PULA IMVULA

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FEBRUARY
2014

THE FARM OFFICE
– the heart of your business

Draw up a marketing plan for your maize

Oil & Protein Seeds special feature

Identify sclerotia infections

PULA IMVULA

Editorial team

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

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

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

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

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

Grain SA Farmer Development Programme

DEVELOPMENT CO-ORDINATORS

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

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

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

Naas Gouws
Mpumalanga (Belfast)
▸ 072 736 7219 ◂ naas@grainsa.co.za

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

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

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

Toit Wessels
Western Cape (Paarl)
▸ 082 658 6552 ◂ toit@grainsa.co.za

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

NKGONO JANE SAYS...

IN THIS ISSUE...

COVER ARTICLES

INSIDE

It would seem that we are again experiencing scattered rains – some people are lucky, while others are not. This is hard to bear if you are not the lucky one! Nothing lasts forever and we must believe that the "normal" rainfall patterns will return at some stage.

Recently I have been confronted with an ethical question – it would seem that people are dishonest, because they think they will not be "caught out". This is a sad state of affairs. Integrity is something that none of us must ever be tempted to compromise – my word is my word and there is no other way to operate. You may be wondering why I am writing this?

Many farmers take a production loan to finance the crop – they borrow from an agribusiness or a commercial bank or the Land Bank. The crop on the land acts as the security for the loan, and often the insurance companies are involved so as to ensure that there will be an income if the weather conditions create a crop failure. The farmer is required to pay off the loan when he harvests the crop. After he has paid the loan, what remains is his profit from the crop.

The lending institution as well as the mentors and farmers like to know what yield they can expect from the crop and so they do yield estimations regularly. These estimations are very accurate – the personnel of the crop insurance companies are very good at doing these yield estimations and they are seldom wrong.

If the crop on the land is estimated at 4 tons/ha, and the farmer only delivers 3 tons/ha, it is quite clear to everyone involved that some of the grain has been delivered elsewhere. I regret to say that this is very common practice – farmers only deliver some of the grain to the institution that lent them the money, and then they deliver the balance elsewhere and sell the grain for cash. In simple language – THIS IS FRAUD. There are a number of ways that this is done – some deliver to a different silo or mill, while others deliver to the same place, but tell the silo that the crop belongs to someone else.

Unfortunately, this information usually leaks out at some time, and people get to know that farmers are not being honest. This has a very serious impact on their chances of ever getting loans from any institution. Please, if you as a farmer desperately need money – speak to the lending institution before you are tempted to commit fraud – remember that your reputation is worth more than anything!

Draw up a maize marketing plan

Most farmers are very good at developing their crop production plans for the new season. They have strategies about seed selection, weed control, fertilisation programmes and they know whether they plan to plough or go no-till. Throughout the growing season farmers monitor their crops and adjust their plans according to the conditions, like unexpected insect plagues or late rains. As part of the annual farm strategising, farmers must always consider the markets – both locally and globally.

A proper grain marketing plan requires the farmer to calculate his price target – the price that makes the effort and risk worthwhile. This means covering costs and also earning profits, otherwise the exercise is not worthwhile. Different marketing strategies must be identified to achieve the target prices. This could take several different forms or be aimed at one buyer, but it should be flexible and it should regularly be reviewed. Unfortunately too often it is the case that a farmer is forced to sell at whatever price he can get, because he has to service his debts; a much better position is if the farmer can adapt to the market conditions and wait for his ideal price.

Factors that influence the marketing plan

There are four major factors which influence the marketing plan:

Personal attitudes about marketing

Do you get stressed watching the day-to-day price movements and aim to try for the highest price of the year? Are you always worrying about whether you are going to lose out on that top price of the season? Are you more a risk manager focussed on the long-term goal which is making a profit? Do you know exactly what price will cover costs?

Financial needs of the business

Identify the costs of production and include your costs of your living, then identify an acceptable return over production costs. Identify risks and know how much financial pressure your business can take without bankrupting it.

Seasonal price patterns

Understand what seasonal prices are influenced by – locally and globally e.g. how does a wet season in the United States impact on South African markets?

Current price outlook

The market place is always suggesting a price outlook, but this is not reliable. The further in the future the predictions are, the less accurate they tend to be. Plan to market a portion of each year's crop based purely on the financial considerations of the business, regardless of the current price outlook.

The result of having a "marketing plan" is, you:

- Have a road map developed, which defines your specific objectives and what you wish to achieve;
- Are empowered to make an excellent marketing decision, regardless of what happens to the prices later; and
- Have clearly identified how much speculation (risk) you are able to tolerate.

What influences maize marketing patterns?

A number of issues have an influence on the marketing of the maize:

Time of the year

Maize is always readily available in South Africa – even if the harvest is not good – which means the traders seldom have to go far to find the maize they need. Farmers have to compete for the best prices and those who live in remote areas may have problems selling their crops.

Location and transport facilities

Marketing opportunities for maize produced by farmers living close to big centres or major roads are less complicated than for those living in remote regions like the foothills of the Drakensberg. Victor Mahlinza farms near Estcourt in KwaZulu-Natal and he reports that the farmers are growing stronger in many ways, but are still facing challenges at harvest, because there are no silos to store their crop so they have to load the grain directly onto trailers and cope with poor roads to the markets. Their marketing channel holds many challenges and may compromise their ability to compete for top prices in the market.

Availability of market places

The market place for our grain is dominated by a central role player known as the South African Futures Exchange (Safex), which serves as a buying and selling platform. A certain expertise is necessary to use this futures exchange effectively, so as a result many farmers rely on agents to guide them or do the trading on their behalf. Farmers should make an effort to understand how Safex operates. Every farmer must have confidence that his agent has his best interests at heart and will aim to get the best price possible, so they must talk to their agent often.

Location differential

It is important for farmers who are selling their maize locally to know what the location differential is.

The location differential is essentially the transport cost in moving your grain from your farm to the central point for grain trading at Randfontein in Gauteng, so Safex subtracts that cost off your payment. If a local business buys grain from Randfontein, he would pay location differential too. Sellers must understand this is a point for negotiation and the location differential fee could be a shared cost. Being informed empowers the negotiation process.

Size of the harvest

When a bumper harvest is realised, traders can pick and choose, so prices are likely to be depressed, which influences on-farm profitability levels. Overproduction always depresses prices and makes the whole process of growing maize unprofitable. This is why farmers need to think ahead and organise futures contracts on Safex or with local businesses. It is no good planting more maize than you can use if a market has not been identified.

Many stakeholders question why we want to sell into the export market. South Africa annually farmers more maize than our internal consumption, even in drought years, so we need a steady flow of maize out the country. This export market serves to balance out those years of overproduction which cause our maize prices to decline. Stable grain prices empower farmers to plan better and to make more secure decisions about how much maize they will plant each new season.

> *"What helps luck is a habit of watching for opportunities and uniting a love of detail to foresight."*

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

Eradication of Datura weed species in maize to prevent contaminated seed

The poisonous Datura species of plants occur throughout the world and there are two main kinds of Datura species that occur in South Africa. These are known by their Latin names as *Datura ferox*, the large thorn, apple or "groot stinkblaar", and the common type, *Datura stramonium*, known just as the thorn apple or "stinkblaar". The distinction of which is the "large" or "smaller" type is related to the size of the thorns or spines on the fruiting bodies that look like small balls or "apples".

The plants are regarded as a serious competitor to cultivated crops as well as posing a danger of poisoning to both animals and humans. Before any crop seed is accepted for intake to official commercial silos, a representative sample of the seed is tested. Any sample containing one or more Datura seeds for every 10 kg of maize seed will be rejected by the silo operator for intake and further commercial use.

It only takes one mature Datura plant per hectare, which is harvested together with the maize seed by the combine, to spoil a load.

Description

In general the plants grow to between 1 m and 1,5 m high and develop very strong tap roots that compete with crops for moisture. The hairless leaves are egg shaped or long and angular at the young stages and are coloured bright green on both sides. The mature leaves grow up to 20 cm long and 20 cm wide in size on the hairy stems.

When the leaves are bruised by foot, hand or cultivation implements, a very strong and unpleasant smell is released. It is probably one of the most easily identified weeds occurring in our lands and its common name aptly describes the plant.

Fruiting body formation after flower petals have fallen.

Mature fruiting body of both species showing the small spiked spines of Datura stramonium (common thorn apple) and the large spikes of Datura ferox (the large thorn apple). The seeds of each can be seen. The fruiting bodies usually split to discharge seeds while still attached to the stems. The mature fruiting bodies shown have been removed from the stems for illustration.

Young Datura seedlings at the four leaf stage.

Immature large thorn apple (Datura species) plant before formation of fruiting bodies.

The solitary distinctive white or cream coloured trumpet shaped flowers of up to 6 cm in length occur at the multiple on the plant stems. The very distinctive fruiting body develops after pollination and can be up to 4 cm wide and is covered in strong spines spread over the whole surface. The brown fruiting body splits at maturity allowing the flat kidney shaped seeds of about 3,5 mm to 4 mm in length to spread out under the standing plant.

Agricultural significance

The plant is a very strong competitor in all planted crops, including maize. If the crop is not controlled on first observation and left to grow to maturity, the weed can literally take over a land in a few seasons.

We have all seen lands where the animals can hardly move through to be able to graze the maize residues. In drought conditions, animals will eat the young seedlings and become poisoned. The whole plant, but especially the seeds, is poisonous.

The seeds are usually mixed with the maize seed sample in the combine bin when the mechanical harvesting of the crop takes place. The seed cannot be easily separated from the maize kernels in the combine sieve system. In a bad infestation of combined maize seed, a separate sieve with punched holes of 2,5 mm by 5 mm must be used to extract the Datura seeds prior to delivery to commercial silos. Sometimes the seed must be sieved more than once to eliminate all of the Datura seed from the sample.

Symptoms of poisoning

Both animals and humans suffer various levels of poisoning from ingesting any parts of the plant or seed. Most cases of poisoning are however not fatal.

Only 1 mg of this poison in an adult human will cause hallucinations, seeing as this chemical stops the action of nerves in the brain and at nerves controlling the muscles.

When picking young plants used as a spinach substitute or “marog”, care must be taken not to include a young Datura. The seeds can also be accidentally eaten by small children with fatal results. It is a good idea for your children to be able to identify the seeds and plants from an early age.

Symptoms of poisoning in animals include muscle tremors, mania and general excitement in animals. The intake of the plants or seeds causes the disruption of the digestive system and abdominal pain known as colic in horses. If you are not sure, immediately consult your veterinarian if your animals are not acting normally.

> *“We have all seen lands where the animals can hardly move through to be able to graze the maize residues. In drought conditions, animals will eat the young seedlings and become poisoned. The whole plant, but especially the seeds, is poisonous.*

Control of Datura

The weed can be controlled when first observed in cultivated lands and headlands or farmsteads either by digging, pulling or hand hoeing. Seedlings and plants that have not yet formed seed can be added to a compost heap where the toxins will naturally break down.

However, it is very important that plants that have set seed be buried deeper than 60 cm or preferably burnt. Hands should be thoroughly washed if any hand contact is made with the green plants. Gloves should always be worn.

In cultivated lands the broad weeds can be chemically controlled by several chemicals when controlling weeds in maize. A build-up of Datura can occur when broadleaf crops such as sunflowers are planted in rotation with maize. It is thus best to thoroughly kill any Datura plants that occur when maize is being cultivated in the rotation.

If any live plants are observed after spraying, these should be removed by hand before harvesting.

Control of Datura weeds in maize at pre- or post-emergence of seedlings can be done by spraying with Imazapyr at 150 g of active ingredient per litre plus Glyphosate at 150 g/litre in a mixture sprayed on at 7 litres/ha.

Actively growing plants can be controlled effectively with a spray of Glyphosate concentrated at 350 g/litre at between 2 and 3 litres/ha. Remember that Glyphosate is a non-selective herbicide and non-targeted plants can be killed.

Conclusion

Make sure that you can identify Datura in your lands, so that any potential infestations can be immediately controlled.

Article submitted by a retired farmer.

The farm office
– a need or a burden?

Proper administrative management, also known as paper work, is not everybody's forte, but an absolute necessity for the success of a modern day farming business.

When we see the word office, we involuntary think of paper work or the fancy term "administrative management". Our reaction – "Oh no, I am a farmer, not a pen pusher, I rather work with a no. 13 spanner than a pen". Unfortunately, administration is a very essential part of the management of a modern farming business, regardless of the size of the business.

Whether you as the farmer/manager attend to this area yourself or employ someone else to attend to the paper work does not matter – the issue being someone must take responsibility for it, but eventually the owner/manager remains accountable.

All areas of the total management of your business will require some form of "paper work". If you do not attend to all the necessary admin work, you will be jeopardising the success of your business. Without proper paper work you will not be able to compile for instance the required financial statements – income statement, balance sheet and cash-flow statement – to determine your financial result, financial position and your cash-flow position. Without this information you will be uninformed regarding the financial success of your business.

In today's business environment it is of the utmost importance for the owner/manager of any agricultural business to have a proper office at his disposal where the paper work will receive proper attention. Preferably the office should be a separate area to serve as a centre for gathering, processing, using and storing management information. Depending on the size of the business, the office can be situated anywhere convenient, even in the corner of a dining room or bedroom.

To start your "office" you should at least have a table/desk, chair/s, filing space, telephone/cell phone with fax and voice-mail facilities, complete map of the farm, soil maps and other maps needed, a notice board, a calendar and the necessary stationery. Later on you can add-on the more fancy items such as a computer, photocopying equipment, filing cabinets and so forth. Please do not go for the expensive from the start – an apple carton box makes a wonderful filing cabinet, ordinarily files fit into an apple carton quite comfortably, you can even paint it to look smart.

However the above-mentioned equipment is of little use if not utilised correctly. A systematic office routine is thus essential. The order which you follow to attend to all the admin work remains your prerogative – the principle is to attend to these matters on a regular basis.

Attend to all your correspondence received preferably regularly by first of all filing them provisionally in one of the following correspondence files:

- "In file" for temporary filing to attend to at a later stage;
- "For attention" file for immediate attention; and
- "Filing" file for permanent filing after the particular correspondence has been attended to.

Then attend to those that need attention. Also remember that it is very, very important to keep copies of all outgoing correspondence and documents and to file them.

The processing of all source documents of financial transactions according to whatever method is used, manually or per computer, must also be attended to regularly and then be filed in an organised way according to the different types of source documents. According to the rules and regulations of the tax laws, these documents must in any case be kept for a minimum period of five years, and some even for life.

Attend to the record-keeping and other paper work of your labour related matters (UIF and other), machinery records, production records, asset and stock management, and so forth.

Then there is also the official filing – "I don't like paper work and now there is still filing to be done". Bear in mind even when you use a computer you will always have physical filing to do of so-called hard copies or physical papers.

Without a proper filing system, valuable time is wasted searching for documents. Therefore filing must be done in such a manner that it:

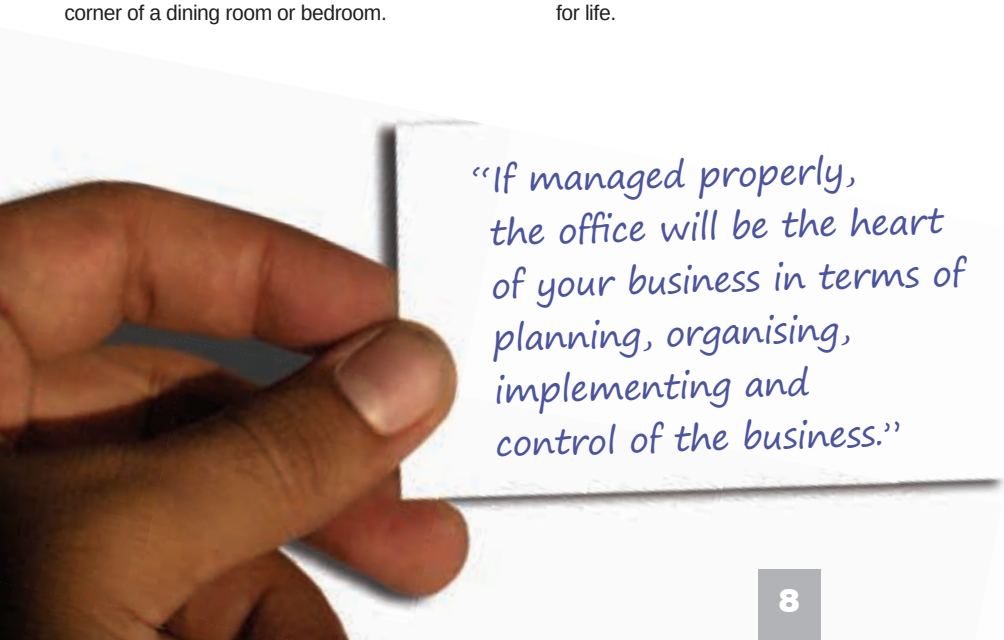
- Is simple and easy to apply;
- Saves and uses space effectively;
- Is easy to trace documents; and
- The system can be altered easily.

An index system whereby files are classified is a necessity. It is also important to number the documents to be filed in such a way that they are easy traceable and can be re-filed correctly and easily again.

Also attend to your planning and noting of important events on a regular basis. A wall calendar or notice board is very useful to note and remember important dates, actions and appointments.

Therefore, in order to improve your administrative management, you must establish an "office" somewhere to attend to the admin work properly. Do the admin "office" work on a preferably daily basis even if it means at night. If daily attention is not possible, at the least attend to it on a weekly/monthly basis depending on the volume. If you struggle with admin work, why not attend a course to acquire the skills to run an office properly?

If managed properly the office will be the heart of your business in terms of planning, organising, implementing and control of the business. Proper administrative management will enhance a sense of "feeling good" about your business and in case of enquiries it will be easy to find supporting documents. Proper administrative management will portray the image that you are in full control of your business and create trust in your business.



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

Kverneland's Qualidisc – the new conservation tillage machine

The Qualidisc is one of the new conservation tillage machines in the Kverneland stable and it has proved to be a valuable part of the production system in a short time. There are many production systems available to the farmer today, each with its own philosophy and applications. The Qualidisc would however not fit into a single one of these systems, as it functions across a multiple categories.

With the ever increasing size of the conventional planters on the market, the need for a machine that is able to prepare sufficient hectares per hour to stay ahead of the planters has been created.

The Qualidisc has an optimum working speed of 15 km/h and at working widths of 3,5 m on the 3 point and 5 m, 6 m and 7 m trailed units; the Qualidisc is up to the task.

In the conventional application, the Qualidisc is capable of making short work of large amounts of harvest trash left on the field. This enables the farmer to cut and incorporate trash fast and efficiently.

In the no-till system the Qualidisc certainly has a place. The Qualidisc is fitted with depth control wheels at the front of the machine and a hydraulic controlled roller assembly in the rear. This enables the Qualidisc to operate at a precise depth so as not to upset the soil composition. By cutting the trash and incorporating it into the top three inches of the soil profile, a faster breakdown and even distribution of organic material is achieved. The forming of a mulch bed minimises the negative effect of wind in the winter months before the planting season starts. The use of the Qualidisc in the no-till system before planting has the benefit of creating a very good soil to seed contact. The result of this is a higher percentage germination and faster germination of the crop. The increased germination percentage has a direct effect on the yield and trials have shown up to a 10% increase in plant population. No early emergent spraying is necessary as the weeds have been mechanically controlled, and the cost of one spray application is saved.

As to the construction and specifications of the Qualidisc, a 900 mm spacing between the front and back gangs allow for excellent material flow. The conical cutting discs fitted to the Qualidisc, is available in a 573 mm and 520 mm diameter. The conical profile of the notched disc ensures an aggressive angle and penetration no matter the diameter of the disc. Each disc is fitted with a large maintenance-free bearing with a 35 mm axle attached to the main beam by the strong disc arm. The whole disc assembly connects to the main beam via the rubber shock system. This system gives sufficient ground pressure and flex to the disc arm. The rubber shock system acts as the overload protection as well and will break away in case of an obstacle being struck. The high quality bearing is able to carry heavy radial and axial loads and uses a five lip seal to protect the internal double ball bearing from dust and moisture. The bearing assembly carries a two year warranty.

The 5 m, 6 m and 7 m Qualidisc has a transport width of 2,75 m. The hydraulic folding transport wheels acts as a suspension. This makes for a smooth journey and a low center of gravity.

It is clear that there is a place for the Kverneland Qualidisc in the South African agricultural landscape.

Article submitted by Kirsty Coutts, Customer Service & Marketing, Jupidex (Pty) Ltd. For more information, send an email to kirsty.coutts@jupidex.co.za.

SCLEROTINIA
in sunflowers and soybeans

Sclerotinia infection extending into developing sunflower head. Photo: André Nel, ARC-GCI

Diseases caused by Sclerotinia species of fungus affect a wide range of important commercial crops such as sunflowers and soybeans throughout the world and in South Africa. The main host plants of the pathogen include legumes, sunflowers, canola, most vegetables, tobacco, many flowering bedding plants as well as stone fruits.

The disease caused is generally known as "white mould", but can infect different parts of plants and show in slightly different ways on each. The disease can cause huge devastation and loss of income in sunflowers and soybeans.

This invasive fungus, which produces millions of spores, likes growing and thriving in cool moist conditions, but occur in widely different ecological situations.

Symptoms and signs within the life cycle

Fungus species go through several identifiable growth stages and states.

The first sign of white mould or a Sclerotinia fungus is usually noticed on the surface of parts of the plants exposed to the air. The pathogen produces fluffy white mycelium, which are long strands of fungal material, and that the fungus extends as it grows throughout the plant tissues in order to obtain nutrients.

At a later stage of growth after the nutrient gathering stage the mycelium strands join together to form aggregates into sclerotia, which are structures that allow Sclerotinia species to survive alone in the soil in the absence of a plant host.

The species are thus named after the body formed. Sclerotia have a hard black exterior rind with a white to light beige interior. They are usually very hard to see in the soil. They are also irregularly shaped and measure about 2 mm to 5 mm in diameter and up to 25 mm in diameter, but can be as small as 0,5 mm to 3 mm in length. Sclerotinia buried in a plough layer of soil can survive and remain infective for up to five years.

For this reason it is thus of critical importance to be aware of the disease and stop any further distribution of infections in lands if observed on your crop plants. Most infections occur from soil to plant and not plant to plant.

The weight of the Sclerotinia mycelium infecting the sunflower head, results in it falling to the ground. Photo: André Nel, ARC-GCI

Sunflower stem rot symptoms showing sclerotia, which develop in the stalk pith. Photo: André Nel, ARC-GCI

Apothecia which develop on sclerotia on the soil surface. Photo: FJ Kloppers, Pannar Seed

The sclerotia can germinate in several ways. One method is done by producing a mushroom-like fruiting body called an apothecium. The one or more apothecia, which are fleshy coloured discs, extend from the Sclerotinia to the soil surface and in turn produce asco-spores in the tens of millions over a period of days. The clear and non-pigmented spores fortunately only survive for a few days after release unless a suitable host plant is found.

The germination or propagation of the pathogen is however usually done by the direct emergence of hyphae strands that are triggered to germinate from a substance that is exuded by the host plants. These hyphae infect plane crowns and other parts of the plants touching the ground.

The third way the pathogen can grow is by producing more mycelium, which in sunflowers can result in a very serious disease called sunflower wilt or basal stem rot.

Sunflowers

The main forms of infection that can be identified in sunflowers are known as Sclerotium basal rot and wilt which can be seen on the plant just where the main stem has emerged from the soil, Sclerotium head rot which exhibits as a total rotting of the sunflower head or Sclerotium stem rot which is a deep infection of the stems. Infected plants wilt or are blown over in a strong wind.

Soybeans

The stem rot or white mould found in soybeans is caused by Sclerotinia sclerotiorum species of fungus. The symptoms are usually not seen until the crop canopy has closed between the rows that create a humid microclimate. This will be evident in a very high rainfall season in dryland production and irrigated soybeans.

Wilting of leaves followed by the death of the plants are usually signs of an infection. The fungus threads can be seen under the canopy in the plant rows on the stems, leaves and pods. Lesions develop on main stems and side branches and the stems appear bleached and shredded when the infection is advanced. Large black sclerotia of varying shapes and sizes form in the stem core and the pods become shrivelled, remain infected or replaced by the black sclerotia.

Unfortunately when seed is harvested at this stage, it is contaminated with the pathogen.

An example of Sclerotinia in the stem.

Management and control

The most important control measures against the pathogen in both sunflowers and soybeans is to select varieties that are resistant to infection, use of production practices (such as rotating crops with small grains and pastures that reduce the severity of infestation) and also to avoid planting on an infected land. Avoid planting your own seed that may have been kept back from infected lands and maintain good control of any broad leafed weeds that act as hosts for the pathogen.

Conclusion

Learn to identify sclerotia infections in your sunflowers and soybean crops so that the appropriate long-term control measures can be implemented.

Article submitted by a retired farmer.

Surface crusting crisis

Sunflowers need great care from the moment the seed is in the ground!

In the particular case of sunflowers, the farmer may have done everything perfectly right from seed bed preparation to planting depth and plant population, but it is very important to always remember that sunflower seedlings have a particular reputation for being very vulnerable at the point of emergence.

Seedling emergence is one of the most important factors in the establishment of optimum plant density for a maximum yield. A common cause of poor emergence is surface crusting.

The surface of the soil in which the sunflower seed is planted can form a thick impenetrable crust which will result in uneven emergence and gaps in the stand. Since sunflowers are normally planted in mid-summer we have hot, dry weather with intermittent thunderstorms. Water is attracted to soil particles and is held by the soil particles. When the fast, hard rains fall and are followed by more hot days, the effect is like an oven which bakes the soil and causes a thick crust to develop on the surface. Sunflowers are vigorous growers, but even they cannot penetrate through this crust quickly – if at all. The result will either be delayed emergence or sizable gaps in the rows.

Different soil types react differently and some are more prone to compaction and crusting than others. More friable, clay soils do not crust as easily as the more sandy and sandy-loam soils. Another factor which influences crusting is the amount of organic matter in the soil; the higher the level of organic matter, the lower the likelihood of severe crusting is, which is a benefit to those farmers practicing no-till farming.

The typical field which is most likely to be prone to surface soil crusting is the field which has been worked two or three times for seedbed preparation and has a fairly fine texture.

When I asked a North West farmer, who has grown sunflowers for the past 20 years in sandy soils, what he does to deal with the problem of crusting, his very firm response was: "*Duisendpoot*, *duisendpoot*, *duisendpoot*!"

The term "*duisendpoot*" is commonly used throughout South Africa, but is correctly termed a rotary hoe. It is very important that this action is performed at the CORRECT TIME, since little emerging sunflower seedlings are very delicate and can easily be broken if "*duisendpooting*" occurs while they are emerging.

Timing is everything

As is the case in so many farming operations, timing is everything! The sunflower farmer only has a small window of opportunity to get into the field with the rotary hoe, because there is a risk of damage to the seedlings.

Every sunflower grower should conduct at least one pass over on the third day after planting. No sunflowers will have emerged as yet so this will ensure that the surface is loosened and it will also damage the weed seedlings which will be germinating closer to the

surface than where the sunflower seed will be lying.

The next process will be the really risky one. If there is no rain again, the one pass should be sufficient for good germination, but if it does rain again before the field of seeds has fully emerged, then you will have to consider another pass to ensure your seedlings can all emerge well.

There is a risk to the second process, because some seedlings have germinated while others have not germinated yet and there is a crust which needs to be broken! Although generally speaking the rotary hoe's effectiveness is greater at faster speeds, the best practise at this point is to drive much slower and ensure that the speed of the pass does not either dig out the little seedlings or break off the ones which have emerged.

Another helpful bit of advice is to conduct any post-emergence rotary hoe operations on warm, sunny afternoons – and while the surface of the soil is quite dry. Then the sunflower plants will be more flexible and even slightly wilted, which will result in less crop injury. There will probably be some damage, but this can be reduced with careful monitoring of the process. In fact, some farmers even anticipate this potential loss and increase their planting population accordingly. The rule of thumb is a 5% stand loss with each hoeing.

No farmer should just send a driver to his field and let him get on with the job – this is one of those moments when it is essential that the farmer watches the process with the eyes of a hawk!

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

Taking samples for nematode analyses in annual crops

Environmental factors and sometimes tillage practices too can cause nematode populations to explode, and this can cause major damage to annual crops. It is not easy for a lay person to recognise the symptoms of nematode damage, because it is easy to confuse with symptoms unique to waterlogging, nutrient deficiencies and pesticide damage. Fortunately, many farmers and persons working in the field of agriculture are well informed with regard to nematodes, and they are usually the first to suspect problems. Because nematodes are not visible to the naked eye, it is essential for samples to be taken so that the presence of nematodes can be determined.

> *"Some nematodes feed on plant roots, but never penetrate the root itself. Others penetrate the roots and are seldom found in the soil. Then there are nematodes that occur in the soil and in the roots.*

When should samples be taken?

Most nematode populations reach a peak when the crops start blossoming (**Photo 1**). That is the best time to take samples to determine whether the nematode population is big enough to cause financial damage or not.

The only exception to this rule is groundnuts. If groundnut samples are taken, the focus falls on finding legume nematodes, which are the economically most important nematode found in groundnuts. In contrast to the other nematodes, legume nematode populations reach their peak during harvest, and not when the groundnuts blossom. Therefore, if a farmer wants to submit groundnuts for a nematode analysis, it is better to take samples when harvesting (**Photo 2**).

Important guidelines

Nematode species are very diverse and each species has its own feeding and behaviour patterns. Some nematodes feed on plant roots, but never penetrate the root itself. Others penetrate the roots and are seldom found in the

1

Nematode samples must be taken as soon as the crops start to blossom.

2

Groundnuts are the only crop where nematode samples are taken only during harvest.

3

Dig out the plant so that the soil immediately around the root system is retained.

4

Surplus soil can be shaken off gently.

5

If the roots contain too little soil, a little soil should be scooped out in the location where the plant was removed.

6

Cut off the supraterranean parts of the plant and throw them away.

7

Place the roots and the soil in a plastic bag.

8

Mark the bag so that the information can be used in the laboratory and will serve as reference to the farmer.

9

The soil and roots are processed so that the nematodes can be extracted.

10

The nematodes are extracted from the soil and root samples by means of three different techniques.

soil. Then there are nematodes that occur in the soil and in the roots. To obtain an overall picture of what is happening in the nematode population of a field, the soil and root samples therefore have to be analysed. If the harvest of the crop is found underground, like some vegetables and groundnuts, a few tubers/pods should also be included in the sample.

Nematodes are never spread evenly throughout a field, but always occur in patches. That is why as many samples as possible should be taken in a field to obtain a good idea of what is going on with the nematode population. Samples can be taken in a zig-zag pattern. Include the patches with the sick plants in particular.

To save costs on the nematode analyses, some of the soil samples can be combined and mixed thoroughly. A representative soil sample can then be taken of the mixed sample. The plants sampled in that area can all be included in such a sample, to be blended in the laboratory before the nematode extractions are done.

How should the samples be drawn?

Nematodes cannot move very far on their own because they are so small. They will therefore remain directly around the root system, where they can feed. For this reason the entire plant should be removed so that the soil directly around the root system can be retained (**Photo 3**). The amount of soil per sample required by the laboratory is about 200 cm^3 (200 ml).

If there is too much soil around the root system, it can be shaken off gently (**Photo 4**). If there is not enough soil around the root system, more soil can be scooped from the hole where the plant was removed (**Photo 5**).

The supraterranean part of the plant can be cut off (**Photo 6**), because it is not used for the nematode analysis. Place the root system of the plant and the soil in a plastic bag (**Photo 7**).

The bag with the sample should be clearly marked with information pertinent to the farmer (**Photo 8**). This information is used as reference by the laboratory and is also used in the report.

Samples should be kept in the shade and sent to the laboratory as soon as possible. If they cannot be sent immediately, they can be kept in the refrigerator for a day or two. The samples can be sent by courier, or delivered to the ARC-Grain Crops Institute, Hendrik Schoeman Building, 114 Chris Hani Avenue, Potchefstroom 2520.

Include a folio or business card with the contact details of the client with the parcel (an email address should preferably be included so that the report can be emailed). Mark the parcel for the attention of Sonia Steenkamp.

What happens at the laboratory?

The soil and roots are processed (**Photo 9**) so that the nematodes can be extracted from the soil and roots. Different methods are used to extract nematodes from the soil and root samples (**Photo 10**). Three extractions are done for each root and soil sample:

- The nematodes that occur in the soil at that stage, as extracted with the sugar flotation method.
- The nematodes that occur in the roots are also extracted with the sugar flotation method from 5 grams of roots.
- Root knot nematode eggs and larvae are extracted from 50 grams of roots with an adapted NaOCl- method.

The NaOCl- method is used additionally for the root samples because the root knot nematode females are sac shaped and therefore cannot be extracted with the sugar flotation method. This adapted method dissolves the gelatine around the egg parcels of the female so that the eggs can be released and can then also be counted.

Costs

The cost of each extraction is R180, excluding VAT. A complete root and soil extraction therefore costs R615,60 (R180 x three extractions + 14% VAT).

Results of the nematode analyses

The results of the nematode analyses will be delivered to the client after three to five days in the form of a report. Recommendations that are made at that stage will only apply to the next season, as the blossom stage of the crops falls in the withholding period of most chemical substances.

Article submitted by Dr Sonia Steenkamp, ARC-Grain Crops Institute, for SA Graan/Grain March 2013. For more information, send an email to steenkampS@arc.agric.za.

A closer look at tillage and planting techniques for canola

Canola can be planted in a conventionally tilled seedbed, or with no seed bed preparation in no-till systems.

However, because canola seed is smaller than the seed of crops like wheat and barley, good contact with moist soil (wetter than for wheat) is required for germination. The germination and establishing of canola are also negatively affected if seed comes into direct contact with crop residue, chemical fertilisers and some herbicides.

Where canola is planted in no-till systems the residues of previous crops should therefore be spread evenly across the field surface and if possible it should be reduced through grazing to a level that can be handled by the planter. Alternatively the distance between plant rows can be increased.

However, research results have indicated that yields drop by 1% to 2% for every 25 mm that the distance between rows increases to more than 176 mm. Row widths of 200 mm tot 300 mm should be adequate under most conditions to prevent blockages in the planter.

Although the optimum system of tillage is often determined by soil conditions, research conducted over a ten-year period on stony, shallow (300 mm) shale soil on the Langgewens experimental farm in the Swartland has shown that adequate nitrogen fertiliser is a very important factor in determining the success of canola cultivation in no-till systems.

As is clear from **Table 1**, conventional turn plough and tine tilling systems result in higher grain yields where low levels of nitrogen are applied than do minimum and no-till systems. In contrast, few differences as a result of the tillage method have been identified where high levels of nitrogen fertilisation have been applied.

This trend can on the one hand be attributed to the high nitrogen requirement of canola, which is better satisfied at low levels of nitrogen by intensive turn plough and tine tillage, which causes higher nitrogen mineralisation (release).

On the other hand, canola has a very aggressive taproot system that penetrates the soil well and acts as a biological plough. Mechanical tillage to loosen the seedbed beforehand therefore ensures few yield benefits where high levels of nitrogen fertiliser are applied.

From Table 1 it is further clear that although the oil content of the grain is harmed by high levels of nitrogen, it is not affected by the tillage method.

Planting techniques

For conventional planting methods with a small-grain sowing machine, or in order to broadcast the seed and harrow it, the seedbed must be well tilled, level and firm – drag if necessary.

Superfluous tillage should nevertheless be avoided, as it promotes moisture loss and thus drying of the seedbed. Finely tilled soil will also crust more easily after hard rain.

For no-till systems special planters (NT planters), equipped with knife-point openers, depth control and pressure wheels, are required. If fertiliser is band placed, it should not come into direct contact with the seed.

As can be seen from the results achieved at Langgewens in the Swartland and Roodebloem in the Southern Cape (**Table 2** and **Table 3**), better establishment and higher yields are obtained when NT planters are used.

Sponsored by the Protein Research Foundation.

Canola seedlings.

No-till planters can be used to establish canola.

Table 1: Influence of the level of N fertilisation (kg N/ha) and the method of tillage on grain yield (kg/ha) of canola as well as the percentage of oil in the grain.

	20 kg N/ha		60 kg N/ha		100 kg N/ha		Average	
	Yield	% oil	Yield	% oil	Yield	% oil	Yield	% oil
Conventional tillage	1 060	41,3	1 245	40,6	1 461	40,3	1 255	40,7
Tine tillage	1 037	40,5	1 378	40,1	1 487	39,9	1 301	40,2
Minimum tillage	733	41,2	987	39,5	1 457	38,8	1 059	39,8
No-till	872	41,8	995	41,4	1 391	40,8	1 086	41,3
Average	**926**	**41,2**	**1 151**	**40,4**	**1 449**	**40,0**	**1 175**	**40,5**

Conventional tillage = with chisel plough (150 mm) after first rain, followed by turn plough (200 mm) and tine cultivator with planting. Tine tillage = chisel plough (150 mm) after first rain, followed by tine cultivator with planting. Minimum tillage = chisel plough (75 mm - 100 mm) after first rain, followed by non-selective herbicide with planting. No-till = non-selective herbicide with planting. All sites were planted with a no-till planter with knife-point openers.

Table 2: Influence of planting methods on plant establishment (m^2).

Planting method	Langgewens					Roodebloem				
	1998	1999	2000	2001	Average	1998	1999	2000	2001	Average
NT planter*	42	63	60	-	55	84	64	85	60	73
Broadcast and harrow	34	47	53	-	45	72	44	83	46	61
Broadcast, tine and roll	30	48	47	-	42	76	53	84	44	64
Broadcast, harrow and roll	37	49	40	-	42	55	53	74	44	57
Average	**36**	**52**	**50**	**-**	**46**	**72**	**54**	**82**	**49**	**64**

** Planted with no prior tillage, while other treatments were first tilled 150 mm deep with a chisel plough and drag bar.*

Table 3: Influence of planting methods on grain yield of canola (kg/ha).

Planting method	Langgewens					Roodebloem				
	1998	1999	2000	2001	Average	1998	1999	2000	2001	Average
NT planter*	-	1 704	1 705	-	1 705	1 678	2 104	1 376	-	1 719
Broadcast and harrow	-	1 203	1 262	-	1 233	1 522	2 039	1 150	-	1 570
Broadcast, tine and roll	-	1 540	1 456	-	1 498	1 576	1 585	665	-	1 275
Broadcast, harrow and roll	-	1 490	1 261	-	1 375	1 338	1 908	803	-	1 349
Average	**-**	**1 484**	**1 421**	**-**	**1 453**	**1 528**	**1 909**	**998**	**-**	**1 478**

** Planted with no prior tillage, while other treatments were first tilled 150 mm deep with a chisel plough and drag bar.*

Article submitted by Prof André Agenbag, Stellenbosch University, for SA Graan/Grain February 2013. For more information, send an email to gaa@sun.ac.za.

Familiarise yourself with the symptoms of soybean rust

Soybean plantings are increasing every year, mainly because of the value that soybeans have in a crop rotation system with maize. It is important for producers who planted soybeans for the first time this season to take note of soybean pathogens and their accompanying symptoms that could have a negative effect on the potential crop.

Although there are various diseases associated with soybeans, this article focuses on soybean rust. The organism that causes soybean rust, Phakopsora pachyrhizi, was reported for the first time in South Africa in the Vryheid region (northern KwaZulu-Natal) in February 2001.

Yield losses attributed to soybean rust as determined by scientific findings vary between 30% and 61%. The pathogen's ability to spread rapidly, as well its ability to potentially cause large yield losses, makes this disease one of the most destructive diseases in soybeans.

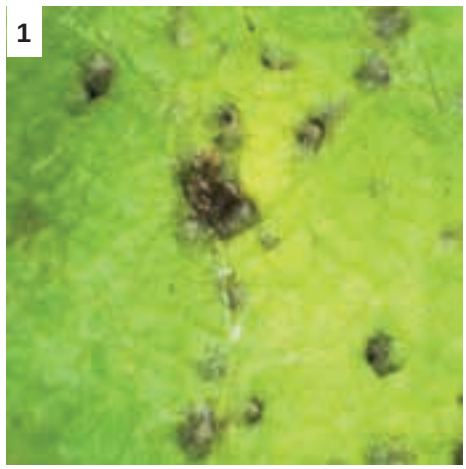
Soybean rust usually becomes a problem only when the soybean plants start to flower. Initial symptoms involve the occurrence of water-soaked lesions. These lesions darken in due course to dark brown or reddish brown (**Photo 1**).

Lesion size varies between 2 mm and 5 mm in diameter. Small rust pustules are produced mainly on the underside of the leaf (**Photo 2**), with rust spores then forming inside these pustules (**Photo 3**).

The pustules initially form on the leaves closest to the soil surface, from where they move upwards on the plant. The released rust spores are spread to adjacent soybean productions via wind currents or through contact (by people or machines).

The lesions tend to be angular and are bordered by the veins of the leaf. Lesions occur not only on the leaves, but also on the stems and pods of plants. In time the leaves yellow and eventually fall (**Photo 4**). Yield losses result from this premature leaf loss.

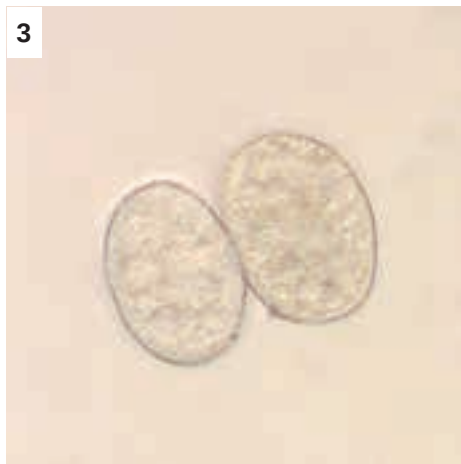
It is important to note that early symptoms of soybean rust can be confused with those of the bacterial pustule. However, the two diseases can be distinguished at later stages by the production of rust spores by soybean rust, as well as by the irregular cracked appearance of

1


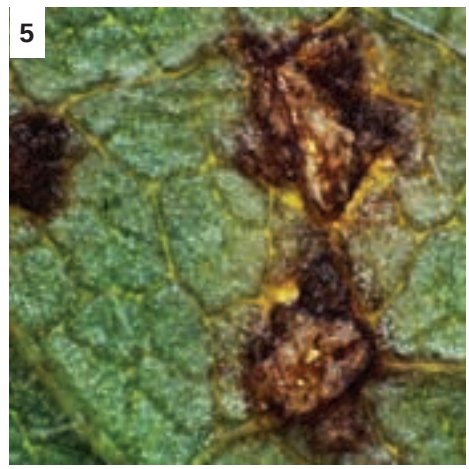
Water-soaked lesions that discolour to dark brown. Photo: M Craven

2


Soybean rust. Photo: ZA Pretorius, UFS

3


Spores of Phakopsora pachyrhizi. Photo: M Craven

5


Irregular, cracked appearance of bacterial pustule. Photo: M Craven

6


Kudzu plant – host of soybean rust during winter. Source: www.sanbi.org

7


Kudzu flower. Source: www.sanbi.org

4

Leaf loss because of soybean rust. Photo: ZA Pretorius, UFS

lesions and host material associated with the bacterial pustule (**Photo 5**). Spraying fungicides will have no effect on bacterial diseases. It is therefore essential to identify the disease concerned correctly.

According to the literature, temperatures of between 12°C and 27°C, together with a leaf surface moisture period of approximately six hours, are sufficient for the disease to develop.

In view of the fact that P. pachyrhizi is an obligate parasite, it requires a live host to survive the winter period. The pathogen is therefore unable to survive on stubble. It is accordingly speculated that the pathogen hibernates in the frost-free regions of South Africa, which are mainly limited to the coastal regions of KwaZulu-Natal (KZN).

It has already been confirmed that the Kudzu plant (**Photo 6** and **Photo 7**), which is a prominent weed in KZN, serves as host to P. pachyrhizi.

Previous research (2005 - 2009) by the ARC, in collaboration with the Protein Research Foundation (PRF), on the appearance and distribution of this disease indicated that

> *"Soybean rust usually becomes a problem only when the soybean plants start to flower. Initial symptoms involve the occurrence of water-soaked lesions.*

soybean rust was first reported in the Cedara and Greytown areas every year, from where it spread inland.

However, suspicions exist that there are areas in the Lydenburg region where the rust can survive and from where it can spread. The disease was observed to migrate from east to west every year.

Weather conditions determined the speed at which the disease progressed inland. In most cases the disease was observed in the interior only late in the season, which meant that most productions were already at the R5 or R6 growth stages and it would not have been economically justifiable to spray for the disease.

Because of the lack of resistance to soybean rust it is essential for effective disease control strategies to be in place until such time as effective resistance to the disease is available.

Various research studies have revealed that the disease can be better controlled with preventive spraying programmes than with spraying after the disease has been observed. Preventive control is currently applied in most soybean production areas in KZN, as the disease leads to yield losses here every year. Since 2009 the PRF has run monitoring sites in several regions to observe soybean rust in order to inform producers of the incidence of soybean rust.

Farmers are welcome to contact the ARC-Grain Crops Institute at 018 299 6100 for any further enquiries.

Article submitted by Maryke Craven, ARC-Grain Crops Institute, Potchefstroom, for SA Graan/Grain February 2013. For more information, send an email to CravenM@arc.agric.za.

Correct identification of crab finger grass – an annual weed

Emergence of crabgrass, first "flagleaf" (coleoptile).

Finger grass at the two-leaf stage.

Allegedly crabgrass, or the Digitaria species, was one of the first cultivated grains before it became a weed problem worldwide.

The genus name comes from the Latin word *digitus*, which means fingers, and which describes the inflorescence of the grasses. The most common crabgrasses in South Africa are the perennial Smuts finger grass (*D. eriantha*) and the annual weed, crab finger grass (*D. sanguinalis*). The Digitaria species comprise about 300 different species, 31 of which are indigenous to southern Africa.

'Crab finger grass' is mainly used as a collective name for this grass weed by farmers. However, there are a number of closely related Digitaria species that are very difficult to distinguish from one another that could also be problem weeds in crops. Most labels of grass herbicides list only crab finger grass on the list of grasses to be controlled, but when one of the other species is perhaps more dominant, effective control is not guaranteed. When crab finger grass control is ineffective, the problem is quite often that one of the other species is involved.

The different Digitaria species are very difficult to distinguish from one another at the seedling stage. All the species first show an oblong coleoptile above the soil, which is followed by a broader first true leaf (**Photo 1**). The leaves are usually bright to dark green, smooth and pliant.

> *'Crab finger grass' is mainly used as a collective name for this grass weed by farmers.*

The stems of most of the Digitaria species can become a purple-red colour and are hairy, but this cannot be used as a definitive property to distinguish between the species. The habit of Digitaria grasses is from upright to matted, and they can grow up to 60 cm high. Where the stem nodes touch the soil, roots form and the runners spread quickly. One tuft of crab finger grass can create about 700 runners and produce 150 000 seeds, which has caused this grass species to be classified as one of the top ten species of most serious weeds in several countries.

Recent studies have shown that ineffective control of crab finger grass is experienced in the eastern parts of North West and the north-eastern parts of the Free State in particular. Examples of the so-called crab finger grass were sent to the herbarium of the South African National Biodiversity Institute (SANBI), where they were identified as *D. nuda* (naked crabgrass).

The only definitive property that distinguishes *D. nuda* from crab finger grass (*D. sanguinalis*) is found on the seed of the grasses – which can be a problem for producers, as the weed has to be controlled before it spreads seeds.

It seems as if *D. nuda*, or naked crabgrass (it does not yet have an easy common Afrikaans name), grows more robustly than crab finger grass and forms roots more quickly at the stem nodes on the ground. *D. nuda* also forms a mat-like habit more easily, compared to crab finger grass, which sometimes tends to grow upright. These are a few possible indications that producers can use to possibly distinguish between the two species.

Another phenomenon that was noted is that it seems that *D. nuda* is more tolerant of the ordinary pre-emergence grass herbicides like acetochlor and s-metolachlor. Effective control is obtained where the ordinary pre-emergence grass herbicides are followed by postemergence weed herbicides. These postemergence grass herbicides contain active ingredients from the triketone group, and include mesotrione, tembotrione and topramezone.

It is extremely important to control grasses between the four and six-leaf stages postemergence, as chemical control is less effective when the tufts

start forming. In general grasses can also be controlled with shallow tillage, as their seeds are small and mainly occur in the top 5 cm of the soil. As crab finger grass is easy to control with pre-emergence grass herbicides, this could lead to *D. nuda* becoming more dominant in the said areas.

The incidence of this relatively unknown crabgrass (*D. nuda*) in South Africa was described by Kok and co-workers (1989) where they identified it positively in the north-eastern parts of KwaZulu-Natal and Mpumalanga in particular. However, even then it was noted that the grass could be more widespread because it was easily confused with the ordinary crab finger grass.

So far the grass has been reported as a problem weed only in some West African countries, and it is a major problem in sugar cane fields in Brazil.

The biology and control of grass weeds are species specific and the correct identification of a problem weed is the first essential step in sustainable control. Unfortunately it is not that simple to generalise between grasses of the same species and each species reacts in its own, unique way to environmental factors and control measures.

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

3

Crab finger grass (D. sanguinalis) at different stages of growth.

4

D. nuda crabgrass at different stages of growth.

5

Tuft of crab finger grass (D. sanguinalis).

6

Tuft of D. nuda crabgrass.

Grain SA interviews...TO Mdluli

Grain SA's Development Programme held its annual award function on 17 October 2013, which recognises exceptional achievements – especially for Mrs TO Mdluli, it was a day she will never forget! Not only was she announced Grain SA's Subsistence Farmer of the Year on this special day, but it was also a day which her life and farming practices changed forever.

Mrs TO Mdluli farms in the Mhlozeni village about 40 km from Winterton in KwaZulu-Natal. She never had the privilege of formal schooling; but this did not stop her to achieve her lifelong dream of farming. She has access to 2 ha of arable land and 50 ha of shared grazing, of which 1 ha was planted with open pollinated maize for years. In 2009 she joined a Grain SA study group, after which her viewpoint changed about the type of cultivar she uses and moved to a more modern "roundup ready" cultivar. More effort was put in to keep her land weed free by the use of chemicals applied with a knapsack sprayer, even if it meant that the water used had to be carried 2 km!

In the past her hectares of arable land were worked by hand, but thanks to the TR 430 Rotavator which she won from Husqvarna at the gala event in October, her cultivation methods have changed radically. Previously, Mrs Mdluli's three sons helped her to prepare the land, to place the seed and then the fertiliser all by hand. This took about three weeks to plant only one hectare. With using her new equipment, the same hectare took only three days to prepare and to plant. This has enabled her to focus her attention and resources on the second hectare on which she now managed to plant dry beans, potatoes, sweet potatoes and maize. As she and her family struggled to provide enough food for a whole year in the past, she can now, without much effort, fulfil not only their own nutritional needs, but now have a marketable surplus.

After the gala evening where Husqvarna personally awarded her her prize, Mrs Mdluli was visited by Husqvarna to demonstrate the TR 430 and also show her how she can utilise it optimally. Mr Clayton Basson of the Husqvarna branch in Winterton spent a whole morning with Mrs Mdluli so that she could be properly trained in the usage and maintenance of the TR 430 Rotavator.

Mrs Mdluli's secret to success can be attributed to her willingness to learn from others and to apply and implement it on her own farm. Initially she could not afford the expensive "roundup ready" seeds and was required to save money over many months to purchase her first batch of seed. Without mechanisation she initially used a local farmer to plough her fields on a contract basis, but due to the high costs involved, she switched to a "no-till" system in order to produce her crops at the lowest possible cost, but also to incorporate more sustainable practices.

The passion and enthusiasm with which Mrs Mdluli farms is tangible and also contagious and it is impossible to leave her farm without being inspired. Mrs Mdluli has proven that one does not necessarily need hundreds of hectares of land or the latest machinery to find the right farming practices and make a success of it. It is the discipline and dedication of the farmer which determines where he/she is headed.

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

The Corner Post

Who is OPOT?

The Oil and Protein Seeds Development Trust was formed in 1997 in terms of the provisions of the Agricultural Products Marketing Act, 1996 (Act No. 47 of 1996). The mentioned trust was formed as a result of the disbandment of the Oil Seeds Board.

The main objective of the trust is the promotion and development of the Oil Seeds Industry in South Africa by:

- Financing research projects with regard to improvement, production, storing, processing or marketing of oil seeds;
- Providing financing for the provision of information and advisory services to the Oil Seeds Industry relating to the production of oil seeds and marketing conditions; and
- Financing market access or any other actions that is or are in the interest of the Oil Seeds Industry, provided these are in accordance with the objectives and purposes of the Agricultural Products Marketing Act, 1996.

A maximum number of seven (7) trustees and a minimum of four (4) trustees are appointed as members of the trust. The trustees represent the Minister of Agriculture, Forestry and Fisheries, Commercial Producers of Oil Seeds, Oil Seeds Processing Industry, Developing Producers of Oil Seeds, Consumers of Oil Seeds, including their respective products, labour relating to the Oil Seeds Industry and the Oil Seeds Trading Industry. The composition of the trust represents the role players in the Oil Seeds Industry. The participation of role players is of utmost importance for the trust, to ensure it adheres to the above-mentioned objectives and that the research requirements will be addressed.

Since inception the trust has supported the Developing Farmer Programme of Grain SA. At first the focus was on the training and development of sunflower producers in North West. The programme was expanded to include soybean and groundnut training courses, as well as advanced sunflower training courses. For many years the trust also contributed financially to Pula/Imvula. The latest addition to the scope of financial support is the SoyCow project in Matatiele.

The contribution of the trust did not stop with the Grain SA Development Programme. Financial contributions were awarded to the NWK and TEMO farmer development projects. The trust also collaborated with the Department of Agriculture (Mpumalanga) on a smallholder groundnut project.

> *"The ultimate goal of farming is not growing of crops, but the cultivation and perfection of human beings." Masariobu Fukuoka*

> *"Farming is a profession of hope." Brian Brett*

One of the latest projects involves soybeans in KwaZulu-Natal known as: "The development and training of entry-level soy consumers with further progression to soy-preneurs level."

The research projects and technology transfer funded by the trust, contributes to the growth of the Oil Seed Industry. Although there are exclusive projects aimed at emerging farming which is important, the Oil and Protein Seeds Development Trust believes that all research projects should be to the advantage of commercial producers as well as emerging producers. Research projects must not only benefit producers but also other role-players in the industry. Research results must contribute towards issues like food security, upliftment, competitiveness and progress. If all of this is kept in mind we will achieve our goal and make a difference.

Masariobu Fukuoka said: "The ultimate goal of farming is not growing of crops, but the cultivation and perfection of human being," Brian Brett said: "Farming is a profession of hope."

This month's edition of The Corner Post was authored by Gerhard Keun from the Oil and Protein Seeds Development Trust. For more information, send an email to oliesade@worldonline.co.za.

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Kverneland Mulcher

Vicon Spreaders

Kverneland Ploughs

Fede Sprayers

Jupidex Slasher

Jupidex Offset

Wolagri Balers

Lime Spreaders

Contact Numbers

☎ **Head Office:**

Tel: +27 33 386 3574

Parts.... Direct to you!

JACKIE PIEK
Spares Manager
082 906 8715

BRIAN MUMFORD
Eastern Cape
& Exports
072 725 7757

JOHAN JANSEN
Kwa-Zulu Natal
082 338 6002

JACQUES VISSER
Central &
South Free State
082 449 8116

GIEL LOMBAARD
North West Province
082 766 4115

JP JONKER
Eastern & Northern
Free State
082 445 5834

JOHANN DE BRUIN
Gauteng, Limpopo &
Mpumalanga
071 480 5645

TERRY ALEXANDER- National Sales Manager
Cell: 082 383 6700
terry.alexander@jupidex.co.za