

PULA IMVUILA

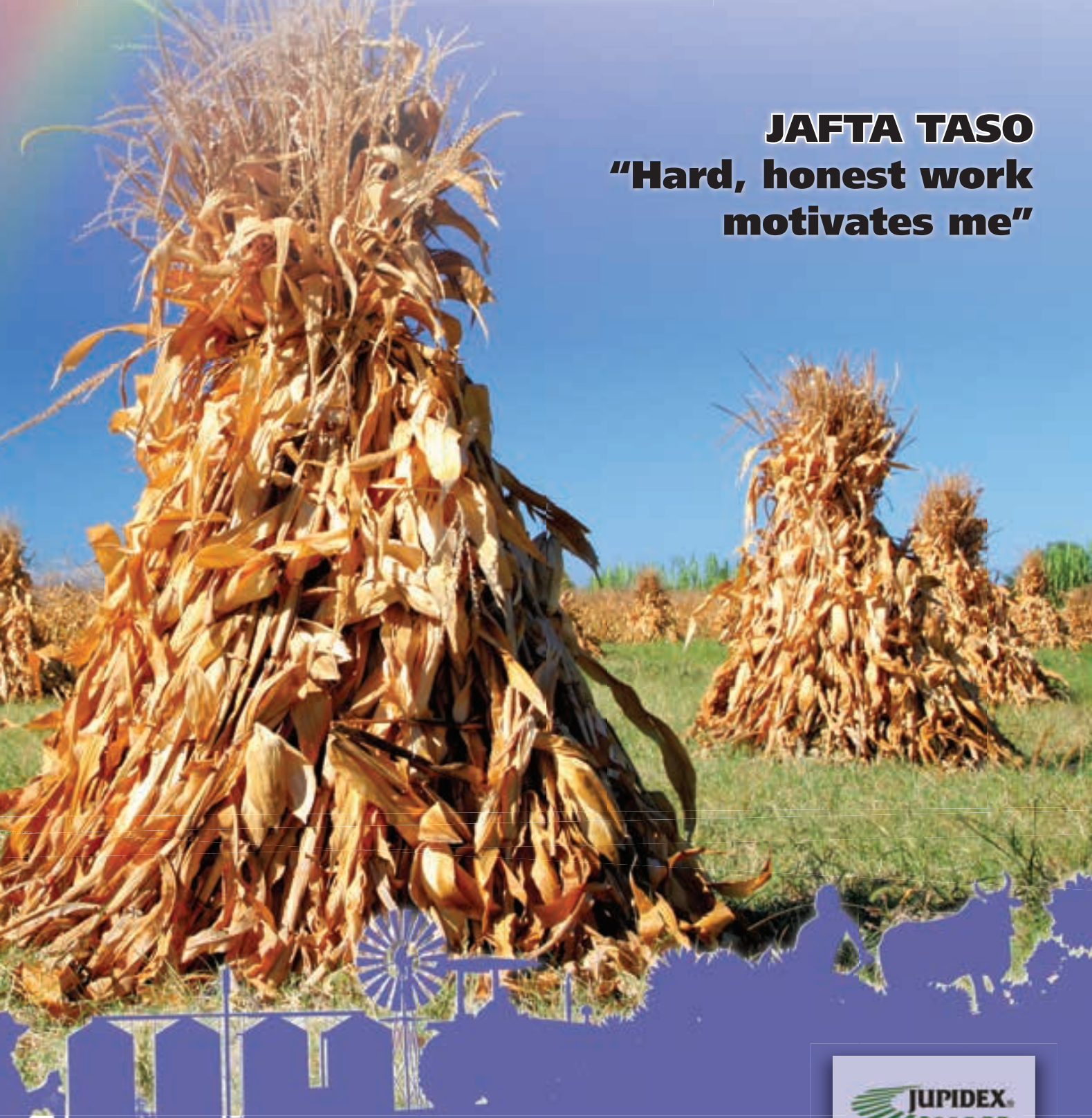


GRAIN SA
GRAAN SA

JUNE
2014

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

JAFTA TASO
**“Hard, honest work
motivates me”**



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Member of the PLENNÉGY GROUP

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The winter is here which means that farmers in the Cape are planting their winter crops and in the rest of the country the farmers are harvesting their summer crops. Fortunately it has been a wonderful season and almost every farmer will be getting a good crop. It is indeed very rewarding to see what good crops can be realised if the farmers get all the basics right – soil preparation, weed control, plant population and fertilisation.

In our programme over the coming period, we will be focusing on accessing production loans for farmers. Over the past few years,

we were hopeful that the Departments of Rural Development and Land Reform as well as the Department of Agriculture would continue to assist the farmers with grants. Unfortunately we have found this to be unreliable and some farmers have not been able to progress while we waited for government funding. If we move over to loans, the farmers will be able to start working their lands at the right time. If they should be lucky enough to get grants, this money will be able to pay off the loans. In this way, we can help the farmers to take control over their own crop production practices.

We have just been through a most successful NAMPO Harvest week. I was pleased to see large numbers of development farmers attending the show – it is good to see all the goods and services available to the agricultural sector. As a farmer it is important to make contacts with the role players in the industry – these are the people who offer all the services and goods that you will need as a farmer – surround yourself with people who are willing to assist you with support and advice too.

Good luck for the harvesting season – may the yields exceed your expectations. 🍷

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Maize shelling and grading can enhance income

The shelling of maize refers to the removal of the maize seeds from the whole husk and in the instance of small scale farmers would be done by hand after hand plucking or removal of the cobs from the mature maize plants at harvesting.

Large commercial operations would do the same task but use modern harvesters. These are large complex machines that move through large lands and do the plucking, dehusking, cleaning and temporarily bulk storage in the combine's bin, mechanically, while moving through the maize land.

Harvesting for small farmers

Farmers that produce on a small scale usually produce for their own consumption and are also able to sell the surplus in a good year. Improved education and training on the implementation of modern production methods using genetically modified hybrid maize cultivars with the correct use of the complimentary weed control, has been able to increase yields

from 0,5 ton/ha to 6 tons/ha. This is a significant increase and will imply a lot more work and planning to harvest the crop on time.

This development has enabled small farmers to produce a surplus to their needs and be able to allocate limited land in the block to other crops such as beans or vegetables. The household can then plan to produce a balanced set of primary food items. In this way the family can enjoy a balanced and wholesome food basket for the coming year.

The maize is harvested by hand by plucking the cobs from the plant and placed in bags as the farmers walk up the row and then placed at the end of the row. If ox or donkey driven carts are available these are used to combine the piles or bags of harvested cobs and deliver the load to the storage areas.

The harvesting process

Harvesting should begin when the ears or cobs start to droop and the leaves begin to dry. Harvesting should commence when most of the maize husk cover leaves turn yellow and when

the weather is dry. On rainy days, in areas that receive some rain in the harvesting period, if cob collection is not possible break the stem just below the cob and let it hang downwards.

In some areas the whole maize plants are harvested and stacked in pyramid shapes, known as stooks, and then left in the lands for about two days before the cobs are harvested. The crop residues can then be used for live-stock feed.

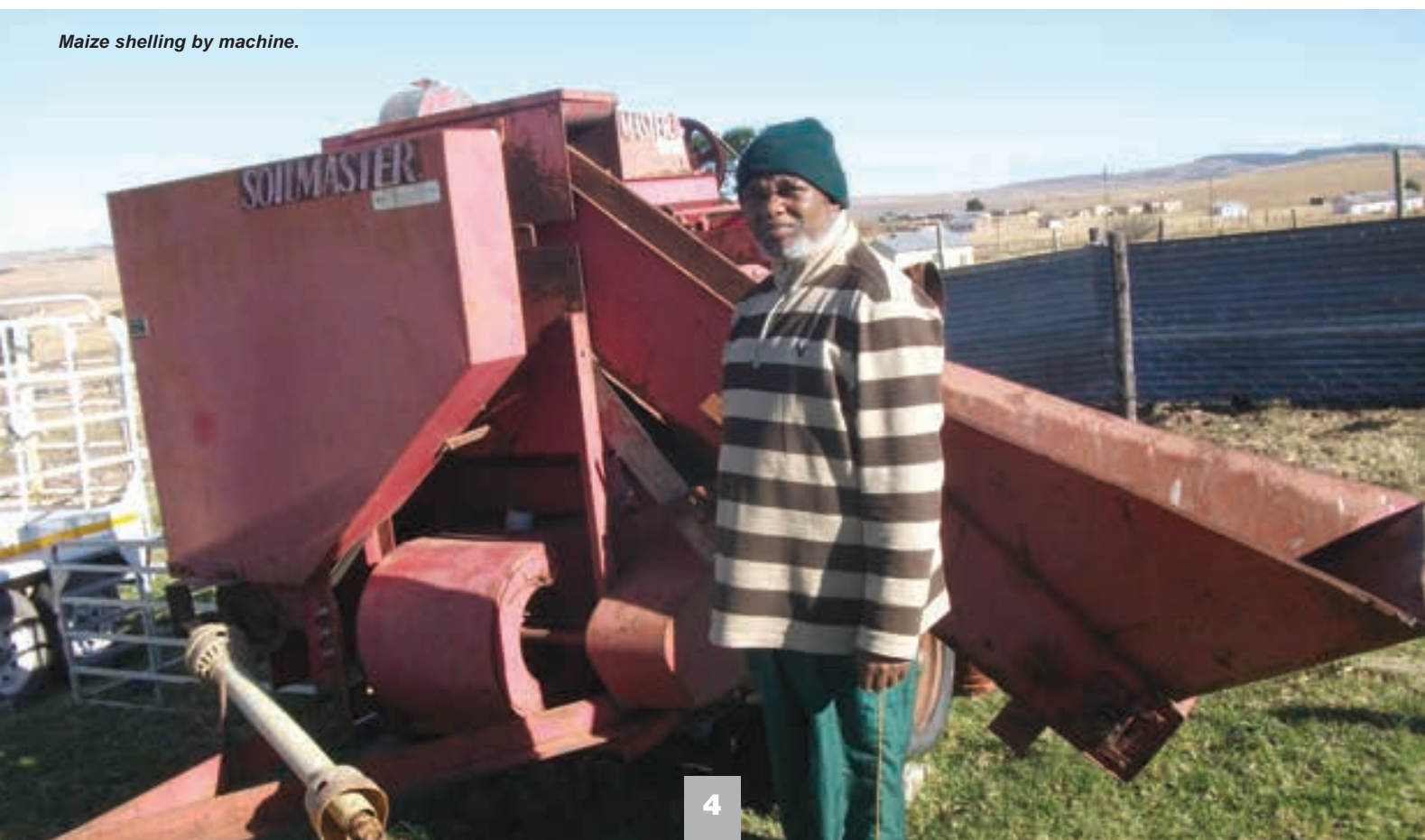
In other areas and especially with the use of modern cultivars the cobs will ripen and be ready for harvesting over a much shorter period. In this instance labour will be saved by plucking the cobs directly from the plants.

Drying

The maize may be dried in the field or by stacking cobs on platforms or placed in a well aired specially built storage structure with a covering to protect the harvested cobs from any rainfall damage.

An individual farmer or community of farmers can buy a small electronic moisture

Maize shelling by machine.





Maize shelling by hand.

measuring device or have the moisture content of a sample of maize measured for moisture at the local silo operator if accessible.

The maize should not have moisture content of more than 14% to qualify for storage or sale. The grain can usually be harvested at between 18% and 26% and will need to be dried immediately before storage or sale. Maize seed stored at this level of storage will spoil very quickly. The final drying of the maize can be done on black plastic sheets or heavy duty polythene sheeting after shelling if production is still done on a small scale. Do not spread the maize deeper than ankle depth on the sheeting. This will provide enough exposure to the sun and wind. The grain can be moved from time to time to expose the bottom grains to the drying process.

Shelling

The maize can be shelled by various methods which include beating of cobs placed inside

a sack, beating of cobs placed on a slatted platform where the maize kernels fall through the slats or a shelling machine. When yields start to exceed 3,5 tons/ha the small farmers or community of farmers should consider the purchase of a small engine driven shelling machine. As production increases within a broader community with better crop management practices the machine can be upgraded with one that sorts and sieve the grain into various grades while removing small cracked pieces.

Selling the surplus

The dry and cleaned grain can be stored for own consumption or pooled by a group of small farmers for sale to neighbours or commercial enterprises such as local millers that buy white maize or livestock feed farmers that would usually buy yellow maize due to the high carotene content that is good for livestock.

If maize is to be sold it must comply with the national grading and packing standards. Your maize sample will be assessed for either being from yellow or white cultivars, foreign matter or impurities, broken pips or kernels, pest damaged kernels, rotten and diseased kernels, the moisture content of 14% and tested for aflatoxin levels.

The full details of the maize grading standards can be downloaded off the internet and are encompassed in the agricultural product standards act, 1990 (Act No 119 of 1990).

With the possibility of increased production from modern production methods the sale of surplus small scale production of dried, sorted and graded maize can increase household income and so enhance the lives of small scale farmers in the future. 🍷

Article submitted by a retired farmer.



Combat top soil erosion



1

Top soil is a farmer's most valuable asset. It is what provides him a platform for all of his agricultural practices. It is the foundation to his business. The soil provides a seed an opportunity to germinate, to grow and to produce.

Unfortunately we are losing our top soil at a staggering rate. Each year we lose millions of tons of top soil, largely due to erosion from wind and rain. As a farmer this is a frightening fact as our livelihoods are in the balance. We need to constantly look at ways of reducing this loss. This article will have a look at no-tillage practices and how they aid in the conservation of top soil.

What is no-till?

In simple terms, no-till is when a farmer plants directly into the soil with no additional tillage. This means that there is no preparation of lands before planting with ploughs, discs, rippers or any other penetrating implement. The fundamental idea of no-till is not to disturb the top soil



3

A good combine which spreads the chaff evenly is very important so that there are no residue clumps piled up throughout the land.

and to retain the crop residues from previous seasons. There are many advantages to this. The main one being that erosion is reduced hugely due to the residues and root structures being left intact to bind the top soil together and prevent runoff.



4

No-till practices in Umthata.

Other advantages include:

- Increased organic matter in the soil called mulch; this eventually becomes humus which is extremely healthy for the soil.
- The organic matter in turn promotes biological populations such as earthworms which



with no-till practices



2

have many beneficial consequences.

- The soil has increased water and nutrient holding capacity; therefore there is a chance for better crop production.
- There is a reduction in the contribution to green house gasses, especially carbon dioxide which is damaging the atmosphere.
- There is better weed control as the less the soil is disturbed the lower the chances are for weeds to germinate.
- No-till plays a key role in carbon sequestration, this means that the soil becomes better suited to store carbon from the air.

The key to implementing no-till effectively is to understand it as much as possible before starting on your farm. Obviously there will also be a lot of learning along the way until you find what suits your environment and method of farming the best. It is also advisable to start on a small land until you understand how it works and how to apply the practices effectively. There are a few key factors which are essential to achieving a successful no-tillage system.

1. You need a no-till planter. This is crucially important as it is designed to cut through residues and allow the seed to penetrate the soil with as little possible disturbance of the surrounding soil.
2. You need a good boom spray. Where before you would have done much of your pre-season weed control with conventional tillage methods, you now will be applying a 'burn-down' herbicide to kill weeds before planting. In effect the spray will replace the plough, the disc and the cultivator.
3. You need a combine that is designed to spread chaff and residues evenly across the land. This assists during planting as the planter can penetrate the top soil easier as there are no clumps of residues all piled together.

No-till is just one tool to combat the problem of top soil erosion. There are many other practices which we as farmers can implement on

Photo 1: It is important to use a no-till planter which will penetrate the residue from the previous year, in this case wheat.

Photo 2: An example of good residue cover, which will aid in water conservation and reduced top soil erosion.

our farms to reduce the loss of soil. This ranges from our farming methods in the cropping fields to the grazing camps of our livestock. As the issue of soil erosion is becoming more apparent, it is encouraging to see more farmers taking on an environmental stewardship role in their methods and practices of agriculture.

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

Risk management in cash cropping cycles



Risk management in general can be defined as the identification, quantification and assessment of any uncertainty for any aspect of a production process or economic system that will positively or negatively affect the outcome of defined objectives. Once the various risk factors have been identified the uncertainties which could impact on the production or economic outcome can be minimised, monitored and controlled.

Crop production

Crop production for farmers operating in South African conditions, other than those using a reliable water source, is a highly complex business faced with many production risk factors and economic uncertainties which should be identified.

A farmer needs many skills in many fields of knowledge, such as in biology, agronomy, knowledge of mechanics, human resource

management, crop production, livestock husbandry, marketing and economics, to name a few, in order to be able to create a successful farming business. All these skills are used in the many and diverse production operations involved in seasonal crop production throughout the year. The identified probable risk factors must be especially kept in mind at each year's main production planning session.

As you harvest the current crops it is a good time to think about any lessons learned in the past production season to reduce any production risk identified or highlighted in your farming operation.

Planning to achieve the highest profit for the least risk and to prevent any likelihood of failing to produce the planned yields and gross income should be the driving force behind any successful farming operation.

The main crops in South African grain production

The actual contribution and percentage to the whole, of the main crops produced in South Africa is shown in **Table 1**. The information was compiled from the SAGIS final crop estimates.

As can be seen from Table 1, it can be seen that the decline in dryland wheat production in the summer crop production region has resulted in a large shift of our national production to

Table 1: Actual contribution and percentage of the main crops produced in South Africa.

| Crop | Production amounts in tons in 2013 | |
|--------------------|------------------------------------|----------------|
| | Tons | % Contribution |
| Summer crop | | 85,19% |
| Maize | 11,690,000 | 77,03% |
| Sunflower seed | 557,000 | 3,67% |
| Soybeans | 516,500 | 3,40% |
| Groundnuts | 46,900 | 0,31% |
| Sorghum | 62,620 | 0,41% |
| Drybeans | 55,820 | 0,37% |
| Winter crop | | 14,81% |
| Wheat | 1,870,000 | 12,32% |
| Malting barley | 298,000 | 1,96% |
| Canola oilseed | 79,000 | 0,52% |
| Total | 15,175,840 | 100,00% |



summer grains. Summer crop production now makes up 85% of our total grain production compared to 15% for winter grain production.

The huge dominance of maize production at 77% of the total production of grains is very evident.

Some of the main risk factors

The main production factors, to take into consideration when planning to reduce the risk in dryland crop production planning, can be summarised as follows:

- Prevailing climate in your farming district.
- The long term rainfall and pattern of rainfall likely on your farm or farms in an extended cropping operation.
- Soil type and effective root depth.
- An effective and balanced use of the physical resources of the land and farming property as a whole.
- Tillage methods including conventional tillage and conservation or minimum tillage methods.
- Choice of cultivars.
- The length of the season for optimum planting.
- The level of mechanisation and ideal combination of tractors and implements that will enable timely and efficient crop production.

- The level of expertise in an integrated insect and weed control programme.
- The use of crop insurance to manage and avoid a major hail risk calamity.
- The combination of crops of both winter and summer types planted in a planned crop cycle rotation system to spread both production and financial risk.
- Forward planning ability to be able to assess production yields to ensure marketing of the crop to obtain the best prices in the market for that season.

Other risk factors not directly related to production would include managerial ability, the level of financial knowledge to assess the various gross margins for the grain options in your operation and the ability to muster and manage the human resources required in a larger farming operation.

The ability to be able to assess the future demand and price trends of each crop that can be produced on your farm, taking climate and soil potential into account, will be critical to your future financial success.

Each of the above risk factors should be isolated and due consideration given to where and how you can improve on last year's performance. Each farmer will know in which areas he must improve performance. You might need to consult experts in each field to be able to analyse each area in detail.

Crop cycle planning

The rainfall patterns experienced this last season highlighted this factor as one of the most important considerations for accurate and meaningful analysis in long term cash crop production planning.

As can be seen from the table 1, those farmers in the summer production areas that cannot include wheat in the crop production cycle will probably produce a combination of maize, sunflower seed, soybeans, or groundnuts. When the planned biofuel factories come on stream sorghum production could once again be considered.

If wheat is payable in your area it can be included in a crop and pasture cycle to reduce exposure to long term production risk.

Conclusion

Careful risk analysis in each critical area and the planting of various crops in a summer and winter cycle will enable you as a farmer to spread your risks and ensure long term financial survival. 🍷

Article submitted by a retired farmer.

Kverneland's CTC Cultivator

– the machine that meets all your needs

Jupidex is the importer of the finest equipment Europe has to offer, products like Kverneland's product range, Fede, Wolagri, Agri Spread and Apler.

Kverneland's overall objective is to maintain and support its position as the world's leading producer of soil preparation equipment. However, there is more to being the market leader than just having a big market share. As a leading manufacturer, Kverneland also takes responsibility for developing new, improved soil-preparation systems.

Systems which if combined with the right equipment gives the individual farmer the opportunity to carry out his work efficiently and more cost effectively.

For today's modern farms the demands for cultivation have changed. Tight time slots have to be balanced with higher machine performance. Restricted crop rotations call for an adaption in techniques that accomplish all requirements of modern crop cultivation.

As one of the largest suppliers of plough and cultivator based soil preparation systems Kverneland uses its knowledge on the diverse

requirements in cultivation and integrates this into all machine development steps. One of today's most important perceptions is that only with a wide range of implements can you fulfil all the requirements in soil preparation.

The Kverneland CTC cultivator is the machine that can meet all these needs. 🍷

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KEEPING UP WITH NEW TECHNOLOGY

– when the music changes, so must the dance

One of the keynote addresses delivered at the Grain SA Congress this year was by Rob Dunlop, a South African based in the United States working for Monsanto as the head of corn technology for Europe, Middle East, Africa and Asia.

“

Roundup is a very effective herbicide which kills a wide range of weeds and is known as a broad spectrum herbicide.

He gave a positive overview of new developments in terms of plant breeding and the exciting development in next generation technology. One would have to walk around with ear plugs in not to have heard all the negative press about genetically modified seed so it is important for us farmers to get properly informed so that we understand exactly what the new generation biotechnology offers us. As Dunlop said, despite the negative press and hysteria in social media, they really are not striving to develop any weird “Frankenstein foods” but are rather constantly seeking out new and innovative ways to feed the world’s growing population off less land and in harsher conditions.

Major trends which are driving the need for next generation technologies are the rapidly growing population (200 000 people are added to the world population per day), climate change, the need for a biofuel industry, the need for affordable food, the increasing pressure on water availability and global food security. Despite all these challenges the plant breeding community is excited by all the potential being unleashed by biotechnology and Dunlop says even more exciting things are still to come which will give farmers a choice of tools to assist them in their farming enterprises.

So what exactly is crop genetic engineering all about?

We first need to understand some useful terms:

Biotechnology – A set of biological processes using DNA and combining them in new forms.

Bacillus thuringiensis (Bt) – This is a bacteria which lives in the soil and also occurs naturally in the gut of some caterpillars, moths and butterflies as well as on the surfaces of leaves and other insect and aquatic environments. Many types of this Bt produce crystal proteins which have insecticide characteristics so it is used as a biological insecticide as well as in genetically modified crops.

Bt Corn – This describes maize which has been transformed with the Bt gene and is resistant to European stalk borer.

DNA – We all know that elephants only give birth to little elephants, giraffes to giraffes and so on for every type of living creature. But why is this so? The answer lies in a molecule called deoxyribonucleic acid (DNA), which contains the biological instructions that make each species unique. DNA contains the instructions needed for an organism to develop, survive and reproduce.

Genetic engineering – This is a process which involves inserting a foreign gene into the genome of a different organism.

Genome – In modern molecular biology and genetics, the genome is the genetic material of an organism. Your body is made up of about one hundred, million, million cells. Each of these cells has a complete set of instructions about how to make your cells, their components and their components’ components. This set of instructions is your genome. All living things have genomes. Beetles each have a beetle genome, which is a complete set of instructions for making a beetle. Cabbages



have a cabbage genome and bacteria have a bacteria genome.

Roundup® – An herbicide that provides non-selective control of several annual and perennial weeds. Roundup will also damage crops, such as corn and soybeans that are not Roundup Resistant. Glyphosate is the active ingredient.

Roundup Ready® – A trade name given to certain varieties of corn, soybean, cotton, or canola which are genetically engineered to be resistant to the herbicide Roundup.

Crop Genetic Engineering – the process

The process involved in crop engineering involves taking one or more foreign genes and inserting them into the genome of another organism. DNA is taken from one organism, for example a bacteria and a specific gene is isolated and then inserted into the cells of a plant. The gene is then manipulated and inserted into a particular plant or crop using a gene gun and working with microscopic fibres. This crop plant is then called a genetically modified organism (GMO).

This genetic engineering is a form of biotechnology since it is used to breed seed with very specific characteristics. The first biotechnology produced crops genetically engineered to tolerate chemical herbicides or to produce their own pesticides. The most well-known examples of these crops are Roundup Ready soybeans and Bt corn.

Roundup and Roundup Ready plants

Roundup is a very effective herbicide which kills a wide range of weeds and is known as a broad spectrum herbicide. The Roundup Ready soybeans are genetically modified plants which are bred to be resistant to Roundup so that only the weeds around them die and not the crop. Before this biotechnology was available the weed control options in soybeans were either cultivating between the rows or spraying very carefully between the rows and risking killing some of the crop as well. When Roundup Ready soybeans became available farmers could plant the tolerant seed and spray the entire field with Roundup so the weeds would die and the crop would be unaffected.

Bt Maize

This bacterium which occurs naturally produces a crystalline protein which is deadly to some insects. If the insect eats Bt the protein

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Food security and increased yields will best be achieved through using the intersection of genetics, breeding and information to help the farmer make the best decisions throughout the growing season regardless of how big or small the farming operation is.

actually paralyses the digestive tract and they have to stop eating and then die 1 - 5 days later. When scientists discovered this in the 1950's they formulated an insecticide spray and by the 1990's scientist were producing the first Bt maize hybrid plants using genetic engineering. They extracted the toxic Bt proteins and inserted it into a maize plant so the GMO maize can produce the same toxic protein. The European stalk borer is a serious pest in maize and now when the caterpillar begins to feed on the maize plant it also consumes the toxin which paralyses the digestive tract and they die. Through this genetic engineering millions of rands of what would previously have meant lost profits, are saved.

These first generation biotechnology crops with insecticides and herbicide resistant qualities are widely used today and GMO's are playing a significant role in the food system producing feed for livestock and food for human consumption. Rob Dunlop believes that as scientific advances are made there will be even newer more efficient breeding as they develop 3rd and 4th generation seeds. Climate change and water scarcity will cause yields to decline around the globe so Monsanto is already producing a new maize hybrid called *DroughtGard* which is all about water efficiency combined with drought tolerance. He said food security and increased yields will best be achieved through using the intersection of genetics, breeding and information to help the farmer make the best decisions throughout the growing season regardless of how big or small the farming operation is. Next month we will visit farmers who are using biotechnology in their farming systems. 🍷

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

The benefits of lime application

The soil is a wonderful natural resource, in fact if we did not have this resource there would be no life on earth. Soil sustains us! Soil is living, breathing and constantly changing. When something grows, it is drawing from the nutrients and minerals in the soil, thus it changes.

In agriculture where mono-cropping and other intensive systems are common practice and where the soil is rarely given a chance to rest, it is important that we understand the complexity of soil and what its needs are. We cannot continuously keep drawing nutrients out of the soil for our crops and never put anything back.

Soil types and structures vary from one location to the next. There are five different soil types which we commonly find in South Africa.

- **Sandy soils** – don't retain water very well, but are warmer and easier to work with when there is constant moisture available.
- **Clay soils** – store water well and are rich in nutrients, it can however be a heavy soil to work and till.
- **Silt soils** – are good at retaining water, but not so good at storing nutrients.
- **Peaty soils** – are rich in organic matter with high water content.
- **Saline soils** – has a high salt content and plant growth is slow in this soil.

The ideal soil is a combination of three of these types (silt, sand and clay) called loamy soil. Loamy soils are usually dark in colour with a mealy consistency; it retains water very well as well as nutrients. This doesn't mean that it will remain nutrient rich forever! Where crops are planted, nutrients will be used up.

This is why it is important to do soil samples before every planting season. We need to replace what we have taken out in order to continue achieving good yields. One of these amendments which need to be made on a regular basis is the

application of lime. This will be determined by the acidity of the soil or the Ph. Lime is used to neutralise the acid content of the soil. If the soil remains acidic it will be ineffective in taking up nutrients in the soil. Thus, if we apply a large amount of fertiliser, but our soil acidity is too high then the plants will not get the full benefit of the available fertiliser.

Different nutrients require different levels of alkalinity; however most will be effective at taking up nutrients when the soil Ph ranges from 4,5 and 6. Different crops also respond differently to soil acidity. Soybeans and sunflowers are relatively tolerant of acid soils when compared to crops such as maize. This means that they can still produce good yields under conditions with lower Ph levels. Maize on the other hand, which requires larger amounts of Nitrogen, needs soils that are less acidic. Therefore more lime is usually needed when planting maize in order to assist with the take up of Nitrogen and other important nutrients in the soil.

Where do I get lime from and how do I apply it?

The first important step you need to take before purchasing lime is to evaluate your soil sample results properly. This will determine what type of lime you will need to apply according to the soil requirements. The two types which you will apply may either be Calcitic or Dolomitic lime. If your soil sample results show that there is a shortage of Magnesium then you need to apply Dolomitic lime. But if the soil sample results show that the soil has good Magnesium reserves, but low Calcium reserves then you will need to apply Calcitic lime. This is important because if there is already sufficient Magnesium in the soil it will not be beneficial to add even more as this will interfere with the uptake of other important nutrients.

Fortunately lime is relatively easy to get hold of and can be purchased from various independent vendors which you will be able to find out



about by asking your local fertiliser representative. Lime is also relatively cheap; the main factor which will increase the cost of the lime will be the transport expenses. Lime is usually required in large quantities, thus bulk transport will be required. It is advisable to discuss this with your neighbouring farmers in order to try and share the transport costs.

Often the lime requirements of soil are overlooked due to inconvenience. Many farmers believe that they can get away with not applying lime, however a crop will never perform as well as it could without the correct nutrients. Rather, it would be worth the effort to order the lime and have it applied. This can be done by contractors with the correct machinery in order to save time. It is always advisable to take into account all of the findings in a soil sample analysis as many of the nutrients are interdependent on each other in order to be best utilised by the plant. 🌱

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





CANOLA

– important aspects to consider in June



Western Cape canola fields.



Western Cape canola fields.

Canola would have been planted from middle April to the start of May. Remember that for every week canola seeding is delayed following mid-April, the crop loses some of the potential for delivering optimal yields. During the month of June, it is important to consider applying the first nitrogen top dressing and there might be a need for post-emergence herbicide applications.

The first top dressing is applied 30 days to 40 days following emergence and this amount depends on how much nitrogen (N) was applied at planting. Usually around 40 kg/ha to

60 kg/ha N is applied with the top dressing. Depending on the season, a second application can be made at 60 days to 70 days following emergence. In drier seasons, the second application might not be applicable. Remember to include a sulphur carrier within the top dressing, since sulphur is very important for canola development and yield.

When it comes to post-emergence weed control, it depends which type of canola was planted. If a CL-cultivar was planted, one can use Cysure to manage annual broadleaf or any of the following: Lontrel, Lomex, Gallant Super, Agil, Co-Pilot, Pantera or Aramo. If it is a



Young canola. Photo Dr Johann Strauss.

TT-cultivar, you may use either Atrazine or Simazine for weed control, but these two products may only be used on TT-cultivars. For conventional cultivars, any grass or broadleaf herbicide that is registered on canola may be used.

It is important to remember the following when applying herbicides:

- Alternate products to prevent resistance.
- The earlier a weed seedling is sprayed, the better the control should be.
- Remember to clean the sprayer thoroughly after applying herbicide to grain crops, such as wheat, before spraying canola, especially after the use of SU herbicides.
- Ensure that the sprayer is calibrated correctly.
- Be careful not to spray when winds are strong, since drift of the herbicide could kill other nearby crops.
- Remember the efficacy of products is low when the weeds are under stress (cold, drought or heat) and not growing actively.

Good luck with your canola production season and remember: Manage your crop efficiently and you will be ensured a good crop and sustainable income. 🍷

Article submitted by Dr Johann Strauss, Scientist: Sustainable Production Systems, Western Cape Department of Agriculture. For more information, send an email to JohannSt@elsenburg.com.

SOYBEANS:

The golden wonder bean

Soybeans are often described as the golden wonder bean and are also called the 'rescue crop' and the 'protein source of hope for the future'.

These assumptions are based on the high protein content and the large variety of uses for soybeans. Soybeans are an important source of oil and protein and are used in animal feed and in various food and industrial applications. Soybean products are found in anything from breakfast cereals and chocolate to the shampoo we use to wash our hair, and therefore play a significant role in man's daily existence.

Dry soybeans are processed into various protein products, which are then used as ingredients for the manufacturing of food products. Soy protein plays an important role, for example in increasing the protein level of the food product, or to fill a specific function. As a functional protein it plays a role in improving the aroma, flavour, colour, appearance and texture of food products.

Together with the excellent nutritional value and functional properties, soybeans also have health benefits. Research has shown that the consumption of soybeans can combat or reduce a variety of diseases like certain cancers, heart disease, high serum cholesterol, diabetes and osteoporosis. Soybeans contain no gluten and soy products are lactose free, and therefore play a significant role in a variety of diets.

Soybeans can provide the proteins, fats and carbohydrates required in large quantities for the growth and functioning of the human body. The composition of a soybean on a dry base is shown in **Graph 1**.

Soybeans contain all the essential protein building blocks (amino acids) and in the right quantities required for good health. Soybeans are rich in leucine, but low in methionine. Grain crops are low in leucine, and the levels of methionine and leucine therefore balance out when soy protein is mixed with grain products.

Soybeans have a higher protein content than any other legume, as well as than various animal protein products. The quality of soy protein compares favourably with that of meat, eggs and milk. Soybeans are the cheapest source of protein supplement compared to other vegetable and animal sources.

The sugars sucrose, stachyose and raffinose together constitute the biggest part of carbohydrates. The structural carbohydrates (fibres) include cellulose, pectin and lignin and are important to good digestion. Soybeans contain vitamins like B1, B2, B3, B5, B6 and B12, choline, vitamins C, E and K, which are essential for good physical development.

The presence of minerals like potassium, calcium, magnesium, iron, zinc and copper in soy food can contribute to meeting the requirements of pregnant women and children. Refined soybean oil and oil products like lecithin, glycerol, fatty acids (like Omega 3), sterols and tocopherols (vitamin e and antioxidants) are used in the food industry as well as in the pharmaceutical, cosmetic and health industries. Lecithin as oil by-product has health as well as functional properties – it can help to regulate blood pressure and also has emulsifying and stabilising properties in the food industry.

For many years, soybeans have formed part of Eastern diets, but became popular in the West only recently. With the growing interest in soy foods, technology has been developed to manufacture improved soy food products. The uses of soybeans, mainly for food, are depicted in **Figure 1**. Soybeans as food source can be classified into the following groups:

Traditional soy food

Tempeh, miso, natto and soy sauce are made by fermenting soybeans. Other products in-

clude tofu, soy milk and okara. Edamame is a soybean variety with large seeds that are harvested when green, and the beans can be cooked and eaten like ordinary vegetables. It can also be used in vegetable and salad dishes. Roasted edamame is a tasty and nutritious snack.

Second-generation soy food

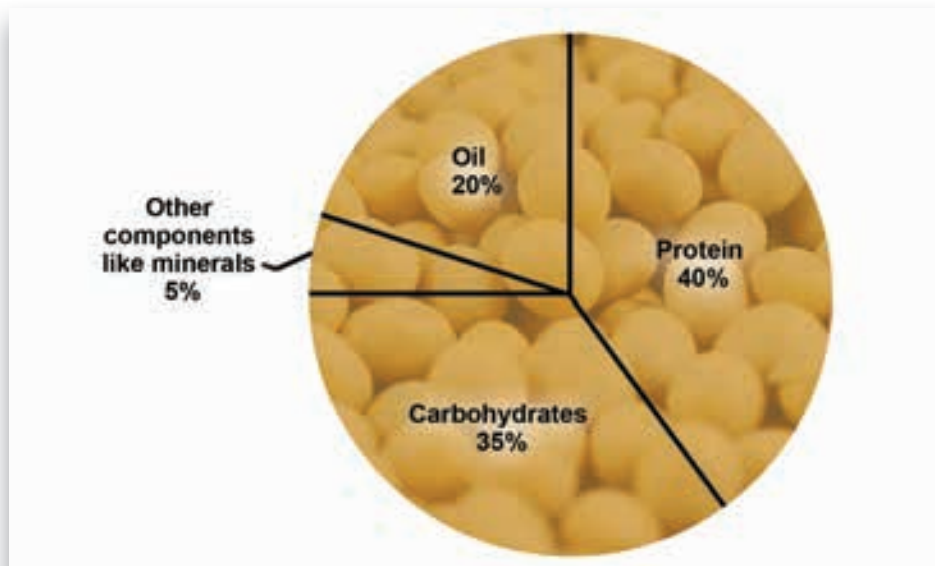
Whole, roasted soybeans are used mainly as ingredients for baking and snacks. Soy protein products are used in manufacturing meat alternatives, meat extenders, imitation chicken and dairy alternatives. This soy food plays an important role in the diet of vegetarians, sports enthusiasts, lactose and glucose-intolerant and health-conscious persons.

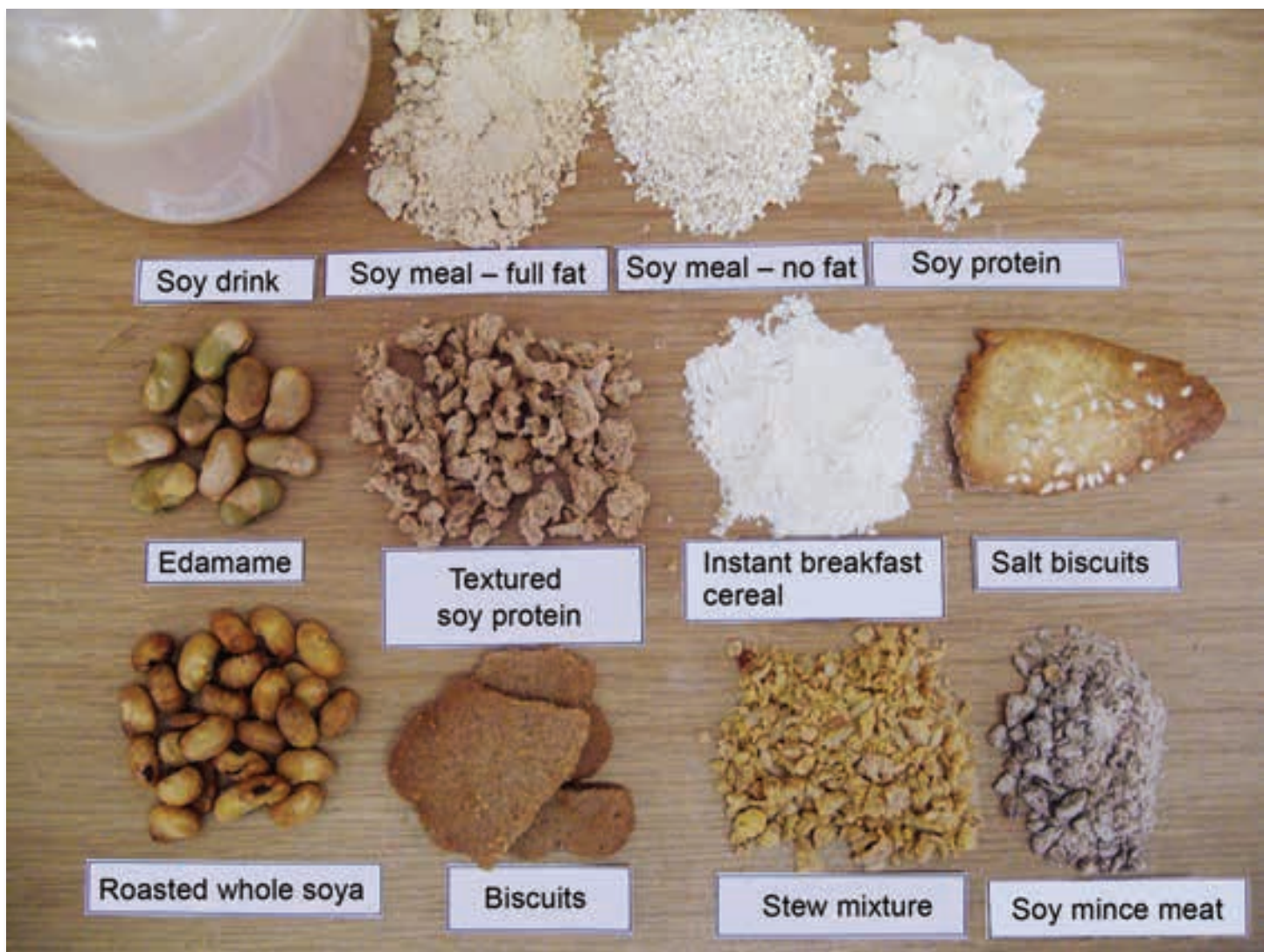
Soy products as food or functional ingredients

Soy meal, soy protein concentrates and soy protein isolates are the basic protein products that can be produced from dry soybeans through various processing steps. Soy meal is the first product that is made and contains 54% protein.

A variety of soy meal types are manufactured, e.g. full-fat meal that contains the natural oil of the bean, meal that contains less than 1% oil (fat free), as well as meal that has been enriched with lecithin.

Graph 1: The composition of a soybean on a dry base.





Examples of soybean and soy protein products.

Whole, cleaned soybeans are crushed, husked and then ground to make full-fat meal. During the production of fat-free meal, the oil is removed with a solvent. Lecithin-enriched soy meal has improved emulsifying properties and can be used to partially replace eggs. Soy meal is mainly used in the baking industry and to manufacture snacks and instant breakfast foods.

Concentrates and isolates are manufactured from fat-free soy meal. These products have an increased protein content and improved taste, and does not contain carbohydrates (sugars) and minerals. The concentrates contain a minimum of 65% protein, while isolates contain more than 90% proteins.

Concentrates and isolates play a functional role because they have a high water-binding capacity as well as fat-binding and emulsifying properties. They are used mainly in the manufacturing of frozen and processed-meat products, where

they play a functional role and also contribute to protein enrichment.

Soy protein isolates are also used as ingredients for baking, as a replacement for dairy-related products and baby formula. It is particularly important to vegetarians and persons who are lactose intolerant.

The manufacturing of a 'textured' soy protein has greatly extended the use of soy protein products. Textured soy protein products are used mainly as meat extenders and meat replacements, for example in manufacturing soy mince. However, these products should not be seen as cheap replacements for red meat, but rather as high-quality protein food that is cholesterol free and nutritious.

Soybeans and soy products are nutritious and have health benefits. Soy is an affordable source of high-quality protein and is to a great extent the only source of protein for the low-income groups in South Africa.

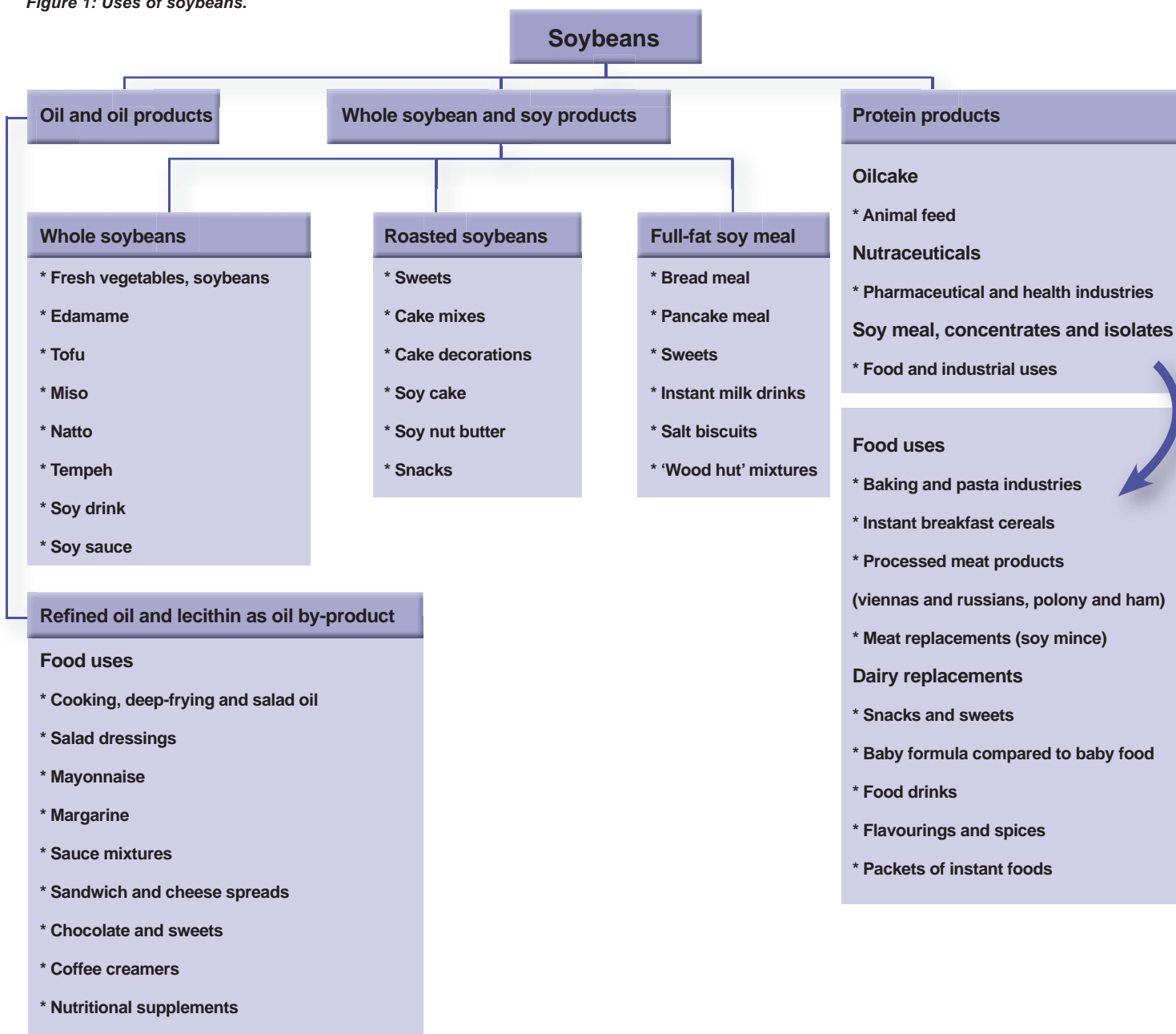
Keeping the saying 'a rich nation is the product of a healthy nation' in mind, soybeans should be viewed as pivotal for building a healthy population. Soy protein should not be regarded as a replacement for or threat to animal protein production. It is simply not possible to meet the protein needs of a world population on its way to seven billion people with animal protein only.

The only way in which we can meet the future protein needs of the rapidly growing world population is by developing products from animal protein and soy protein mixtures and by developing tasty new soy food products and serving them to the consumer.

The production of soybeans holds great benefits for agriculture. Soybeans bind atmospheric nitrogen in the soil and thus contribute to lower input costs. Crop rotation with soybeans can also contribute to increased yield for both crops, and can reduce the risk of disease.

Soybeans: The golden wonder bean

Figure 1: Uses of soybeans.



Resources

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Article submitted by Dr Rouxlene van der Merwe, Department of Plant Sciences, Free State University, for SA Graan/Grain June 2013. For more information, send an email to vandermerwer@ufs.ac.za.



Controlling Benghal wandering Jew in maize and wheat



1 *A wandering Jew seedling.*



2 *The mature plant.*



3 *Underground seed and inflorescence.*



4 *Seed of the wandering Jew.*

Wandering Jew is a creeping, annual, soft weed that grows relatively upright. It has thin roots and white, subterranean rhizomes that also produce flowers and seeds. The stems are a bright light green, ribbed and hairy. Although it has broad leaves, it is a monocotyledon and veins are therefore parallel-nerved, like in grasses.

The leaves are simple, arranged alternately, and the shape is ovate. Flowers are axillary, small, ink blue, almost sessile and live only a few hours.

Wandering Jew has supraterranean as well as subterranean flowers and seeds. Benghal wandering Jew's fruit are triple-loculus capsules with one semicircular seed in the dorsal loculus and two com-

pressed seeds in each of the other two loculi.

The supraterranean seeds are small and the subterranean seeds are relatively large. They are grey to almost black and the surface of the seed coat (testa) is rough. Wandering Jew propagates in various ways, namely with cuttings (pieces of plant and rhizomes), supra- and subterranean seeds.

Distribution

This weed is widely distributed throughout the summer rainfall area of southern Africa and is regarded as difficult to control. During the past few years it has also penetrated to a few farms in the Worcester district.

Because of inadequate control this weed is multiplying rapidly, particularly where reduced or

no-till is applied. When it occurs in dense clusters, it is a strong competitor that can also climb up against the crops.

Control

Tillage

Shallow hoeing will only cut the plant into pieces and if the cuttings are not buried deeper than 50 mm, they will root and grow again. Only if the cuttings are buried deeper than 50 mm will they die. Shallow hoeing with a harrow will therefore spread the weed rather than control it.

Chemical

Chemical control is the best method here. The small, supraterranean seed germinates shallowly and pre-

Controlling Benghal wandering Jew in maize and wheat

SCIENTIFIC NAME: *Commelina benghalensis*

AFRIKAANS NAME: *Bengaalse wandelende Jood, Bengaalse-Commelina, wandelende Jood, Blouselblommetjie*

ENGLISH NAME: Benghal wandering Jew, Benghal Commelina, Wandering Jew

Table 1: Herbicides registered for controlling wandering Jew in maize.

| Active ingredient | Formulation | Time of application |
|-------------------------------------|-------------------------------|---|
| acetochlor | 700 grams/litre | Pre-emergence or early post emergence of crop |
| | 840 grams/litre | |
| | 900 grams/litre | |
| | 960 grams/litre | |
| acetochlor/atrazine/simazine | 160/165/165 grams/litre | Pre-emergence, during or just after planting |
| acetochlor/atrazine/terbuthylazine | 125/187,5/87,5 grams/litre | Pre-emergence, with planting or within three days after planting Early post emergence – no later than four-leaf stage of the weed |
| | 150/225/225 grams/litre | |
| | 178,6/160,7/160,7 grams/litre | |
| | 250/225/225 grams/litre | |
| | 350/175/175 grams/litre | |
| acetochlor/EPTC | 150/350 grams/litre | Pre-emergence of weed and crop |
| alachlor | 384 grams/litre | Pre-emergence, during or just after planting |
| | 480 grams/litre | |
| alachlor/atrazine | 336/144 grams/litre | Pre-emergence, during or just after planting |
| atrazine | 500 grams/litre | Pre-emergence, during or just after planting |
| | 900 grams/kg | |
| atrazine/bendioxide | 200/200 grams/litre | Post emergence between two to six-leaf stage of weed |
| atrazine/cyanazine | 167/333 grams/litre | Pre-emergence or early post emergence |
| | 250/250 grams/litre | |
| atrazine/mesotrione/s-metolachlor | 208,5/26,8/208,5 grams/litre | Pre-emergence of weed and crop |
| atrazine/metazachlor/terbuthylazine | 210/60/210 grams/litre | Pre-emergence, within three days after planting |
| | | Post emergence as follow-up spraying |
| atrazine/metolachlor | 300/300 grams/litre | Pre-emergence, within three days after planting |
| atrazine/metolachlor/terbuthylazine | 174/252/174 grams/litre | Pre-emergence and early post emergence, but only where grass is not yet up and broad-leaved weeds are not larger than four-leaf stage |
| | 262,5/175/262,5 grams/litre | |
| atrazine/s-metolachlor | 370/290 grams/litre | Pre-emergence application within three days after planting |
| atrazine/metolachlor/terbuthylazine | 248,6/102,8/248,6 grams/litre | Pre-emergence |
| atrazine/sulcotrione | 300/125 grams/litre | Administered pre- or post emergence |
| atrazine/terbuthylazine | 250/250 grams/litre | Pre-emergence or early post emergence, before broad leaves have reached four-leaf stage |
| | 270/270 grams/litre | |
| | 300/300 grams/litre | |
| | 450/450 grams/kg | |
| bendioxide | 480 grams/litre | Post emergence when weed grows actively |
| bromoxynil | 225 grams/litre | Post emergence before weed has reached six-leaf stage |
| | 450 grams/litre | |



Table 1: Herbicides registered for controlling wandering Jew in maize (continued).

| Active ingredient | Formulation | Time of application |
|-------------------------------------|-------------------------|--|
| bromoxynil/terbuthylazine | 150/333 grams/litre | Post emergence |
| dicamba | 480 grams/litre | Post emergence until crop is 30 cm tall Can also be mixed with atrazine |
| | 700 grams/litre | |
| dimethenamid-P | 720 grams/litre | Pre-emergence, within three days after planting |
| dicamba/topramezone | 160/50 grams/litre | Early post emergence before six-leaf stage, use in tank mixture with atrazine or atrazine/terbuthylazine and Dash HC |
| glyphosate/mesotrione/s-metolachlor | 250/25/250 grams/litre | Post emergence, only on glyphosate-tolerant cultivars |
| mesotrione | 480 grams/litre | Pre- or post emergence. Use only in tank mixture of atrazine, atrazine/terbuthylazine or s-metolachlor |
| mesotrione/s-metolachlor | 83,3/416,7 grams/litre | Pre-emergence of weed and crop |
| metolachlor | 800 grams/litre | Pre-emergence, within three days after planting |
| | 840 grams/litre | |
| | 915 grams/litre | |
| | 950 grams/litre | |
| metribuzine | 480 grams/litre | Post emergence when weeds grow actively, four- to six-leaf stage |
| s-metolachlor | 915 grams/litre | Pre-emergence, within three days after planting |
| | 960 grams/litre | |
| s-metolachlor/terbuthylazine | 312/5/187,5 grams/litre | Early post emergence, in tank mixture with mesotrione |
| tembotrione | 420 grams/litre | Early post emergence, use in tank mixture with atropine 500 SC, ammonium sulphate and Ballista |
| terbuthylazine | 600 grams/kg | Pre and early post emergence up to and with four-leaf stage |

Table 2: Herbicides registered for controlling wandering Jew in wheat.

| Active ingredient | Formulation | Time of application |
|-------------------|--------------------|---|
| 2,4-D | 480 grams/litre | Apply between growth stage 7 - 13 of crop |
| | 500 grams/litre | |
| | 720 grams/litre | |
| 2,4-D/dicamba | 240/80 grams/litre | Apply between growth stage 7 - 13 of crop |
| bendioxide | 480 grams/litre | Apply to young, actively growing weeds |
| bromoxynil | 225 grams/litre | Apply as early as possible post emergence of the weed, but no later than six-leaf stage |
| | 450 grams/litre | |
| dicamba | 700 grams/kg | Use only in tank mixture with Enhancer (10 grams - 12 grams) and Reaper (10 grams) and a spreader |
| MCPA | 400 grams/litre | Apply between growth stage 7 - 13 of crop |
| | 700 grams/kg | |

emergence herbicides usually offer effective control. The big seeds that are produced below ground can germinate as deep as 150 mm and pre-emergence herbicides provide varying control. For this reason post emergence herbicides provide better control of the Benghal wandering Jew, while the hormone-type of herbicide (2,4-D, dicamba and MCPA) is the most effective.

Where wandering Jew is a serious problem, the best result can be obtained by a split application of a suitable grass herbicide pre-emergence, fol-

lowed by a post emergence application of a suitable broad-leaved herbicide. Wandering Jew seedlings should be sprayed preferably around the four-leaf stage and no later than the six-leaf stage.

Several herbicides are registered for controlling wandering Jew in maize and wheat (Tables 1 and 2). The labels of most of the herbicides contain a note on the control of wandering Jew, and dosages often have to be increased to obtain effective control. Follow the indications and dosage instructions for wander-

ing Jew on the label of each product extremely closely.

Always contact a reliable chemical adviser before using any chemicals to follow the correct dosage and specifications on the label.

Article submitted by Elbé Hugo, ARC-Grain Crops Institute and Hestia Nienaber, ARC-Small Grain Institute for SA Graan/Grain June 2013. For more information, send an email to HugoE@arc.agric.za

Snotsiekte under the microscope

Snotsiekte, which comes from blue and black wildebeest, causes enormous financial losses to cattle farmers (particularly beef cattle farmers) because it is a deadly disease in cattle for which no successful treatment is available. The disease occurs worldwide.

Snotsiekte is a deadly herpes virus disease in cattle of all breeds and ages, as well as in reindeer. Sick cattle have a bilateral suppurating mucous discharge from the nose and eyes.

Keratitis of the eyes and the enlargement of the superficial glands (lymph glands) develop. Snotsiekte from wildebeest is mainly associated with blue wildebeest (*Connochaetes taurinus*) and sometimes with black wildebeest (*Connochaetes gnou*).

Sheep-associated snotsiekte has a lower incidence in southern Africa than wildebeest-associated snotsiekte. Snotsiekte (*bovine malignant catarrhal fever*) is a notifiable animal disease in terms of the Animal Diseases Act (Act 35 of 1984) in South Africa.

Source of infection

Since game farming became an economic industry in South Africa in the 1970s, the incidence of wildebeest-associated snotsiekte has increased. Most free-living adult wildebeest are infected with the snotsiekte virus.

The adult wildebeest secrete the virus under conditions of severe stress, for example on exposure to high environmental temperatures and during captivity. Wildebeest themselves do not become sick and do not display symptoms of snotsiekte, but there are no herds of wildebeest that are known to be free of the snotsiekte virus.

Rooihartbeest (*Alcelaphus buselaphus*), tsessebe (*Damaliscus lunatus*), blesbok (*Damaliscus dorcas*), sable antelope (*Hippotragus niger*) and other types of game can also be a potential source of the snotsiekte virus.

Blue wildebeest calves can be infected in the womb. The calves can also be infected soon after birth by other calves that are infected, in spite of antibodies obtained from the cow. Blue wildebeest calves secrete the snotsiekte virus up to the age of about four months in their nasal and eye discharges, and the virus then infects cattle. Up to 40% of the calves are infected with the snotsiekte virus.

When infection occurs

In South Africa there are two peak times, from January to May and from September to November,



Snotsiekte comes from blue and black wildebeest. Many free-living adult wildebeest are infected with the snotsiekte virus.



Snotsiekte is usually invariably a deadly virus disease in cattle of all breeds and ages, usually beef cattle, in South Africa.



when the incidence of wildebeest-borne snotsiekte is very high. The wildebeest calving season is from December to February and the infected young calves infect cattle from January to May.

During the September to November peak period for snotsiekte among cattle the wildebeest calves are nine to eleven months old and then they probably secrete many viruses. In South Africa the incidence of sheep-associated snotsiekte is very low and it occurs at any time of the year.

How cattle are infected

Cattle are usually infected sporadically if there is close contact with wildebeest. Cattle have been infected with wildebeest-borne snotsiekte in spite of the fact that they were more than 100 m away from the wildebeest and were separated by a fence.

During the peak breakout period of wildebeest-borne snotsiekte from January to May, the cattle and wildebeest usually share grazing

and water and are in close contact with one another. During the September to November peak period of wildebeest-borne snotsiekte, cattle are usually not in close contact with wildebeest.

Cattle presumably breathe in the snotsiekte virus and are infected in this way, but the exact method of infection is not yet clear. Where cattle have been infected over large distances (several hundred metres), a carrier was probably involved. Mutual infection with the snotsiekte virus in cattle does not occur, or is exceptional.



The eyes of animals with snotsiekte are infected and the cornea is dull grey and opaque. This can lead to blindness.



Snotsiekte also occurs in dairy cattle, but less than in beef cattle, because dairy cattle have less contact with wildebeest.



Sheep can also be carriers of snotsiekte. The incidence of sheep-associated snotsiekte in cattle is lower. It can occur at any time of the year.

Signs of the disease in cattle

The incubation period (from infection to symptoms) is three to seven weeks or sometimes longer. The body temperature suddenly spikes to approximately 41,6 °C. Both nostrils have a suppurating mucous discharge that sticks and forms crusts. Sometimes the nostrils are so encrusted that the animal has difficulty breathing.

Sores develop on the nasal and mouth mucous membranes. Both eyes are infected and have a suppurant mucous discharge and both corneas become dull grey and opaque, which can lead to blindness. The animals are sometimes light sensitive and can develop diarrhoea.

A skin infection that sometimes flakes develops on the dewclaws, between the claws and at the base of the horns. The animal sometimes develops nerve symptoms, with aggressive behaviour. Sick animals usually die within four to five days after the appearance of the disease symptoms.

Diagnosis

A preliminary diagnosis is made on the basis of the history, signs of the disease and post-mortem lesions. Confirmation of the diagnosis is done when the virus has been isolated from tissue or if antibodies occur in the blood.

Distinguish snotsiekte from other diseases

Diseases that can be confused with snotsiekte are bovine viral diarrhoea, mucosa disease, rinderpest, infectious bovine rhinotracheitis, foot-and-mouth and lumpy skin disease, because they cause mouth lesions, among other things.

Prevention and control

- Cattle and wildebeest should be separated by at least 1 000 m to prevent cattle from being infected.
- Control the movement/transport of wildebeest.
- No effective treatment or vaccine is available.

Article submitted by Dr Jan du Preez, Managing Director: Institute for Dairy Technology, for SA Graan/Grain June 2013. For more information, contact him at 012 843 5600.

Grain SA interviews...Jafta Taso

Jafta Taso from the Senekal district in the Free State Province is not only a hard, honest working farmer but has also doubled his crop yield over the past two years. Johan Kriel interviewed Jafta for this issue of Pula Imvula.

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

I farm in the Senekal district in the Free State. In total I farm on 1 630 hectares of land. I plant maize, sunflower and soybeans and have beef cattle.

What motivates/inspires you?

Hard, honest work motivates me. I want to get ahead in life and make something of myself. I want to make sure that my children have a future in this country.

Describe your strengths and weaknesses

I draw my strength from my strong support system. I have Grain SA, my mentor, oom Flip du Preez, and my fellow farmers, commercial and developing, to assist me with guidance and good sound advice. I am still weak because my equipment is old and production capital is tough to come by. I also do have a bit of a short temper. I cannot take incompetence.

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

All I can say is that my crop yield has more

than doubled in the last two years. My sunflower yield has increased from 1,5 tons/ha to 1,9 ton/ha and my maize yield as increased to 4 tons/ha.

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

If you are open to listening to good advice, get sound training and receive regular on farm visits and support from the right people you will get better and better. This is what the Grain SA Farmer Development Programme gives you. But you have to put into practice what you learn or else it will be of no use.


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

I have completed the following courses: Introduction to Maize and Sunflower, Advanced Maize, Farm Resource Management and Planning, On-farm Maintenance and Workshop Skills. I need more training on Financial Management and Labour Relations.

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

In five year's time, I want to be well on my way to being my own man and not having any debt. I want to be a better farmer and a better person than what I am now. Then the success will follow.

What advice do you have for young aspiring farmers?

Do not wait for the Government to help you. Do your own thing. Get your support base in place and look and learn. Ask questions, listen to others, befriend fellow farmers and work together. 

Article submitted by Johan Kriel, Development Co-ordinator of the Grain SA Farmer Development Programme. For more information, send an email to johank@grainsa.co.za.

THE CORNER POST

What a farmer means to a mentor



Mentorship requires information on the mentee, and the implementation of the characteristics of honesty, reliability, adequate knowledge, practical experience and the ability to communicate.

Information on the mentee's family, spouse, children, successors, farming background, future plans, problems and possible solutions is essential to improve relationships.

Knowing the ins and outs of the mentee's family and receiving regular feedback, with sincere interest on both sides, makes the mentor a member of the family.

Honesty must be maintained at all times. Where sufficient knowledge is lacking, it should be followed up to promote reliability.

Knowledge and practical experience should be exchanged with the mentee in plain language. One is never too old to learn and should acknowledge this.

Stick to principles regarding farming practices, e.g.: 'The farm determines the type of farming activity.'

Fields performing below potential should be withdrawn from cash crops and established with permanent pasture. This principle is not yet applied as it should be, but results are improving.

Mixed farming with quality cattle that can utilise pasture, crop residue and planted grazing is more sustainable. Selection and marketing are carried out together with the mentee, and results are communicated with appreciation.

Where cash crops are grown on fields with a higher potential, better yields are more sustainable and recognition for this is greatly appreciated.

Soil preservation is high on the agenda and assistance with laying out water courses and contours is very successful. Practical experience plays a major role here.

William Matasane, Koos Mthimkulu, John Dipali, Samuel Nyambose and Jafta Taso generate good crops and feedback is very positive because their successes are my success too.

All the positive comments that come over a long period of time are very encouraging. The major contribution is honesty among themselves and with me, because I am a member of the family, has made success possible.

There can be no better recognition for what has been achieved in collaboration with farmers who want to and can farm. All honour to the heavenly Father who has made this possible. 🌱

This month's edition of The Corner Post was authored by Philip du Preez, Free State mentor. For more information, send an email to padupreez@true-fs.co.za.



Philip du Preez exchanging his knowledge and experience with William Matasane.



Jafta Taso.



Samuel Nyambose.



John Dipali.



Koos Mthimkulu and his son Clifford.



William Matasane.



Kverneland

Qualidisc

Designed to ensure a good stubbling quality through cutting and mixing. The adjustable disc angels give the machine a strong penetration capacity. The big disc diameter (573mm) ensures a good mixing effect without the risk of blockages even in case of larger volumes of straw or when working in green fertilizer crops. The mounted Qualidisc are equipped with the famous frames of the CLC Evo cultivators



Kverneland

CLC Cultibar



The Kverneland Cultibar offers total flexibility with:

- No. of Tines 32
- Tine Spacing 365 mm
- Working Width 12 meters
- Transport Width 5.2 meters
- Transport Height 5.4 meters



RO-EDW GEOspread

The RO-EDW GEOspread is equipped with two actuators on each dosing unit. One of these actuators controls the setting of the discharge point of the dosing cup onto the disc (letter setting), the other controls the application rate. The GEOspread system makes it possible to adjust the letter setting individually for both discs electrically from the tractor cab. This means the working width can be easily adjusted quickly and accurately just by touching the ISOBUS terminal!

The Advantages:

- RotaFlow spreading system
- Fully automatic weighing system with unique reference sensor
- Unique GEOspread system with two electric actuators
- ISOBUS 11783 compatible for easy plug and play
- Possible in combination with IsoMatch GEOcontrol



Farming Equipment



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