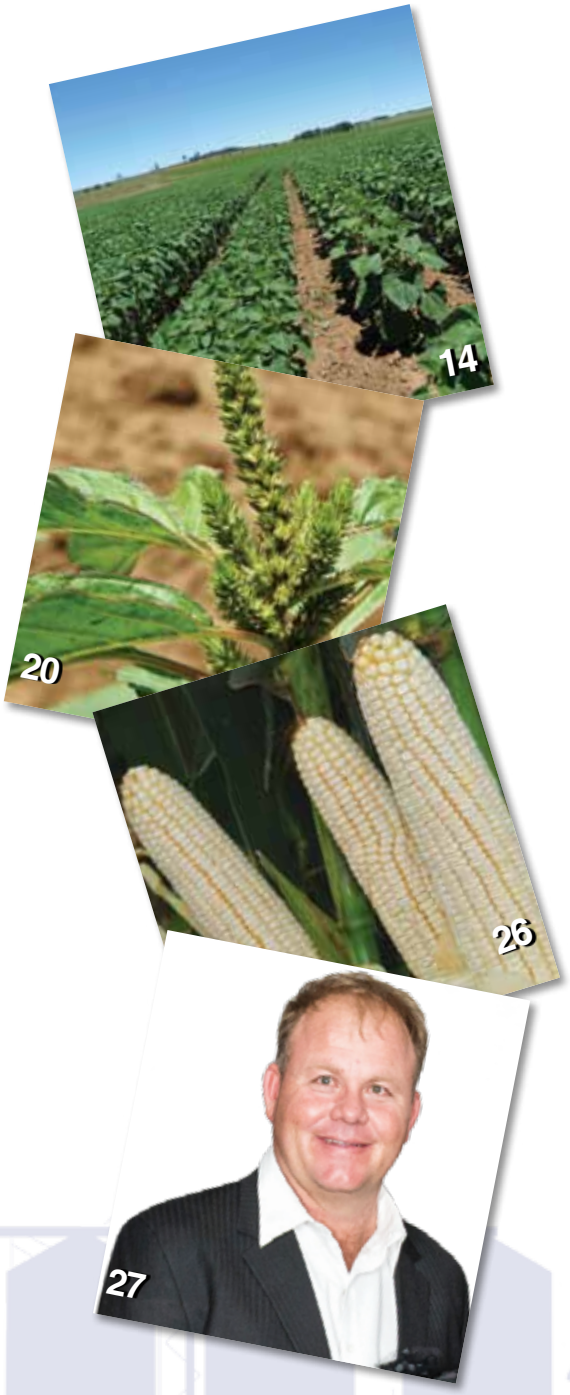
Each month the Pula Imvula gives me an opportunity to share some thoughts with you. We are living in challenging times and we face continuous change and uncertainty. Change is often difficult for people and it is the fear of the unknown that is most challenging.

'Change your thoughts and you change your world' – Norman Vincent Peale. This is a beautiful quote in that the idea is that each of us lives in our own world, our own reality. We hope for things that no one else may be hoping for, we fear things that no one else might be afraid of. We cry about things that may not make anyone else sad. Each one of us is responsible for our own thoughts and if you change your own thoughts, you can change your own world.

In your world, you might be worried about food security, your own safety, the drought, maybe floods, money, education, health. Sometimes what we need to do is to start thinking differently – think about new ways to look at things, new ways to do old things, new things to do, new crops to plant. Let us try not to fear the changes that our society needs. We need to embrace change and be part of the new world that we are creating. We need to adapt, take courage and take the next step that might take you to a completely new destination.

Politically there are many uncertainties facing our country now. We dream of a new world where we can all be part of a successful nation, vibrant economy, reduced poverty and inequality. George Bernard Shaw said: 'Progress is impossible without change, and those who cannot change their minds cannot change anything'. Look around you and see how you can become a force for positive changes in your home, your community and in our country. Do what you can do and try to make a difference. Remember, God said to love your neighbour – reach out to your neighbour, love him and become part of a greater movement towards positive change in our lives and in our world.

'That is how change happens. One gesture. One person. One moment at a time' – Libba Bray.



MENTORSHIP – a growing experience for both mentor and mentee

Mentorship is essentially the process of guidance and training by passing one's knowledge and expertise on to a mentee.

I have been a mentor to roughly 90 subsistence farmers for the past three years as part of the Grain SA Farmer Development Programme seeking to reach out to the farmers in remote, rural areas near Estcourt, KwaZulu-Natal. My experience of being a mentor has been an adventure of growth and enlightenment – I only hope and trust that it has been the same for my mentees.

What do mentors do?

Grain SA's Subsistence to Abundance project in partnership with The Jobs Fund (National Treasury), Kynoch, Monsanto, SA Lime & Gypsum, Syngenta and the Department of Rural Development and Land Reform has focused on mentorship as one of the cornerstones of the programme's implementation.

As mentors we have been tasked with facilitating the program at grassroots level. We communicate information relating to the programme directly to the farmers. We do logistical co-ordination and planning with regard to input deliveries. We collect information and data from the farmers for recording purposes and most importantly, we do theoretical and practical training on the principles of maize production in South Africa. This is a lot of responsibility and at times it can be daunting, but with good cooperation and enthusiastic farmers it can be a pleasant experience. As with any programme, where there are many people involved, good teamwork is essential.

> *"I feel the programme has delivered some unbelievable results thus far and I can honestly say that it has been one of the most fulfilling experiences of my life.*

One of the happy mentees receiving inputs.

Facilitating a programme of this size and liaising with a large number of farmers can have its challenges. This is why farmers are divided into 'study groups' that are grouped according to location. All the study groups fall under one of Grain SA's regional offices and are assigned a mentor. We meet with the study groups on a weekly basis at a central point such as a tribal court, church or community hall where we do theoretical training based on an introductory syllabus of maize production. The syllabus covers topics such as maize growth and development, nutrient requirements, planting and harvesting, weed and pest control as well as topics relating to business management such as record keeping, budgeting and marketing.

The study group meetings are also a point of contact for the farmers where they can express concerns, ask questions and plan. This is especially useful when it comes to resource management as you will often find that farmers whose fields are located close to one another

A food secure home through the Subsistence to Abundance programme.

Mr and Mrs Zuma – two of my mentees who won Subsistence Farmer of the Year for 2016.

> *There is a hunger for knowledge and skills at grass roots level which is very exciting.*

Examining a maize trial plot.

choose to pool their resources (particularly machinery) to save on costs.

At the study group meetings mentors can also use the time to deal with general administration (the Jobs Fund has imposed stringent requirements in this regard, so accurate record keeping and paper work has been a key function for us). After a meeting we will often break off into smaller groups where we can work on a one on one basis and deal with practical topics in the field. Topics such as area calculation, plant population and row width calculations as well as calibration of machinery such as spray rigs, planters and fertiliser spreaders are all covered.

I feel the programme has delivered some unbelievable results thus far and I can honestly say that it has been one of the most fulfilling experiences of my life. To see the enthusiastic farmers grow and implement what they have learnt is extremely rewarding.

Obviously you will never really achieve a 100% 'pass rate'. I like to use the analogy of a classroom of school students where on average 20% will perform exceptionally well, 60% will perform well to average and 20% will perform poorly. This is similar to that which I have witnessed in the study group set up amongst the farmers/mentees. And just as a teacher will take pride in those that have put in the effort to achieve good results, so too do I take immense pride in those farmers who make the effort to attend meetings and learn in order to achieve better results.

On a personal level, I have grown to better understand the rural and communal set up in our country. My eyes have been opened to the poverty and the inequality which exists in our social structures as a result of our divided past. I have seen the need first hand for assistance, not only financially but also in the form of knowledge.

There is a hunger for knowledge and skills at grass roots level which is very exciting. This doesn't necessarily need to come from an educational institution; it can come from a mentor. I believe that it is the responsibility of all stakeholders in the agricultural sector to form partnerships and continue to provide this type of knowledge transfer – I have seen such positive impacts on so many subsistence farmers. For the sake of food security, community relations, poverty eradication and rural development as well as continued social and economic transformation, this surely needs to remain a priority!

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

From subsistence to abundance and beyond

Santam Agri indicated to Grain SA that they would like to become involved in the Jobs Fund Project, From Subsistence to Abundance, and they requested that we put a funding request to them.

We decided to request sponsorship for training manuals on the safe use and storage of maize, GPS devices to be used by the mentors, and threshing machines for the farmers who are achieving high yields.

Training

Over the past number of years, the Maize Trust has funded research, done by Cape Peninsula University of Technology, on mycotoxins and the effect they have on human health. During 2017, the Farmer Development Programme was able to access a series of articles on these Mycotoxins and publish them in the Pula Imvula (where they are translated into six languages). It is important that after research is done, that the results of the research should reach people on whose lives the study could have an impact.

Although the Pula Imvula is a great medium to get information to the readers, we felt that a one-day training course to members of the Jobs Fund project could bring the information home to the farmers and hopefully influence the way they manage and store their maize after the harvest. Through funding of the DST, we were able to present a one day training course to 95 groups of farmers, reaching more than 1 700 farmers who produce maize for own use, and who sell the surplus to generate an income.

During the courses, the farmers were taught to recognise the different mycotoxins and to understand the conditions under which they flourish. As many of the farmers live with the contamination, it was essential to spell out the risks involved in exposure to them – some are carcinogenic, some cause kidney damage, some cause the early onset of puberty in girls, while other cause vomiting and headaches, etc.

One of the most important aspects of the courses was to teach the farmers how to harvest and store the maize to minimise the infections, but also to sort, remove and wash the maize before it is used for consumption. These practices can reduce the contamination greatly and thereby improve the health of the rural farmers.

GPS devices

One of the requirements of this project which is partly funded by the Jobs Fund (National Treasury) is that all the fields of all the farmers need to be mapped. This is a huge job as each farmer could have a number of fields and there are more than 3 800 farmers on 5 200 ha. Santam generously agreed to buy 37 devices recommended by the BFAP team as ideal for the purpose.

> *"The need however is great and we are very thankful to Santam Agri to have funded another six threshing machines.*

Figure 1 shows a map from the BFAP system, which shows each land of some of the farmers in the Bergville area. While the mapping is being done, the same device takes a photo and is also used to capture information on the farmer and the field. All this data is recorded on the BFAP system for later use in the programme. This picture shows the large amounts of land not being used for crop production in these areas – there is room for the expansion of the programme!

Photo 3 is an example of the information that we have on each farmer – his/her photo, a photo of the condition of the land when the

1

2

During the training courses, the farmers are taught to recognise the different mycotoxins and how to harvest and store the maize to minimise the infections.

3

The details of each farmer is captured and recorded on the BFAP system.

4

The GPS device used to capture the farmers information has a long battery life and a large memory.

Figure 1: A map from the BFAP system, which shows each land of some of the farmers in the Bergville area.

mapping was done, a map of the land with the co-ordinates, showing the accurate size of the land, as well as a photo showing the land relative to the area. To our knowledge, there are no other farmer support programmes that have this geographical detail on all their members.

The devices (**Photo 4**) have been carefully selected for the features required – they have a long battery life and a large memory. Many of the areas where these farmers have their fields do not have satellite connections and so the mentor needs to be able to do the work and then only sync to the BFAP system when they reach an area that has good connections.

The devices are also set up in such a way that the mentor has to be within ten meters of the field to be able to take a photo of that field – this prevents a photo being loaded under the name of a farmer that is perhaps not that farmer's field. The devices are also used to gather the type of information about the farmers that are indicated in graphs – the impact of this project is far greater than simply household food security.

The fact that so many of these farmers are very poorly educated means that they cannot get jobs – being able to use the land to generate an income is their only option. Most of the farmers in the project are in the 'older' categories – this also means that they do not have many options for income generation. The farmers also sell a lot of their produce locally – improving the food security of the other members of the local area too.

Threshing machines

The farmers who are part of this project have been growing and harvesting maize in a very rural and primitive way. In the past, they were able to thresh the crop by hand because the yield was so very low. However, with the improved inputs and production methods, these farmers are no longer able to thresh the volumes by hand.

AfriCA Implements in Bothaville manufactures a small diesel powered threshing machine and we have been fortunate to be able to acquire some for the farmers through funding from Silostrat in Welkom and the DST. The need however is great and we are very thankful to Santam Agri to have funded another six threshing machines.

Article submitted by Jane McPherson, Farmer Development Programme Manager, Grain SA. For more information, send an email to jane@grainsa.co.za.

Pula Imvula's Quote of the Month

Happiness does not come from doing easy work but from the afterglow of satisfaction that comes after the achievement of a difficult task that demanded our best.

~ Theodore Isaac Rubin

LOOKING BACK
OVER THE SHOULDER OF 2017

The Grain SA Farmer Development Programme (Grain SA FDP) has become recognised nationally as a flagship for successful farmer development at a time when land reform and transformation has been a national imperative.

In the same period there have been countless unimaginable economic and social pressures placed squarely on the shoulders of the agricultural sector not only nationally but globally too. Despite countless challenges and pressures which stretch way beyond the realm of politics and righting past wrongs, the agricultural sector has been asked to play a major role in building a new South Africa.

The apolitical grain farmer lobby which is Grain SA, very soon recognised that the agricultural sector needed to be transformed and that it was most important to strive towards a scenario where all grain farmers regardless of race, farm size or capacity have one united voice to represent the sector and address common needs and challenges. A Congress decision was thus made to set up a Farmer Development division within the organisation which would focus on farmer development. This programme has been managed by Jane McPherson since 2005 and has reached deep into the hearts of farmers around the country.

Our mission is to capacitate black commercial producers and to contribute to household and national food security through the optimal use of the land and resources available to the farmers. The focus of the FDP team has been to discover meaningful ways to contribute to the dream of a united and prosperous agricultural sector while facilitating healthy and sustainable transformation in the grain growing sector.

It is our intention to contribute towards the upliftment of individuals working in agriculture and facilitate improved income generation opportunities for those who have access to land. At all times the team is focussed on the people with whom we work, with the aim of building healthy relationships with developing grain producers.

Table 1: Maize Trust projects.

Projects
Creation and servicing of study groups
Training
Communication: Pula Imvula
Support to individual farmers

FROM SUBSISTENCE

TO COMMERCIAL

By assisting farmers to use the land they have available, regardless of size, the sector will be able to ignite the rural economy and set the base for other developments. Unemployment rates are high and although the grain sector is not very labour intensive there are nonetheless many employment opportunities which are created in rural areas because of primary agricultural activities.

We believe that sustainable development occurs when the individual farmer is equipped to take responsibility for his/her own operations. Farmers should be empowered to farm for themselves as far as possible rather than be farmed for by contractors. Furthermore, where possible, farmers should own their own equipment so as not to have to rely on other service providers.

We use a wide range of teaching methods to communicate messages about modern crop production, the importance of accountability and record keeping and the finer nuances of business management principles. Significantly for our purposes **the measure of success is**

William Matasane *farms near Senekal and is a proud member of Grain SA. He 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 says he would however still like to learn more about Safex and grain trading to manage the marketing of his crop.*

Mavis Hlatshwayo, *Subsistence Farmer of the Year 2017, says, 'I am so grateful for the programme, because in a country where millions of people go to bed hungry, I'm able to produce enough maize to feed my family. I can then sell the surplus to make some money for myself.'*

June Shongwe *farms in the Ehlanzeni district and was mentored by Regional Manager Jerry Mthombothi said, 'I have gained a lot of knowledge on how to farm in a correct and productive way since I joined Grain SA in 2012. I was introduced to good quality seeds, shown how to take soil samples to determine the correct usage and application of fertiliser and shown how to check the pH of my soil. I was also shown which herbicides to use to control weeds.'*

the sustainable optimal production of profitable crops on every hectare rather than the total number of hectares planted, or the total number of tons harvested.

Regional managers

The FDP has established a significant regional footprint which has made building relationships with farmers and agribusinesses possible. There are nine regional managers servicing farmers, running study groups and mentoring advanced farmers in key grain growing regions of South Africa. Each office in manned by a manager and an administrative assistant. On average, the managers each travel about 4 000 km each month!

The nine regional managers are:

- Jerry Mthombothi – Nelspruit;
- Du Toit van der Westhuizen – Lichtenburg;
- Jurie Mentz – Louwsburg;
- Graeme Engelbrecht – Dundee;
- Johan Kriel – Ladybrand;
- Sinelizwi Fakade – Mthatha;
- Ian Househam and Luke Collier – Kokstad and Maclear; and
- Liana Stroebel – Paarl.

Partnerships

Another key ingredient of our success is **the network of dynamic partnerships** we have established. We not only recognise that the extent of our work is directly related to the support of our partners – but we also believe in the value of surrounding each farmer with a wide network of expertise that reaches beyond the FDP team and will continue to support farmers in their districts long after they no longer need development support. It is for this reason that we eagerly embrace partnerships which share our vision and are willing to promote the development of farmers.

Talking about partnerships…Grain SA has been fortunate to receive funding from many agencies over the years including the Maize Trust, Winter Cereal Trust, Oil and Protein Seed Development Trust, the Sorghum Trust, the AgriSETA, the ARC, the National Departments of Agriculture, Forestry and Fisheries (DAFF) and the Department of Rural Development and Agrarian Reform (DRDLR) (for the recapitalisation of farmers) and the various Regional DAFF and Rural Development government departments. We can only **#MakeADifference** with this kind of dedicated support.

Key contributors towards our activities during the 2017 activities have been:

The Maize Trust

We have always sincerely appreciated the visionary approach of the Trustees, which has enabled Grain SA Farmer Development to implement a significant and empowering programme that has been to the benefit of the developing grain farmers of South Africa.

Ever since the establishment of Grain SA in June 1999, the collaboration between the Maize Trust and the Grain SA FDP has made a significant contribution towards the vision of national government to fast-track the transformation of the agricultural sector. This partnership has:

- Contributed to farmer education and skills development.
- Pursued the optimisation of production per unit area using modern best practices and farming methods.
- Improved the contribution of emerging farmers to national maize production and consequently has contributed significantly to strengthened food security.
- Strengthened relationships and support systems between developing farmers and an extended network of sector stakeholders and role-players.

The majority of maize farmers in South Africa are not yet producing at a commercial level. Most are subsistence farmers growing grain for family consumption, with possibly a small amount extra for barter or sale. For various reasons they are not yet achieving the yield/ha that they potentially could.

Other farmers are growing crops on a larger scale but are also not yet attaining the yields per ha that they should. As much as this is possibly the result of a lack of quality inputs, it can also be attributed to lack of knowledge and skills about appropriate modern production methods and as well as a lack of understanding of business management and marketing skills. Such knowledge and skills have a direct impact not only on yields returned but also on the viability and sustainability of farming enterprises regardless of whether they are subsistence, smallholder or growing commercial operations.

South Africa has many black developing farmers producing maize on wide ranging scales of operations, from subsistence and smallholder farmers to highly intensive commercial farmers. The aim of the Grain SA FDP is to equip individuals, through skills development, training and mentorship interventions, to produce the highest yields possible from every hectare that he/she plants, regardless of the nature of their access to land or the size of their farming operations.

It is thrilling to see that irrespective of the size of operation, when farmers know what to do, when to do it, they are empowered to just go out and do the right things by putting their new knowledge into practice, without fail they find that their better informed efforts lead to improved yields. Thanks to the work done by this programme thousands of developing farmers in South Africa are already reaping rewards from doing the right thing at the right time in the right way.

The Winter Cereal Trust

The Grain SA FDP for the Western and Southern Cape is managed by Ms Jane McPherson, Manager: Farmer Development and implemented by Ms Liana Stroebel with administrative support from Hailey Ehrenreich out of the Grain SA regional office in Paarl. This development office is responsible for the co-ordination of all study groups and farmers

Looking back over the shoulder of 2017

days held in the region and is directly responsible for the transfer of wheat sector specific information and also the identification of up-skilling strategies which may further equip the farmers.

The farming development projects in the Western Cape and Southern Cape region continue to service the farmers intensively with skills, networking, crop specific expertise and support to promote wheat production, with the particular goal of supporting these farmers to commercialisation.

Grain SA believes that the long-term objectives will be achieved through up-skilling and equipping developing farmers and farm workers in the wheat producing areas through diverse methods of communication and through the dissemination of wheat industry information to the broader developing agricultural sector through the Pula Imvula magazine and by promoting relationships between the farmers and other role-players in the sector.

The funding as approved by the Winter Cereal Trust (WCT) for the 2017 financial year excludes all direct support of the operational and personnel costs for administering the Paarl regional office. It also no longer contributes to the funding of the key activities namely the one-on-one farm visits or the broader study group initiatives. This means that WCT funding is exclusively used for: **Farmers Days**, the **Farmer of the Year programme**, **Training courses and materials** and communication through the **Pula Imvula** magazine.

Table 2: Maize Trust funding.
The following offices received Maize Trust funding for study group activities:

	Dundee	Kokstad	Maclear	Nelspruit
Subsistence farmers	1 961	1 722	1 052	1 293
Smallholder farmers	15	14	18	45
Potential commercial farmers	1	1	2	1
New Era Commercial farmers	4	3	2	0

The Oil and Protein Seed Development Trust

We believe that the crops which the OPDT champions like sunflowers, soybeans, canola and groundnuts play a critical role in the crop production cycles implemented by the farmers we work with, whether they form part of a crop rotation system, contribute to improving soil health or are planted to improve household food security.

Many farmers are being forced to consider alternative crops simply because maize prices are under pressure, making maize production a less viable option going forward. **We need to ensure that training in production practices and knowledge transfer systems and mentorship are available to the farmers throughout the season.** To this end OPOT has contributed to a number of training courses.

Pula Imvula

OPOT funds four pages for the October, January, April and July editions of the Pula Imvula magazine. Articles are written by experienced researchers and agricultural practitioners specifically for the developing farmer agenda. Although translation services come at a price, this is small when one considers the powerful nature of the information and that accessibility of the information to a wider readership is made possible because it is presented in some of our indigenous languages.

The study groups lie at the heart of the Grain SA Farmer Development Programme.

Monsanto

This year Monsanto has made generous contributions towards the operational costs of our **regional offices** in Lichtenburg, Louwsburg, Ladybrand, Mthatha, and Kokstad. They also made generous contributions to the **trial plots** planted in the different regional projects around the country.

Monsanto also co-sponsored **Farmers Days** in the Ladybrand region. These days are well attended and not only do the farmers soak up the information but they also use the occasion to build on their networks with input suppliers and agribusiness representatives. It is a wonderful opportunity to expose farmers to new products and new possibilities.

Noteworthy is the fact that the event organised in Fouriesburg was the tenth Farmers Day held on Grain SA Board Member Mr Jaco Breytenbach's farm in co-operation with Monsanto. Monsanto has also partnered with Grain SA in sponsoring the new Farmer of the Year competition category: **Potential Commercial Farmer of the Year** which was won by Paul Mvelekweni Malindi from Edenville.

Afgri

Afgri has generously made financial contributions to the operational costs incurred by Louwsburg, Dundee and Ladybrand regional offices. Afgri has also made donations towards a number of the Farmers Days. Afgri has been a willing buyer of small scale farmers' maize and has participated in Farmers Days where they explain marketing costs, storage costs and pricing structures.

Pannar

During the 2017 financial year Pannar helped towards the **operational costs** of our Maclear office which primarily mentors subsistence

Introduction to Soybean Production			
Province	**Office**	**Trainer**	**Number of learners**
Free State	Ladybrand	Fanie Pienaar	24
North West	Lichtenburg	Boebie van Rensburg	19
KwaZulu-Natal	Louwsburg	Paul Wiggill	18
Mpumalanga	Louwsburg	Paul Wiggill	14
KwaZulu-Natal	Dundee	Gareth Alcock	25
Eastern Cape	Kokstad	Eric Wiggill	23
KwaZulu-Natal	Dundee	Chris de Jager	26
KwaZulu-Natal	Dundee	Paul Wiggill	25
Mpumalanga	Louwsburg	Paul Wiggill	15
KwaZulu-Natal	Dundee	Gareth Alcock	15
Eastern Cape	Kokstad	Eric Wiggill	26
Eastern Cape	Mthatha	Sarel Pretorius	24
KwaZulu-Natal	Dundee	Paul Wiggill	19
Eastern Cape	Mthatha	Eric Wiggill	16
KwaZulu-Natal	Dundee	Gareth Alcock	25
Mpumalanga	Louwsburg	Chris de Jager	16
KwaZulu-Natal	Dundee	Paul Wiggill	25
Introduction to Groundnut Production			
KwaZulu-Natal	Dundee	Gareth Alcock	10
Mpumalanga	Louwsburg	Chris de Jager	15
North West	Lichtenburg	Danie van den Berg	16
Mpumalanga	Nelspruit	Shadrack Mabuza	22
Mpumalanga	Nelspruit	Gawie Alberts	24
Mpumalanga	Louwsburg	Gareth Alcock	18
Mpumalanga	Nelspruit	Gawie Alberts	22
KwaZulu-Natal	Dundee	Chris de Jager	12
Introduction to Sunflower Production			
North West	Lichtenburg	Boebie van Rensburg	13
Canola Production			
Western Cape	Paarl	Chris Cumming	6
Western Cape	Paarl	Chris Cumming	7

***Fanie Pienaar** presented one of these courses near Welkom and was complimented on his course delivery and that he made it easy for everyone to understand.*

***J Moki said:** 'Theory was given in a simple and understandable way. It was easier even for a person who was not studying agriculture to understand the concept. It was given in simple terms and different concepts made easier. The basic steps, like soil and preparation of the land to be planted was done as well, one could distinguish between soil and weed. The lecturer really knows his subject. His method of teaching is commendable. He is able to put theory into practice. He really made the subject easy to understand. The examples were easy and really touched the hearts of those he taught.'*

***M Tseletsele:** 'I for one feel that we learnt a lot from the course and it would be nice if maybe the lecturer Thabo or the representative from Grain SA would visit us at our individual or co-operative farms. It will be helpful if they saw our farm conditions for example the soil types and if it is suitable for the production of soybeans.'*

Feedback from the farmers indicates that the course was instructive and they found it beneficial.

***Elroy Michaels:** 'I would just like to say that the course was a success for me. I really enjoyed it and it was very special to attend the course. If there is another course presented, I would really appreciate attending it.'*

***Daniel Arends:** 'It was a wonderful experience to be able to learn about canola and I would like to learn more. Thank you for the training. It was also good to experience the practical training of investigating the lands.'*

***Boebie van Rensburg** presented this course near Brits and reported that the farmers are hungry for more information. 'The knowledge of the farmers here is good on sunflower production. During the past season they had sufficient rainfall and some of them reported yields of up to 1,5 tons of sunflower per hectare. They are keen for more courses and would like a course on tractor maintenance.'*

***RI Molefe:** 'The course was very much informative.'*

***Uhuru Zikala:** 'Thank you for making topics which would otherwise be complex, very easy.'*

***P Molefe:** 'The course really helped me a lot and I gained a lot of knowledge.'*

***LB Dlamini:** 'The course was informative and practical.'*

***Gareth Alcock** presented a course near Mtshezi (Estcourt district) and reported.*

'The feedback for this course was positive, as the learners indicated that they felt that the knowledge gained from this course would be sufficient for them to try planting groundnuts. Quite a few learners indicated their interest in planting groundnuts this season, and also asked for contact details of groundnut seed suppliers.'

***Danie van den Berg** presented a course at Makwassie.*

***Ananlise Ntwagoe:** 'The course went very well. I have learned so many things about groundnuts. Mr Danie was very clear. I understood him very well.'*

***Bartus Maerman:** 'The theory was very informative.'*

Looking back over the shoulder of 2017

and smallholder farmers. Agricultural potential here is high however land use is sub-optimal and there are vast unutilised tracts of land.

Pannar also generously contributes to the planting of **trial plots** around the country and also supported the launching of **Farmers Days**. It is particularly important to note that the trial plots are planted with the farmers in mind and therefore the methods the farmers use are the methods used in the preparation, planting and nurturing of the crops. The aim is to show the farmers what they can achieve with what they have at their disposal using best agricultural practices.

Grain SA

Following a Congress decision to ensure continued farmer development in key grain growing regions, Grain SA contributed towards the **operational costs** of our Paarl and Lichtenburg offices. Other significant contributors towards the operational costs of Regional Offices are:

- Sasol Base Chemicals
- Silostrat

These are companies which believe that sustainable agricultural development is a priority in this country and have therefore committed to making a difference in the South African agricultural sector by partnering with the Grain SA Farmer Development Programme.

Jobs Fund – From Subsistence to Abundance

The Jobs Fund is an initiative emanating from National Treasury. The project implemented by Grain SA Farmer Development is structured on a basis of 1:1 funding – they match the funding from the other partners. In this event the contribution by the farmers as well as the cash value of the industry discounts make up the 'own contribution' that is then matched by the Jobs Fund. The current project is a four-year project which we can participate in thanks to:

a) The co-operation of sponsors

- Monsanto offered discounts on stacked gene seed and Roundup;
- Syngenta discounted herbicides and insecticides for the farmers;
- Kynoch gave discounts on planting mixtures and top dressing;
- SA Lime & Gypsum discounted one ton of lime for every farmer;
- Sasol Trust made cash contributions towards the cost of inputs; and
- DRDLR's REID programme made cash contributions towards inputs and supplied additional mechanisation.

b) The contribution by the farmers

The farmers also all have to make an own contribution which increases each year for four years i.e. 25% - 40% - 60% - 80% and then by year five the farmers will be paying 100% of the costs. It is hoped that this will equip them over the five-year period with skills and expertise to proceed independently and sustainably.

In the 2016/2017 season 2 905 farmers participated on 4 317 ha. This project involved regional managers and an additional 26 mentors who supported the farmers. The crops produced by these farmers were very good – many harvested in excess of 5 tons/ha, and some even as many as 9 tons/ha. In the new

season there will be in the region of 4 000 farmers on more than 5 000 hectares.

The Department of Science and Technology (DST)

The department made a significant contribution to the programme this past year. The sponsorship of the course enabled the presentation of 95 courses about: 'Mycotoxins – Safe Storage of Maize'. The information is particularly relevant to many of the farmers who store their own grain for human and livestock consumption purposes.

The department also donated funds for the purchase of threshing machines for some study groups and they also answered the need for storage capacity by donating 'Cob Cages' to the Jobs Fund farmers whose yields have improved so much they did not have enough storage capacity.

Santam Agri

Santam Agri kindly donated funds towards the printing of manuals for learners who attended the DST course on 'Mycotoxins – Safe Storage of Maize' so the farmers have a reference book on this important subject for the future.

The Jobs Fund project has demanded detailed data collection and information systems. Santam Agri kindly sponsored the high-tech GPS devices which our Jobs Fund mentors have used for this purpose.

They also contributed towards the purchase of threshing machines which was an urgent need that has arisen out of improved production practises and better yields than many of the Jobs Fund farmers have seen before.

The DRDLR – Recapitalisation and Development Programme in the Free State

The project is managed by Johan Kriel out of the Ladybrand Regional Office and focuses on capacity development i.e. education and skills development as well as with infrastructure development and operational inputs. This is intended to uplift farms which were acquired through the land reform and redistribution policies of the national government. Grain SA has been fortunate to access recapitalisation funding for **17 farmers** in the programme during this financial year.

Study groups

The study group lies at the heart of the Grain SA FDP. This is where we meet the farmers, get to know their circumstances and challenges and build relationships of trust; and where we can do the strongest networking with them.

Through consistently pitching up and being present with an attentive ear, a word of advice and sharing our passion for using what they have at their disposal as effectively and sustainably as possible, the farmers have learned that the team can be trusted to help.

The meetings are dynamic and varied and are conducted indoors, where DVD and PowerPoint displays inspire them, and outdoors, where our development officers and mentors get down and dirty in the fields demonstrating, fixing, and teaching in very practical hands on fashion. It is in this way that the farmers have learned that we care and can be counted on!

Advanced farmer support

South Africa has some of the most advanced commercial farmers in the world. There is a wide gap between them and Grain SA's New Era farmers who are producing 250 tons of maize from their land and are farming each hectare to produce the highest possible yield on a semi-commercial scale.

The New Era farmers have in fact progressed far beyond the support that is offered at Study Group level (information, training and demonstrations). It has however been recognised that these advancing farmers are not yet quite ready to have 'the apron strings cut' and it would be foolish to walk beside them so far and then leave them to 'sink or swim'. It has been recognised that although progressing with promise, at this level many farmers are not quite ready to join the ranks of commercial farmers and be left unsupported. The main aim of the project is:

- To provide one year of intensive one-on-one support to outstanding candidates who have come out of the Study Group system in terms of production planning, management, making financial applications and reporting etc.
- After the year has been completed, they should be able to manage as commercial farmers with occasional telephonic advice from their mentors.
- Each year a new group of farmers is identified and supported in this manner. When a farmer is farming each hectare to commercial standards of yield and is producing more than 250 tons a year, he/she will be fast tracked into the commercial sector and will be 'handed over' to the commercial growers in that area.
- This process contributes rapidly to the growth in numbers of black commercial farmers.

Pula Imvula

The significant role played by print media lies in its ability to deliver timeous and relevant information quickly and efficiently. The magazine is invaluable for creating awareness about new ideas and practices and for transferring ideas about business management, planning and budgeting.

Unlike radio and TV which are undeniably also effective tools for knowledge transfer, a magazine in the hand can be referred to time and again or shared and passed on to other farmers. Within the Grain SA FDP the magazine has become a tool used by the development officers and mentors. The content in the magazines is often discussed further in the study group meetings so it becomes a teaching tool. Also, the farmers often come to the study group with the magazine in hand to ask a question about an article he or she has read. The ensuing discussions become a teaching opportunity for all those present. The magazine is audience oriented and presents short messages with pictures to enhance meaning.

A full colour Pula Imvula magazine is distributed to a readership of 21 220 throughout South Africa in seven languages namely English, Afrikaans, Sesotho, Setswana, IsiXhosa, Sesotho sa Leboa and IsiZulu. The English edition is an even fuller commercial publication. The magazine is sponsored as follows:

- The Maize Trust: Monthly – eight pages.
- The Oil and Protein Seed Development Trust: Quarterly – four pages.
- The Winter Cereal Trust: Quarterly – four pages.
- Commercial sponsorships: English expanded version: Monthly – eight pages.

Training

A wide range of courses are offered for free by the Grain SA FDP team. This is possible thanks to generous funding from the trusts AgriSETA, the Maize Trust, the Winter Cereal Trust and the Oil Seed Trusts and other stakeholders.

The training program is co-ordinated by Dr Willie Kotzé who together with the regional managers identifies appropriate courses for the farmers in a particular study group. Our training courses are structured to address theory and practical application on a wide range of topics which have been structured into week long courses which are sponsored by a number of invested partners.

The training is delivered in the language of the farmers and is designed to make immediate impact to their farming business, workshop management knowledge and plant production capabilities. The regular feedback from the farmers consistently reassures us that we are equipping and empowering them in a meaningful way.

Twitter

During 2017 we launched our own FDP Twitter account: **Grain SA Farmer Dev.** Our handle is: **@gsafarmerdev.** The pinned tweet headlines our newsfeed with a short explanatory video about our programme. If you are interested in following the progress of our team, you are welcome to log in to our Twitter account which highlights weekly grain farming and development activities around the country. We would love to see more of you on that platform and share our up to the minute news with you there!

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

COVER CROPS
– lower risk and enhance production

We live in an ever changing agricultural economic and climatic environment. Local climate change, which has been experienced in many locations, is largely determined by the sea temperature many thousands of kilometres away.

This in turn is caused by the variable and sometimes very high energy emanating from the sun which heats some oceans increasing the moisture content of the atmosphere. This climate change which results in either lowered or increased rainfall as well as changed patterns is playing havoc with the planning of the production of dryland and irrigated crops in inland and coastal regions.

Some areas have received normal or even above normal rains this summer while others have received only about 24 mm in small showers from 2 mm to 7,5 mm. This situation follows the last four or five years of abnormal rainfall patterns. In the main many dryland farmers have not been able to store enough moisture in the fallow periods to be able to ensure the planting of grain crops in the optimum planting window of the current season.

The historic, actual and future production volumes of the various main grains are expressed in future contract prices on Safex and then result in a 'spot price' or Safex less transport differential cost which is finally paid to farmers. As the old saying goes 'farmers buy in production costs at retail and sell grains wholesale'.

Due to last years good grain crops the 'pipeline' or reserve grain in the marketing chain have stabilised the future prices of most grains. It can be argued that at these prices it is very difficult, unless top yields are realised, to make dryland grain production profitable.

It is perhaps the right time to consider moving from the monoculture of maize or other crops to the incorporation of crop rotations and then within a pure grain rotation the inclusion of cover crops within these rotations.

Cover crops in cash grain crop rotations

Introducing cover crops, which might include grains planted for the winter within a summer crop rotation, include a diverse selection of plants; will lessen the dependence on now high-risk cash crop production in a continuous summer or winter crop production cycle.

The crop rotation system together with the inclusion of certain cover crops must at least lower the economic risk by spreading the sustained pressure of producing a grain crop every season on every piece of arable land you have. It must enhance your soil fertility and moisture holding capacity so that

A thorough understanding of the cover crop options within the constraints of your farming area will enable you to select and manage those chosen to the best advantage.

> *It is a huge advantage if small and large stock production can be integrated into the planned crop and cover crop rotation.*

the planned cash crops within the planned cycle can be planted on time in a more fertile and moist environment.

Each farming area whether being more suitable for a winter, summer or a mediterranean production pattern needs a very specific combination of niche cover crops to enhance the possibility of success. Introducing this system will also lessen the dependency on ever larger and expensive sets of tractors and equipment

to be able to plant large areas in a shortened planting window. It is a huge advantage if small and large stock production can be integrated into the planned crop and cover crop rotation.

Cover crop benefits

Cover crops offer many benefits and include erosion control, reduced compaction and nutrient leaching, increased water infiltration, improved soil biodiversity, weed control and disease suppression, increased capture of carbon in the soil, maximum nutrient recycling, improved air, soil and water quality, and wildlife diversity and enhancement.

A thorough understanding of the cover crop options within the constraints of your farming area will enable you to select and manage those chosen to the best advantage.

Lequme cover crops can be used to fix nitrogen in the air into usable forms in the soil. Common lequme cover crops include cowpea, winter pea, crotalaria, red clover, sweet clover, hairy vetch (grown very successfully in no-till production of soybeans in the Free State), soybeans and lucerne.

Grass cover crops including winter forage crops such as oats or korog (triticale) in the summer production area can be used to advantage. The brassicas that can be planted include various radishes, turnips, kale mustard and rape. Buckwheat is a fast-growing summer crop that enhances phosphorus recycling and can be planted quite late in the season.

Some cover crops options after cash crops

Cowpea after wheat can be grazed and then killed to provide nitrogen for the next cash crop which could be maize if this is planned. A wheat/soybean cover crop rotation can be used to advantage. Cereal rye, annual ryegrass, wheat, or oats can be planted after early soybeans. Cereal rye may be planted after late maturing soybeans or maize but must be early enough to be established before winter.

> *The crop rotation system together with the inclusion of certain cover crops must at least lower the economic risk by spreading the sustained pressure of producing a grain crop every season on every piece of arable land you have.*

Farmers can also plan to plant cover crops in a planned more long-term cycle within maize, soybean and sunflower rotations. These are but a few examples of what is possible.

Conclusion

Look at the possible cover crops that can be used in your farming area within your ideal cash crop rotation to lower financial risk and enhance production diversification to be able to move away from continuous grain cropping.

Article submitted by a retired farmer.

DRDAR & GRAIN SA empower Eastern Cape farmers

During 2017, Grain SA entered into a Service Level Agreement (SLA) with the DRDAR in the Eastern Cape.

The overall purpose of the agreement is to establish working relations and partnership in terms of supporting the development of subsistence and smallholder farmers to increase their yields to commercial yields, and to contribute to the sustainable development of rural communities and food security for all around the grain production projects; to identify and support local contractors so as to build mechanisation capacity within the communities; and to develop and capacitate graduates with practical exposure to grain farming.

An estimated 16 million South Africans live in poverty and the highest incident is among female-headed households in rural areas. Poverty eradication and wealth creation under an ideal free market system depends on economic growth of sectors. This could be because the growth of one-sector leads to the growth of another sector i.e. the growth of raw materials suppliers has been growing with the growth of those who process the raw material.

> *"Poverty eradication and wealth creation under an ideal free market system depends on economic growth of sectors.*

Consequently, South Africa today has two very distinct economies in most sectors i.e. the developed economy also referred to as the first economy and the developing economy also referred to as the second economy. This dualism cuts across all agriculture sectors, sub-sectors and commodities including the grain sector, which is the focus of this project. A higher proportion of the population is regarded as being food insecure, with severe malnutrition on children.

The objective of this SLA is for Grain SA to engage contractors to assist farmers on 3 656 ha to plant their crops (as per the Jobs Fund Project principles) in the communal areas of the Eastern Cape, for the purpose of producing maize for household food security and to sell any surplus that is produced so as to contribute to income generation for these farmers in the deep rural areas.

Farmers make their own monetary contribution on a per hectare basis. The input supply companies (Monsanto, SA Lime & Gypsum, Kynoch, Syngenta and Villa Crop Science), are providing a discount on the inputs; the Jobs Fund is contributing part of the cost of the inputs as well as the cost of the mentoring.

The contribution from the DRDAR is to pay contractors to prepare the fields, plant and spray the crops for the farmers in the Eastern Cape. Grain SA shares knowledge and information, ensures effective monitoring and evaluation of programmes and develops a reporting system in respect of the projects embarked upon. Unemployed graduates from within the targeted areas were recruited and contracted to Grain SA and funded by DRDAR. These graduates worked very closely with the mentors in the area, gaining valuable hands-

one experience while at the same time attending training courses that were appropriate to their needs.

In the Eastern Cape, the Grain SA programme operates from the five districts namely: Alfred Nzo, Amathole, Chris Hani, Joe Gqabi and O.R. Tambo. It is further envisaged that the grains produced by these farmers could supply the Agri Parks in the province (once they are operational).

Many of the farmers in the deep rural areas do not have their own mechanisation and they cannot afford to pay the costs of contracting. Through this agreement, Grain SA will be able to assess and contract local agricultural contractors to assist the farmers with land preparation, planting and spraying of land, (farmers who are part of the Jobs Fund Project and other similar projects who have paid their dues).

With regard to the farmers, Grain SA agreed to:

- Identify all the participating farmers with the support of the department. The participation of farmers is dependent on their making their financial contribution to the project by 31 July each year.
- Receive the contribution from each farmer – the farmers deposit the money directly into the Standard Bank account opened specifically for that purpose and sign a job fund agreement, or other appropriate agreement.
- Order the correct inputs for the farmer; appoint mentors to support the farmers in the field; train the farmers on production and marketing.
- Assist the farmers with the marketing of their surplus.

With regard to the contractors, Grain SA agreed to:

- Identify suitable, capable and equipped contractors to prepare and plant the designated fields for the farmers.
- Assess the equipment of the contractors and ensure that they have the capacity to do the work assigned to them.
- Support the contractors throughout the process to ensure that they perform their tasks to the required standards.

We believe that this project is being a success. The fact that local farmers and tractor owners are being empowered to develop as contractors will ensure that crop production will be able to continue long after the duration of this project. It is very important to use the local people as the service providers as they live within the community and are part of the people they are serving. Their delivery, or lack thereof, will impact on their standing in the community and this factor alone drives them to do a good job.

The programme of empowering the graduates is very necessary – there are a large number of young people who would like to be part of the sector and who have studied at the academic institutions. However, it would appear that the universities and colleges no longer do any practical training and so after graduation, they are not able to be of much use in the field as they only know the theory of everything and have no experience. Through the relationship that we are building with these interns, we are exposing them to the practical of farming and opening their eyes to real farming and the real challenges being faced by farmers every day.

We are most appreciative of the co-operation that we have with DRDAR and we look forward to assisting them to build this sector in the province – together we can do more.

Article submitted by Jane McPherson, Farmer Development Programme Manager, Grain SA. For more information, send an email to jane@grainsa.co.za.

New season prospects for maize

It is always good to look back and assess lessons learnt in previous years and use those lessons to anticipate what could be expected in the year ahead. The 2017/2018 marketing year was no doubt a good year in as far as production goes.

Maize production reached a record harvest and sparked topics all over the world. The high production was however met by challenges. While South Africa harvested over 16 million tons of maize, export volumes were still below trade expectations and maize prices were under pressure due to the large supplies.

During the 2017/2018 marketing year, South Africa had an exportable amount of 4,8 million tons of total maize, this means that the country could meet an export demand of over 4 million tons.

By December 2017, total maize exports had only amounted to 1,7 million tons, which was significantly below expectations. As at 8 December 2017, white maize exports amounted to 540 097 tons, while yellow maize exports amounted to 1,2 million tons. The surge in yellow maize is mainly backed by demand in the Eastern parts of the world, particularly, Japan, Taiwan and South Korea which mainly import for animal feed purposes. Although there has been generally good demand of maize, mainly from the deep-sea countries, it Is highly unlikely that the country would fulfil its exportable amount of 4,8 million tons.

Another challenge the country is faced with is high ending stocks which in this case, is largely fuelled by low export volumes. Any carryover stock that is not exported would lead to generally large surplus, thus placing pressure on local prices. It is expected that maize carryover stocks could amount to just over 4 million tons, with white maize accounting for about 65% of the surplus.

New season

According to the Crop Estimates Committee, overall maize production for the new season (2018/2019) is likely to decline by 6%. It is no surprise then that the area planted to white maize could decline by 15% while yellow maize plantings are expected to increase by 8,2% from the previous season. This is due to a recognised higher demand for yellow maize which could go into the feed market both locally and internationally.

Since maize prices have become under pressure, white maize in particular has become less attractive also due to its low profitability and export demand. Farmers who are moving away from planting white maize could turn to looking at more profitable alternatives such as soybeans in order to secure profits and not crowd the market with stock.

Essentially, what we see is that the previous season plays a big role on the expectations for the new season. This it remains important to follow the trends of the previous season in order to draw expectations of what the market can expect in the new season.

Article submitted by Michelle Mokone, Agricultural Economist: Grain SA. For more information, send an email to Michelle@grainsa.co.za.

RYEGRASS dynamics in the Swartland

Weed is definitely detrimental to crop production across the world. Competition for light and nutrients can severely harm yields, and in extreme cases can even cost a whole field's proceeds. In the Swartland, ryegrass is probably the number one enemy of the wheat producer. It requires constant vigilance from the producer to stay ahead and in control of this.

Before conservation agriculture that is aimed at no-till was practised, weeds were controlled mechanically by turn ploughs. The monoculture cultivation of wheat also contributed to the building up of weed seedbanks, seeing as the choices for chemical control were relatively limited. Over time, this led to an increase in herbicide resistance, and consequently a further limitation on the chemical arsenal of producers.

Alternation of other crop types with wheat gave new life to wheat production in this production area. Rotation with legume pastures like medics and broad-leaved crops like canola and lupins (also a legume) brought other options in terms of chemical control.

The retention of residue on the surface also contributed to a lesser extent to supressing weeds. The arrival of tine planters made it possible to do pre-emergence weed control, which was very effective. However, it was not the be-all and end-all, and new chemicals were extremely scarce.

In 1996 our long-term crop-rotation trials started showing that there is potential in rotating crops (crop rotation) and no-till.

For the first six years of the trial, which entered its 22nd year in 2017, minimum tillage was done. During this time, the soil was still loosened lightly with an implement before planting took place. They have switched over completely to no-tilling since 2002.

Eight crop-rotation systems are being tested, of which four systems consist of a combination of medic grazing and cash crops, three systems of only cash crops, with monoculture wheat serving as control (**Table 1**).

Throughout the duration of the trials, a multitude of information has been collected – from crop yields to the economics of each system. The monitoring of the weed seedbank was one of the sets of information collected.

Data collection

The discussion of the data in the article will highlight certain tendencies and show which systems fared the best with respect to ryegrass control. The method we used to determine the seedbank numbers depended on taking 40 samples across the camp for each crop in each of the systems.

Table 1: Crop rotation systems tested in long-term trials at Langgewens research farm.

System	
Cash crops	**Crops**
A	Wheat monoculture
B	Wheat → wheat → wheat → canola
C	Wheat → wheat → canola → lupins
D	Wheat → canola → wheat → lupins
Grazing/Cash crop	
E	Medic → wheat → medic → wheat
F	Medic/clover → wheat → medic/clover → wheat
G	Medic → wheat → medic → canola
H	Medic/clover → wheat → medic/clover → wheat (salt bush)

Table 2: The statistical differences between systems and the average number of ryegrass seedlings per system per m². Systems with the same letter do not differ from each other.

System	Average seedling count/m²	Statistical differences
A	3 241	a
B	3 024	ab
C	2 240	bc
D	1 707	c
E	372	d
F	355	d
G	311	d
H	40	d

The 40 samples were then combined and placed in seedling containers covered by nets and then irrigated. The containers were monitored regularly and the weeds that emerged were noted. Once a seedling had been counted, it was removed, so that no seedling could be counted more than once. A total was calculated in the course of the season, which then gave an indication per m² of the seedbank in the soil.

General observations

From the results it is clear that, despite the high seedbank numbers, we succeeded in supressing ryegrass and controlling it during the season. However, it is concerning that we are unable to destroy the ryegrass.

From practical observations during the season it seems as if we have good control initially, but a second and third germination occurs later in the season. Follow-up control is not always as effective, and consequently the late germinators succeed in transferring seed. The differences between the systems are shown in **Table 2**.

Ryegrass control in the cash-crop systems (A, B, C and D) was significantly worse than in the systems where grazing was included (E, F, G and H).

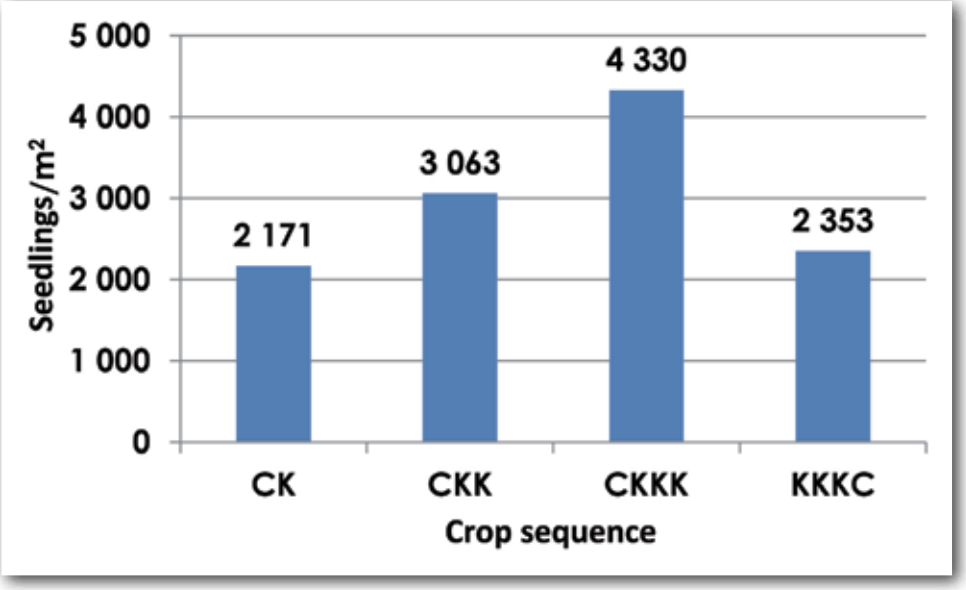
The seedbank was continuously the highest in the monoculture camps, and the inclusion of even one alternative rotation crop improved results. The system that fared the best with respect to control was system G, where grazing was rotated with wheat and canola.

There were no statistical differences between grazing/cash-crop systems, but there was a huge practical difference between the 40 plants/m² and 311 plants/m² – if it was allowed to make seed.

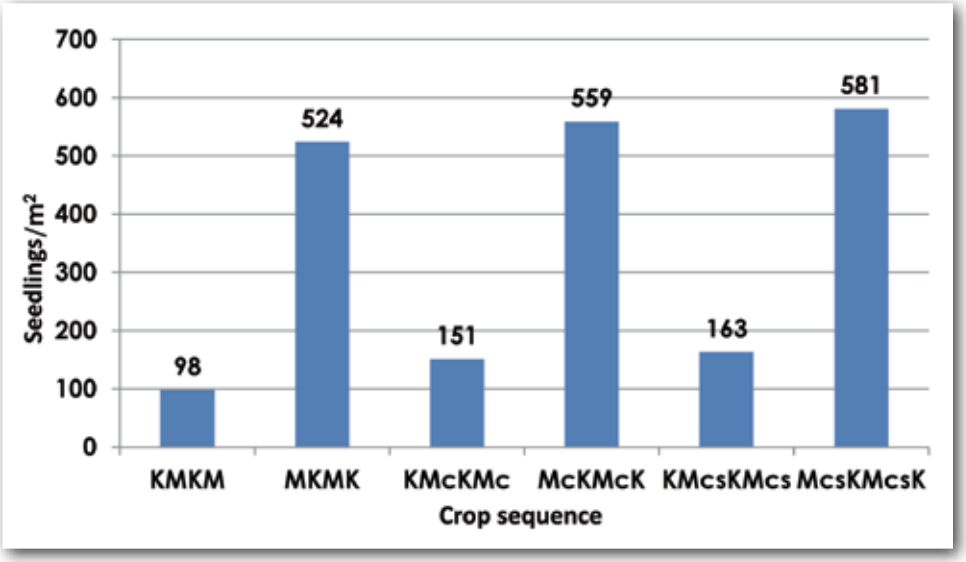
Interesting notes from the study

In the next few graphs we are going to study a few trends. As was mentioned before, the seedbank was the highest in the monoculture system. However, if we look at system B, which fared better

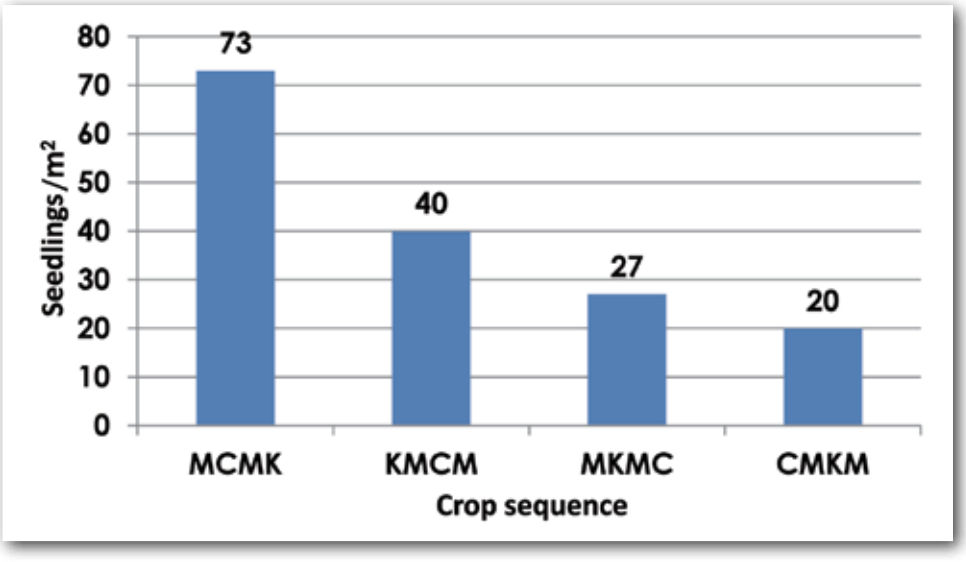
Graph 1: Ryegrass seedbank numbers – System B. Building the ryegrass seedbank in consecutive years of wheat production and the effect of a single year of canola. The letters indicate the crop sequence, with C = canola and K = wheat. The last letter in the series indicates the crop cultivated.



Graph 2: Ryegrass seedbank numbers – Systems E, F and H. Building the ryegrass seedbank in the grazing/cash-crop systems E, F and H. The letters indicate the crop sequence, with M = medics, c = clover, s = salt bush and K = wheat. The last letter in the series indicates the crop cultivated.



Graph 3: Ryegrass seedbank numbers – System G. Building the ryegrass seedbank in the grazing/cash-crop system G. The letters indicate the crop sequence, with M = medics, c = canola, s = salt bush and K = wheat. The last letter in the series indicates the crop cultivated.



and where canola was included for one of the four years, we can clearly see the effect of the increase of seedbank numbers with consecutive years of wheat cultivation (**Graph 1**).

For every consecutive year of wheat planting, the numbers increased, and were then decreased again with the canola year. In this system, it is important to use a triazine-tolerant (TT) canola cultivar, because it offers other chemical control options.

However, you then lose yield potential when you use the TT-type cultivar. When you look at the wheat yield in this system, the average yield drops with each year where wheat follows on wheat. From year 1 to year 2, the yield on average drops by 250 kg/ha, from year 2 to year 3 by a further 300 kg/ha.

Graph 2 shows the average ryegrass numbers in three of the four grazing/cash-crop combinations. From this graph it is clear that the seedbank numbers after the medics year are low and then pick up again after the wheat year.

Ryegrass likes soil disturbance and hates competition. The benefit of the legume pastures is that it re-establishes itself, and therefore in that year no soil disturbance takes place. The ryegrass that actually germinates is controlled effectively during the season.

In **Graph 3**, system G's succession of crops clearly shows the advantages of different rotation crops, little disturbance and alternative chemistry.

Conclusion

Crop rotation works, because minimum disturbance like in the grazing phase is also better than crops where tine planters (no-till) are still used. At this stage we are still able to win the battle with ryegrass during the production season, but the real question is whether we are winning the war. And here the short answer is: No.

As soon as ryegrass develops resistance to one type of chemical, resistance to other types follows quickly. There are no new chemicals – the last new chemical method that works was developed in the 1980s, and since then we have depended on what is available.

The answer lies in a new mental attitude. We cannot depend on chemicals alone. If we want to stay on top of controlling ryegrass, the following aspects will have to receive attention in the future:

- Moving over to zero-till, with disc planters to cause as little soil disturbance as possible.
- Together with this, narrower row widths to establish better competition between crop and weed.
- Planting possible cover crops to serve as 'smother crops' as well to address problems.
- Implementation of a more flexible crop-rotation system.

Article submitted by Corné van der Westhuizen, Agronomist. Article submitted by Johann Strauss, Technology and Research Development Services, Western Cape Department of Agriculture, for SA Graan/Grain March 2017. For more information, send an email to johannst@elsenburg.com.

WEED SEED – a success story

Reproduction remains one of the most important functions of any biological organism. Weeds are one of the most successful species in terms of seed propagation and distribution.

Although most weed species only reproduce through seed, there are other reproductive structures as well, including rhizomes (rootstocks), stolons (underground stems), tubers and stem and root cuttings, which guarantee the existence and distribution of weeds.

A plant must display various properties before it can be classified as a weed. One of the properties is the ability to produce seed in abundance – even when the plants (weeds) are not yet mature.

Another important attribute of weeds is that most weed seed can stay viable for long periods of time. A good example of such a weed is thorn apple, of which 91% of the seed is still viable after it has survived for 38 years in the soil.

The successful reproduction of weed species can be illustrated by using nutsedge (yellow nutsedge [*Cyperus esculentus*] and red nutsedge [*Cyperus rotundus*]) as an example. Under favourable conditions, where other plants do not also compete, red nutsedge can germinate within four to seven days.

Tuber forming starts four to six weeks after the seedlings have emerged, and can form at a rate of up to 200 tubers per square metre per week. At 20 weeks after emergence, more than 3 000 tubers can be produced per square metre.

Physiologically mature nutsedge also produces seed above ground. One yellow nutsedge can produce 1 900 seedlings and 6 900 tubers. If the nutsedge gets out of control under irrigation, the numbers can double.

The Bengal wandering Jew is another example of seed numbers below and above ground contributing noticeably to successful reproduction. Underground flowers on the rhizomes start forming six weeks post-emergence, and produce up to 800 seeds per square metre. Above ground, flowers can produce as much as 12 000 seeds per square metre.

Seed production of annual broad-leaved weeds like common purslane (*Portulaca oleracea*) and white goosefoot (*Chenopodium album*) is even more impressive. If these weeds are left to grow undisturbed (without competition), one common purslane plant can produce 250 000 seeds, and white goosefoot can produce up to 150 000 seeds in one season.

Common pigweed (seed pockets and seed).

Well-known annual grass weeds such as African finger millet (*Eleusine indica*) and crab finger grass (*Digitaria sanguinalis*) also produce between 120 000 and 150 000 seeds per plant.

> *A plant must display various properties before it can be classified as a weed.*

Weed species can also germinate successfully under cold, dry conditions without being killed by frost, or in fallow fields. Most crop fields in the maize-producing areas show high infestation levels of white-flowered Mexican poppy (*Argemone ochroleuca*), ragwort (*Senecio consanguineous*) and tall fleabane (*Conyza bonariensis*). White-flowered Mexican poppy and some *Senecio* species produce between 20 000 and 25 000 seeds per plant, while one

African finger millet seed fingers.

The common pigweed (*Amaranthus hybridus*).

The acicular-shaped seed of the blackjack.

Flower spike with seed pockets of the common pigweed.

*Tall fleabane (***Conyza species***) seed.*

*Wandering Jew (***Commelina benghalensis***) – seed pocket above ground.*

The wandering Jew (seed below ground).

mature tall fleabane plant can produce up to 226 000 seeds per season.

Where crops are cultivated, most of the weed seed is put back into the soil and only a small percentage is distributed by wind, water, implements, animals or people. Therefore, the soil is known as a 'seedbank' into which the seed is deposited every season.

The diversity of weed species and the amount of seed in the seedbank will mostly vary between the different soil types, but the tilling and crop-cultivation history of each field determines the composition and infestation levels of weeds.

The sustainability of seed in the seedbank can, however, also be affected by fluctuating moisture and soil temperatures, because most weed seed can be found in the top 5 cm to 10 cm of the soil. Seed of problem weeds like wandering Jew and nutsedge, which can be found deeper, can only be destroyed with deep plough tilling, because shallow tilling only helps along the distribution of cuttings and tubers.

It is also obvious that fertile soil will have higher weed seed numbers in the seedbank. Manure and chicken manure can also be an important source of weed seed, as the seed of most weed species are still viable after moving through the digestive systems of animals.

Although the above seed numbers are mostly recorded where weeds are not in competition with any crop, it still emphasises the large impact that seed production can have on the distribution and infestation of some weed species.

The viability percentage and effect of dormancy of the weed seed will also influence the numbers. The viability of most of the seed of annual broad-leaved weeds is >50%, while the viability of grass weeds varies between 30% and 80% in the first year it was shed.

Germination of weed seed is one of the biggest threats to good yields of crops and it is therefore essential to control weeds timeously, before they can flower and shed seed.

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Weed seed – a success story

Seed coat above ground, with seeds of the wandering Jew.

A thorn apple's seed.

Seed of the red nutsedge (*Cyperus rotundus*) above ground.

The above-ground seed of the yellow nutsedge (*Cyperus esculentus*).

A thorn-apple seedling that already has a seed coat.

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Article written by Elbé Hugo, ARC-Grain Crops, Potchefstroom, for SA Graan/Grain March 2017. For more information, send an email to JamesM@arc.agric.za.

TRANSPORT YOUR EMPLOYEES SAFELY!

Throughout our series of articles, we have emphasised the fact that a farming business is one of the most difficult businesses to manage. This is because of the specific circumstances related to a farming business such as the weather and prolonged production cycles.

The transport of employees is also an aspect that is related to a farming business – being it the transport of employees from their homes to the workplace (which is regarded as an in-service action) or transporting employees from one area of a farm to another area or another farm.

Whether the farming business is a large commercial farm or a small farm, the need to transport employees will occur at some time. On some farms it is a daily exercise and on others it is only at specific times and as the need arises. Whether done regularly or per occasion the same care must be taken.

The transport of employees is always a worrying aspect because accidents can occur so unexpectedly and so quickly. Therefore, it is a risk and risks need to be managed properly. It is therefore necessary to manage the transport of employees properly. Should employees be injured during transport and the farmer/owner be found to be at fault or negligent, serious repercussions may result.

During the action of transporting employees, whether from home to work or back or at work, employees, the driver of the vehicle, the vehicle and the farmer/owner are involved. Each party is regulated by rules and regulations of various acts. Thus, to manage the action to be of the least risk requires the farmer/manager to be fully aware of all the rules and regulations.

As explained in the previous articles the health and safety of employees is very important and regulated according to the stipulations of The Occupational Health and Safety Act (No. 85 of 1993). The basis being that employees and employers must adhere to the stipulations of the mentioned act. Furthermore, the National Land Transport Act, (No. 5 of 2009) provides for the transport of employees for the purposes of employment and where the employer provides the means of transport.

The driver must be in possession of a valid driver's licence and suitable to the type of vehicle according to The Road Traffic Act, (No. 93 of 1996). He/she may not be under the influence of any intoxicating drug or substance which will affect his/her ability to drive properly. If required, the driver must also be in possession of an Operational Permit as when people are charged when transported.

Vehicles involved transporting employees may be a bakkie, a truck, a tractor and trailer or a bus. According to The Road Traffic Act the area of the vehicle where people will be when transported must be enclosed by proper sides to at least a height of 350 mm above the surface on which the people will be sitting. Note when transporting people under these circumstances they are required to be seated on the floor. They may not stand or sit on the edges of the side structures. To enable people to stand on the vehicle, the sides must be covered to a minimum height of at least 900 mm.

The vehicle must also be in a roadworthy condition and be well maintained and free from any protruding matter that could be of danger to those who are transported. And off course the vehicle must be licenced properly. When transporting goods and people at the same time a solid safe structure must be set up between the goods and the passengers for protection purposes.

All above aspects are directly or indirectly the responsibility of the owner and/or manager of the vehicles to ensure full adherence to all the rules and regulations.

In case of an accident whilst the employees are being transported without any charge and are in service, they may claim from the Compensation Commissioner as per Act No.130 of 1993, Compensation for Occupational Injuries and Diseases Act (COIDA) as discussed in the previous article. Thus, it is important for the employer to be registered at the Commissioner, otherwise claims can be lodged against him/her. However, should the owner/manager be found to be negligent or not meeting all the lawful requirements, criminal charges may be brought against the owner. This is also the case should the driver be found to have driven the vehicle under the influence of an intoxicating drug or reckless or negligent.

The transport of employees is always a risk for farmers and should therefore be managed properly which entails proper planning, organising, implementing and control. If possible, it is also advisable, to be properly commercially insured to cover claims that may arise in a private capacity against the farmer. Always be very sensitive towards the health and safety of your employees. Do not take any chances.

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

The production of a GOOD-QUALITY CALF

Over the past few years increasing pressure has been brought to bear globally on the animal production industry to dramatically reduce its use of anti-microbial drugs (antibiotics). This reaction is based on the perception that overuse and abuse of these drugs cultivate resistant organisms, which develop into the so-called super bugs.

These developments have a major impact on all industries, which will force producers to focus more on the prevention of diseases instead of injecting animals with everything they can get hold of to keep them healthy.

The cattle industry will definitely be affected by this, and the production of 'stronger' calves, if one can call them that, may be essential. Many factors play a role when it comes to the prevention of diseases. These management factors go hand in hand with the production of a prestige calf and include feeding, parasite control, health, hygiene, genetics and prevention of diseases, which can include the vaccination of the animals.

Generally speaking, the only source of income from weaner farming is the selling of calves. It is therefore important for every cow to produce a calf every year, and for the right choices to be made when it comes to replacement heifers.

A good herd health programme is vital and is essential to produce a good, healthy, strong calf. It is essential to vaccinate animals against the most important diseases – particularly the cows at strategic points before they calve.

Recommended vaccinations for the cow include:

Viral diseases

- Bovine viral diarrhoea (BVD)
- Infectious bovine rhinotracheitis (IBR) pneumonia
- Bovine respiratory syncytial virus
- Parainfluenza virus
- Rift Valley fever
- Lumpy skin disease
- Three-day sickness

Bacterial diseases

- *Mannheimia haemolytica*
- *Pasteurella multosida*
- *Histophilus somni*
- *Brucella abortis* (brucellosis)
- Blackleg
- Anthrax
- Botulism
- Any multi-clostridial product
- Any bacterial disease that is a problem on the farm, e.g. *E. Coli*.

> *We can definitely make a difference to the prevention of diseases by sticking to these guidelines.*

Should redwater and gall sickness be a problem in your area, do not ignore them. Unfortunately, there are no generic herd health programmes and each herd programme should be constructed in cooperation with a veterinarian to obtain the best results for your specific circumstances and area.

A complete, correctly administered vaccination programme ensures high antibody concentrations in the colostrum to transfer passive immunity to the calf at birth. This gives them a better chance at survival and better growth can be expected. These vaccines should preferably be repeated at the age of three months, when the passive immunity of the calf starts to decline and the calf's own immune system starts to function optimally. When the calves are weaned, they should be vaccinated and dewormed again.

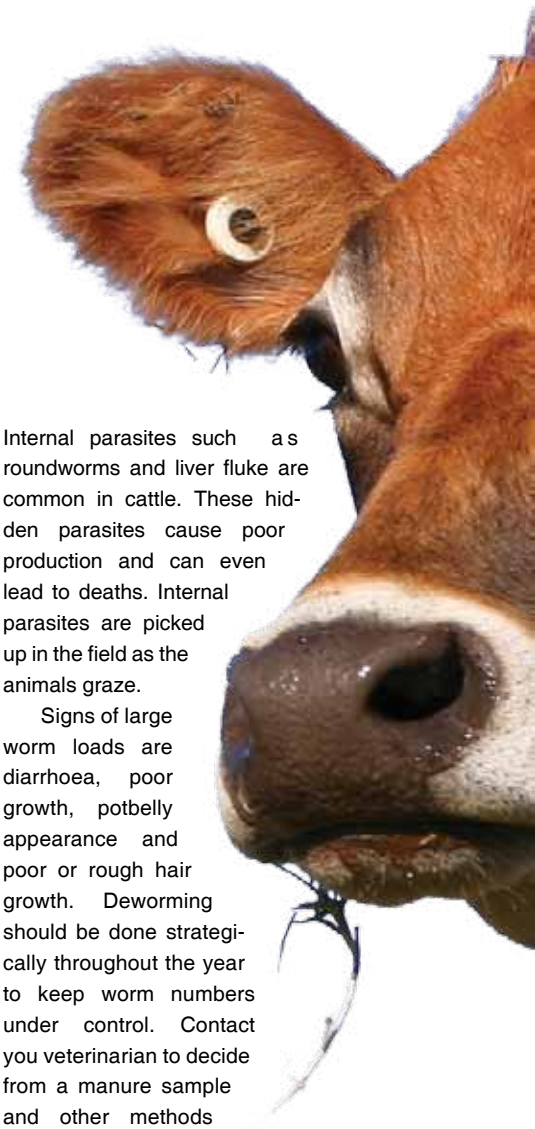
Attention should be given to the administration of live or inactivated vaccines (dead vaccines) – especially when pregnant cows are vaccinated. Some live vaccines can cause abortions, which lead to economic losses.

Inactivated (dead) vaccines

Dead vaccines should be used for pregnant breeding animals and unweaned calves. In this way, the calf is protected from birth – provided the calves consume enough (approximately 800 ml for beef cattle) quality colostrum within six hours after birth. Always use the vaccine as recommended by the producers. The first administration of a dead vaccine should always be followed up four to six weeks later with a booster.

Live vaccines

Live vaccines should be used in situations where a fast immune system reaction is required. In feed lots, immediate protection is important because the high population density and the subsequent spreading of disease require this. The animals are stressed and a fast, effective immune system reaction is essential, because cattle are exposed to high virus loads in the environment in a short period. Live vaccines should preferably not be administered to cattle younger than four months.



Internal parasites such as roundworms and liver fluke are common in cattle. These hidden parasites cause poor production and can even lead to deaths. Internal parasites are picked up in the field as the animals graze.

Signs of large worm loads are diarrhoea, poor growth, potbelly appearance and poor or rough hair growth. Deworming should be done strategically throughout the year to keep worm numbers under control. Contact you veterinarian to decide from a manure sample and other methods when to administer.

Optimum feed management is also vital to ensure that the above-mentioned principles work best. You cannot spray or dose a malnourished calf or cow back to health. All the important nutrients are very important for a well-functioning immune system and reaction.

Micro and macro minerals play a major role when it comes to the immune system and

> *A complete, correctly administered vaccination programme ensures high antibody concentrations in the colostrum to transfer passive immunity to the calf at birth. This gives them a better chance at survival and better growth can be expected.*

how the body reacts towards vaccinations. Malnourished and dehydrated calves and cows will react poorly to the vaccine, and poor immunity generally makes them more susceptible to diseases.

Injectable products are available to supplement these micro and macro elements should there be any deficiencies.

If you are using a little supplementary feed, you can always use a growth stimulant to get the best reaction to feed in order to produce a bigger, heavier calf.

Zeranol implants can be used from the age of three months and they can even be used for replacement heifers to enable them to reach their optimum breed weight earlier. Male animals destined for breeding should under no circumstances receive this implant.

Ear implants are preferred to any injectable form of growth stimulants, as the administration of the product (which could be injected into the muscle accidentally) could cause residue, which can affect the end user.

Genetics is a subject field of its own, but plays just as big a role in the production of a good calf. It can influence growth and immunity. Poor genetics can reduce the calf's quality and growth.

Except for losses due to ill or dead cattle, you as producer also sacrifice production if these guidelines are not followed. It can make quite a difference to your pocket if sub-standard calves are sold.

> *A good herd health programme is vital and is essential to produce a good, healthy, strong calf.*

Calves from a herd with good health and management tend to perform better in a feedlot, for instance. The probability of them getting ill is small, which means they can grow optimally. It can definitely be to the producer's advantage when the calves perform well. His calves will then become popular among buyers. High calf mortality rates and disease outbreaks lead to large financial losses, which can be prevented.

We can definitely make a difference to the prevention of diseases by sticking to these guidelines. This will also generally reduce the use of anti-microbial substances. This will also be better for the producer's pocket, because a healthy, heavy calf is worth more than a small, sickly calf. After all, this is everybody's goal: a little more cash in the pocket at the end of the day.

Article submitted by Drs Shaun Morris (082 411 6037), Eben du Preez (082 561 8689) and Pierre Jansen van Vuren (083 380 0717), S & E Feedlot Consulting, for SA Graan/Grain April 2017.

60 YEARS OF SUSTAINING OUR FARMERS' SUCCESS

PANNAR's story begins in Greytown in the KwaZulu-Natal Midlands in 1958. PANNAR started as a humble seed company focusing on supplying hybrid maize seed to farmers in the region.

PANNAR grew into a major force in the hybrid maize market in South Africa. Built on old-school values of integrity and hard work, and backed by modern, innovative solutions, we are determined to help farmers succeed. Although a lot has changed since the very beginning, the one thing that remains unchanged is that, for 60 years, PANNAR has been putting farmers first. Our decisions are made with the farmers' best interests in mind – confirmed by the time we spend walking farmers' fields to ensure that they receive top-performing seed products and personalised service. After all, at PANNAR we are very aware that our success depends on farmer's success.

As a multi-crop specialist, PANNAR offers cultivars with good performance, adaptability and stability, and a crop cultivar package for every farmer's unique need.

PANNAR offers cultivars with good performance, adaptability and stability.

New white hybrids

The PANNAR white hybrid package displays good performance, adaptability and stability across regions for good risk management. PAN 5R-791BR did exceptionally well in the ARC national hybrid trials for Western production regions for 2016/2017. PAN 4A-111 is one of the top performers in the ARC trials for the eastern production regions.

Medium early package

PAN 5B-485B and PAN 5R-785BR (new):
Hybrids with the MON89034 stalk borer resistance trait.

Dryland: The hybrids are characterised by good stability and prolificacy. They are especially well adapted to the western production regions (north western Free State, north eastern Free State and North West). They are recommended as part of the main planting. This package is also well adapted to the temperate eastern production regions. BG 5685R and PAN 5R-591R are suitable as refuge for PAN 5R-785BR.

> *"Built on old-school values of integrity and hard work, and backed by modern, innovative solutions, we are determined to help farmers succeed.*

Irrigation: These hybrids fit in well where only a single crop of maize is grown under irrigation or supplementary irrigation.

These hybrids have an attractive plant type, are agronomically well-balanced and show good tolerance to Head and Tassel Smut and Northern Corn Leaf Blight.

PAN 5A-291, PAN 5R-591R and
PAN 5R-791BR (new):

Dryland: This group of hybrids is highly prolific. They produce strong vigorous seedlings and are well adapted to the western production regions (north western Free State, north eastern Free State and North West). Recommended for the main package. PAN 5R-791BR performed very well throughout the ARC national trials for the western and eastern production regions during the 2016/2017 season.

Medium Package

PAN 6R-779BR (new):

Dryland: This new addition is especially suitable for the western production region and is particularly well suited to the water table soils of the north western Free State. Late plantings in the cooler eastern parts should be avoided.

Supplementary irrigation: This hybrid can be planted where only a single crop of maize is grown under irrigation or supplementary irrigation. The recommended plant population should not exceed 55 000 plants per hectare.

Article submitted by Peet van der Walt, Advertising Manager, PANNAR SEED (PTY) LTD, South Africa. For more information, send an email to peet.vanderwalt@pannar.co.za.

The Corner Post

CHRISTIAAN BOUWER
Mentorship saved my life

In the previous edition of Pula Imvula, we found out more about Edwin Thulo Mahlatsi from Bothaville in the Free State. With the support of Grain SA and the help of his mentor, Christiaan Bouwer, Edwin was the winner of the 2017 Grain SA/Absa/John Deere Financial New Era Commercial Farmer of the Year award. He received a brand new John Deere 5065 MFWD OOS tractor as part of his prize.

A winner's mentor

In an interview after winning, Edwin said the following about his mentor, Christiaan: 'I have known him since he was a little boy. I also know his father. Ours has been a long journey. He helps me a lot and does so with a kind heart.' Edwin received his award at the Grain SA Producer of the Year function held on 13 October 2017 in Johannesburg. Mr Johan Kriel (Development Co-ordinator, Grain SA) who was the interpreter during Edwin's acceptance speech shared the following: 'Christiaan informed me that the work he has done with Edwin saved his life. It kept him busy and strengthened his trust in God. He added that Edwin and his family are phenomenal people'.

An American called Heidi Wills said the following about the value of making a difference: 'We can choose to be affected by the world or we can choose to affect the world.' By becoming a mentor Christiaan chose the latter and did not let the effects of the ongoing drought affect him negatively. He focused on helping a fellow farmer build up his farming practice.

Christiaan has been farming in the Bothaville district since 1995 and has a mixed farming enterprise comprising of cattle, maize and sunflower. In 2015 he was approached by Grain SA to join the mentorship programme. He did not hesitate and took Edwin, whose farm is less than 20 km away, under his wing. 'I have known Edwin for years as he worked for our neighbour's grandfather. We have a good relationship,' he says.

Before the onset of the season, these two sit down to discuss the season ahead. 'It's important to know beforehand what you will require for the season, which farming operations will have to be done and to look at the cost implication.' They both know that failing to plan, is planning to fail and agree with the statement made by American author, Robert Mckain: 'Strategic planning will help you fully uncover your available options, set priorities for them and define the methods to achieve them'.

Christiaan tries his best to visit Edwin at least twice a week. When time does not allow for regular visits, Edwin calls frequently to keep Christiaan updated about his farming activities. 'Edwin shares everything with me and sometimes we see each other four times a week visiting each other's farms to discuss our shared passion.' Whether they speak Afrikaans or Sesotho the topic is always agriculture.

'Being a mentor has meant a lot to me and I wish more people would get involved in this worthy programme.' He shares that this programme has changed his view on various issues and he realised that when you help someone else, you are actually helping yourself. According to the well-known evangelist, Joel Osteen, being successful doesn't necessarily make you great. What makes you great is when you reach out and help somebody else become great. We trust that 2018 will see many great mentors emerge.

A mentor's advice

To Christiaan it is wonderful to see the impact this programme has had on Edwin's farming operation. 'I enjoy seeing how he is prospering simply because he follows advise. Edwin does not see me as his mentor, but as his neighbour. We actually farm together as we share the same passion and work well together.' Christiaan says they share advice with each other and sometimes have a lengthy discussion when their opinions differ.

Because Edwin is a farmer at heart, who worked on a farm from a young age he knew the basics of farming. Christiaan says Edwin also understood the financial aspect of farming from the onset of his farming operation. 'I didn't need to teach him anything about the financial side of farming. It is something that came naturally to him. He only needed a bit of guidance with time management.'

Christiaan taught him to:

- Begin at the right time. Whether it means planning, planting or fertilising, time is of the utmost importance.
- Take your time. Making impulsive or rushed decisions can be costly in a farming operation. Farmers must learn from nature: Nature doesn't rush, yet accomplish everything.
- Make time count. There's a saying, time is a coin that you can spend only once – use it, invest it and make it count. When you do something, take your time, but do it right the first time. This saves time and money.

A mentor's dream for his mentee

The highlight for any mentor is seeing their mentee walk away as one of the finalist (or winner) on the Day of Celebration. To this team the adjudication was also a highlight as they had worked hard to get everything ready. 'Our objective was to win the tractor and we did it!'

If Christiaan could remove a stumbling block in Edwin's path, it would be to ensure that the land becomes his own and that he could get the title deed to prove that it is his as without it he has no security. 'It's not fair that he still has to pay rent on this ground in which he pours his blood, sweat and tears,' Christiaan adds.

He hopes that Edwin will continue to grow as a farmer and develop the necessary confidence and determination to continue on his own. 'I know that he is ready to be my neighbouring farmer and not my mentee, he just has to believe it!'

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.

From emergence to a successful harvest

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PAN 3A-173	PAN 4A-159 PAN 4A-111 PAN 4B-311B PAN 4R-511R PAN 4R-711BR	BG 5285 BG 5685R PAN 5B-485B PAN 5R-785BR	PAN 5A-291 PAN 5R-591R PAN 5R-791BR	PAN 6B-465B PAN 6R-779BR PAN 6Q-865BR

The PAN 5R-791BR platform performed very well throughout the ARC national trials for the western and eastern production regions. The PAN 4A-111 platform's popularity in the eastern regions is underwritten by its excellent performance in the ARC national trials.

2018/WMAIZE/E/02

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