GRAIN SA
GRAAN SA

July
2011

PULA IMVULA

Grain SA magazine for developing producers

READ INSIDE:

No shortcuts to conservation agriculture

Conservation agriculture (CA) is a new concept to many grain producers in South Africa. Read in this article what developing producers have to say about conservation agriculture and the directions producers should follow to keep track of this new trend in crop farming.

What is CA about?

It is well known that most producers apply the traditional methods of soil preparation and the mouldboard plough remains the implement mostly used on the farm. In many cases producers plant maize as a single crop and do not apply crop rotation with other crops such as beans or sunflower. Use of the mouldboard plough for many years is seen today as a major cause of soil degradation. Soil degradation occurs at three levels:

- Continuous ploughing results in the soil structure being destroyed;
- Loss of the water holding capacity of the soil; and
- A decline in the numbers of beneficial soil micro-organisms.

CA is a system developed to protect the soil,

Mme Jane says...

In the Pula, for many years now we have focussed only on farming and production, sometimes forgetting that without the farmer, there would be no production at all and no food or fibre. Do you know just how important you are? Do you know that you feed the world?

We all avoid any mention of HIV and AIDS – as if it were some sort of curse on the nations of the world. We don't consider anyone cursed if they have high blood pressure, or diabetes or cancer. It is my firm belief that we should view HIV and AIDS in the same way. The virus attacks your immune system and opens the doors for other diseases to kill you. The good news is that you can live a healthy and good life in spite of being HIV positive.

What do we need to do?

- Be tested for HIV so that you know your status. "Knowledge is power."
- If you are HIV positive, get treatment from a clinic. Do not accept poor service at any clinic and make sure that if you qualify for anti-retro virals (ARV) (according to your cd 4 count) that you get them regularly and take them as prescribed. At this stage there is not a cure for HIV, but it is manageable and you can live a full and long life if you manage it well.
- If you have been tested for HIV and been found positive, have yourself tested for TB too. When your immunity is low as a result of HIV, you are very susceptible to TB. It is TB that takes away your appetite, that makes you cough, that causes you to lose weight. Make sure that if you have TB that you get treatment so as to cure that – TB is curable!
- If, on the other hand, you have been tested for TB and found positive, have yourself tested for HIV – it is quite likely that you will have contracted TB as your immunity will be low.

There is no need for anyone to die because they are HIV positive – you need to know your status and get treatment. Please get tested and if positive, get treatment. We need you all!

No shortcuts to conservation agriculture

improve the quality of soils and to restore the soil to its original fertile and healthy state. In CA the producer also has to make full use of the value of various crops in a rotation system with maize. More crops produced by the producer will also help to lower the risks. Remember the saying "do not putt all your eggs in one basket".

One should realise that CA means more than no-till or conservation tillage only. The CA system is mainly built on three pillars:

1. The soil should be disturbed as little as possible. This means that no ploughing or disking takes place and that the planting is done by a planter that is able to plant directly in the undisturbed soil.
2. The crop residue remains on the soil surface. In this way the crop residue serves to cover the soil as much as possible.
3. Crop rotation, including crops such as beans and cowpeas, becomes part of the production system.

What producers say about CA?

In a survey among three groups of developing producers in Mpumalanga, Limpopo and North West province producers were positive about the advantages of CA but they were also very clear about the limitations of CA as they see it.

Some advantages of CA identified by the producers were:

- CA can help to prevent soil erosion.
- CA can help to save mechanisation costs.
- The use of chemical weed control can contribute to time and labour cost savings.
- The availability of Roundup Ready cultivars can make weed control more easy.
- Including grain legume crops such as cowpea or soybean can help to improve soil fertility.

Among many others the producers identified the following constraints of CA:

The need for start up capital and the high cost of mechanisation

A lack of start up capital for example, to replace a conventional planter with a no-till planter, remains a major problem to many producers. The current price of two row no-till planters varies between R50 000 and R80 000 per unit.

Difficulty to manage soil cover in the form of a mulch

Many producers rely on crop residues to be utilised by livestock and maize stubble in particular is highly valued as fodder. Producers were also sceptic about the attainability of a proper soil cover especially in dry seasons when crop yields are low.

The risk of a decline in crop yield

Producers clearly indicated that they can not afford the risk of reduced crop yields due to the implementation of a new production system. Yield losses in the short term might occur, which will discourage producers to change to CA.

How producers who consider CA can be supported?

On-farm trials to evaluate CA

In view of all the risks producers are facing they need to be convinced that the new system can be successfully implemented. Local on-farm trials in close collaboration with producers will provide an ideal "classroom" to expose producers to CA practices and to compare it with the conventional system.

Adapting existing equipment

Producers should be encouraged to convert their existing implements such as planters suitable for conversion to minimum-till or no-till planters. In Brazil for example, many pioneering producers were not able to afford the more sophisticated machinery. As a result they started by converting their older conventional planters into no-till planters. This was the start of the "Zero-till Revolution" of the nineteen seventies in that country.

Exposing producers to CA equipment

Much more needs to be done to close the existing gap between developing producers and CA focused agri-businesses.

Improve conditions to expand legume production

Although producers indicated that legume crops can improve their cropping systems they still fail to expand in growing legumes. This is mainly due to poor access to seed suppliers and in the case of cowpea, the lack of a reliable market for the grain. The best way to support producers to fully exploit the value of legume crops in crop rotation is to improve the seed supply system and to create better market opportunities for the producer.

Encourage additional fodder production

Producers should be encouraged to plant fodder crops in separate fields. Fodder type sweet sorghums planted in summer or Japanese radish and oats planted for winter grazing can help considerably to provide fodder reserves. In this way producers will be able to keep the soil covered as they rely less on crop residue as a source of fodder.

Keep in mind that the basics of crop production should always be applied correctly at all times. Prior to any attempt to change to a CA system, producers should make sure to break any plough pan that might exist and to get rid of high infestations of problem weeds such as coach grass. Make an effort to seek advice from experienced CA practising producers. Lastly, team up with those who are eager to give good support to producers who consider CA as an option. In this way you might discover that CA is the key to a better farming future.

PHONNIE DU TOIT (ARC-GRAIN CROPS INSTITUTE POTCHEFSTROOM)

Conservation agriculture is meant to keep the producer on the land.

A two row no-till planter in action. Note the unploughed surface.

To establish a layer of crop residue on the soil surface is an important aspect of CA. Theo Msimanga, a producer at Diekeng in Mpumalanga inspects an experimental plot before planting. Note the weed free area and crop residue on the surface.

An example of an old planter converted to do no-till planting.

Johannes Simelane farms in the Balfour district in Mpumalanga and cultivates 300 hectares of maize. He is already doing his own experiments on certain aspects of CA.

CA is a system that requires a high level of management and switching over to a new cropping system will surely not happen without growing pains.

Planning and preparing

Preparing your beef herd for a dry winter season requires careful planning. Producers need to plan and prepare carefully for the season in order to ensure that the best outcomes are achieved which see a healthy and sustainable business plan in action.

Natural grazing lands are the main feed source for domestic livestock in South Africa. As the winter approaches, these natural grasslands start drying off and consequently the quantity of available feed declines quickly, but so does the quality of nutrition available deteriorate.

During the winter, the protein content of grasses is low and the lignin content is high. Cattle lose condition quickly when the natural pastures are not good quality and can no longer provide the animals with suitable nutrition in the form of the protein levels they can ingest and at the same time, the higher levels of lignin cause the cattle to eat less grass as they find it increasingly unpalatable. The cattle producer can choose to follow a number of strategies.

Selling animals

Consider selling animals which do not fit exactly into the long term business plan. These animals would eat feed stocks which could be better consumed by the more viable members of the herd. This strategy would need the producer to have calculated how much supplementary winter feed stocks need to be bought in and what he can afford to spend. This knowledge enables the producer to decide how many animals he can afford to keep sustainably over winter. Then it would be necessary to identify the key breeding stock with the best genetics which will add value to the herd in the future. It is best to sell the animals marked for sale well before they begin to suffer from a lack of feed and when they are still attractive enough for buyers to pay fair prices. These animals would then be no further cost to the producer and neither would they place any further strain on the available pasture as the season changes. Watch the market as prices tend to drop when large numbers of animals are sold off just before the winter. The income gained from the sale of some of the herd will also play a crucial role in enabling the producer to afford the necessary winter feeds to create the best possible conditions for the remaining core herd to be managed throughout the dry winter months.

Destocking can save time, money, pasture and soil resources and is definitely worth considering as a management tool and furthermore, the animals can always be replaced at the end of the dry period if the budget has been managed carefully.

Supplementary feeding

Supplementary feeding is a fundamental part of livestock management for overwintering.

During extended dry periods when the grazing lands have become nutritionally inadequate for stock, animals will use up their fat reserves which will result in a loss of weight and condition. Energy, protein and fibre are the essential elements of feed for animals throughout the year and supplementary feeding can meet these requirements if the producer provides it through feed sources such as hay, grain, formulated feed mixes and natural lick blocks in addition to the remaining pasture.

your beef herd

- If beef producers do not plan their winter feeding strategies well in advance, heavy financial losses can be experienced if feed has to be bought in late, at a time when feed costs are at their highest. Calculate the costs early on and include your transport costs in the sum. Decide whether you would do better to buy in bulk or by the bag. Fuel costs do affect your budgeting.
- Another unseen loss is the needless loss resulting from the poor conception rates of the herd cows and subsequently the loss of income from calves which could have been born early in the following summer. In fact it has been proven that even if cows are thin at calving time, conception rates will be reduced 60 to 90 days later at breeding time and so influence the whole next breeding cycle negatively.

When the grazing animals are introduced to new rations in preparation for the dry season, it should be done gradually as a transition period of up to four weeks is needed. Start supplementary feeding when there is still a reasonable grass cover on the veld and before the animals loses too much condition. Introduce new feeds gradually as sudden changes in feed can cause ill health. Grain stocks especially must be introduced very carefully as the animals could eat it greedily and get acidosis. The underlying cause of acidosis is too much starch and too little digestible fibre in the ration. Hay and roughage are an important element in the mix as they balance the diet and help prevent illness. Commercially prepared rations are very convenient and scientifically balanced, but they are also expensive. A well organised producer should be able to make his own mix using what he has available or what he can access locally. It is always wise to get advice from local animal nutrition experts on ideal recipes as each class of livestock will have different nutritional requirements.

Other considerations

Even during the dry season, the producer should be managing the veld. It should never be allowed to be overgrazed during this period as bare soil increases the risk of valuable soil being blown away or washed away during thunderstorms and most of the valuable nutrients are in the top soil. Should the dry season be prolonged producers could consider keeping the animals in smaller areas and limit the damage they cause to the natural vegetation.

The health of the animals must be carefully monitored as the effects of parasites or diseases on stock often increase during the dry months as the animals are often weaker during prevailing dry conditions.

Conclusion

The most expensive aspect of managing a beef herd is the winter feeding period so it should be managed carefully to ensure the profit margins are healthy. Every producer will decide which plan of action will best suit his unique set of circumstances both on the farm and in his pocket. Sometime he will use supplementary feeding only to maintain the health of his animals through the winter months, while at other times a healthier bank balance will enable him to ensure that his weaners continue gaining weight daily. A successful beef producer needs to manage the grazing correctly, apply the correct stocking rate and make the summer last as long as possible!

JENNY MATHEWS, CHAIRMAN OF THE GRAIN SA FARMER DEVELOPMENT PROGRAMME

The Grain SA Farmer Development

The mission of the Farmer Development Programme of Grain SA is to develop capacitated black commercial grain producers. To achieve this goal, it is important to focus on the individual; we have to develop the person.

Development is **NOT** about land.
Development is **NOT** about machines.
Development is **NOT** about markets.
Development is **NOT** about money.
Development is **NOT** about farming for the producer.

The whole process starts with the development of the person – all the other aspects follow that. Development is a process and not a jump.

The current minister of Agriculture, Me Tina Joemat-Pettersson indicated that she sees a need to divide producers into different categories. The categories are as follows: (although we have made our own criteria as there are not agreed-upon criteria for the different categories).

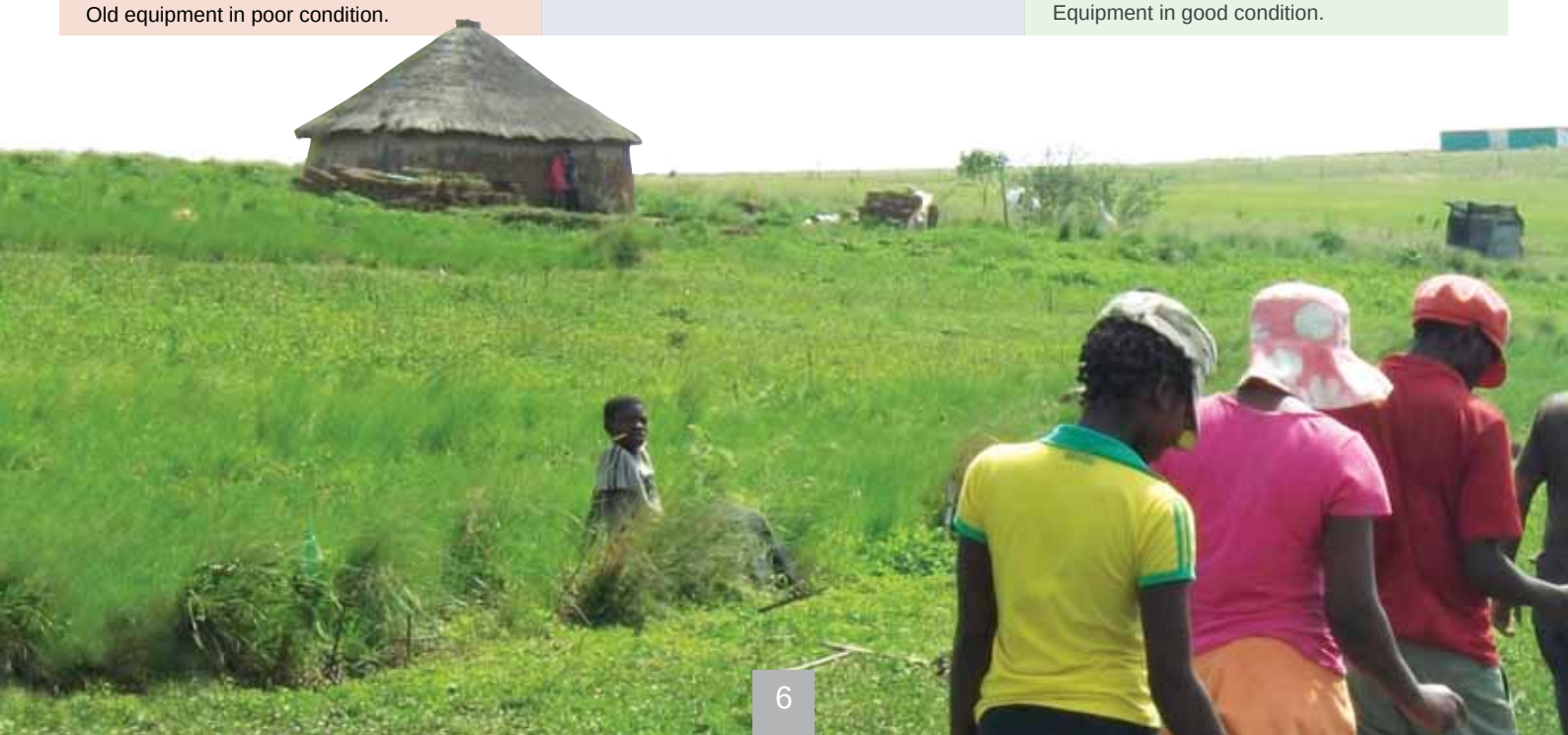
Level 1	**1 to 10 hectares**	**Subsistence producers**
Level 2	**10 hectares to 250 tons**	**Small holder producers**
Level 3	**Over 250 tons**	**Commercial producers**

It might be a little confusing to people when we say that Level 1 and producers on one to ten hectares are in the same category. It is important to have a programme that involves clearly identifiable steps – any producer who joins our programme starts as a Level 1 – the size of his/her land is irrelevant. As a level one person, there are certain courses that should be attended which are the foundation of commercial farming. There are unfortunately some producers who may never progress beyond a Level 1 producer as they may not have access to any more land or mechanisation.

The Level 2 producers are in the next category and there are certain courses that should be attended at this level – building on from the information that was gathered while in Level 1. These producers may not be able to progress beyond this level, again due to financial, land or mechanisation constraints that cannot be overcome.

The Level 3 producers are those who have progressed beyond levels 1 and 2, have assimilated all the training and information offered at the first two levels and who are in a position to produce in excess of 250 tons of grain per year. A “first time” producer who gains access to 1 000 hectare through PLAS (for example) should not want to start the process at a Level 3 – it is very important that each and every producer should start at the first level and build from there. Some producers will eventually reach full commercial status, but there are others who for various reasons will remain subsistence or small holder producers.

Starting blocks	Intervention	Journey’s end
Poor soil preparation.	Training, information and transfer skills development through:	Good soil preparation.
Plough pan.	Pula/Imvula.	No compaction layers.
Unsuitable lands used for cropping.	Radio broadcasts.	Planting only on high potential soils.
Animal traction.	Study group meetings.	Tractors.
Non-hybrid seeds.	Demonstration trials.	Use of hybrid seed.
No fertilisation.	Establishment of study group.	Optimal fertilisation.
No weed control.	Training courses.	Good weed control.
Small scale.	Farmers’ days.	Larger scale.
Communal land.		Own land.
Mono-culture.		Crop rotations.
Old equipment in poor condition.		Equipment in good condition.



Programme explained

Level 1 – Subsistence producers – 1 to 10 hectares

Training courses
1. Basic Maize Production course.
2. Introduction to Maize Production course.
3. Introduction to Sunflower Production course.
4. Introduction to Sorghum Production course.
5. Introduction to Wheat Production course.
6. Introduction to Ground nut production course.
7. Mechanisation management course.

Study group meetings
1. Soil sampling.
2. Soil pH and phosphate status.
3. Soil depth.
4. Climate.
5. Basic soil preparation.
6. Seed.
7. Plant population.
8. Fertilisation.
9. Weed and pest control.

Demonstration trials
1. Soil preparation.
2. Liming.
3. Seeding and plant population.
4. Fertilisation.
5. Weed and pest control.

Farmers' days
1. Networking with the broader industry.

Radio broadcasts
1. Information transfer.

Pula Imvula
1. Information transfer.

Level 2 – Small holder producers – 10 hectares to 250 tons

Training courses
1. Tractor and Farm Implement Maintenance course.
2. Basic Engine Repair course.
3. Advanced Maize Production and Marketing course.
4. Advanced Sunflower Production and Marketing course.
5. Resource Assessment and Farm Planning course.
6. Skills Development course.
7. On-farm Maintenance and Support course.
8. Mechanisation Management course.

Study group meetings
1. Mechanical repairs and maintenance.
2. Cultivar selections.
3. Optimal fertilisation.
4. Optimal use of the natural resources.
5. Risk management and insurance.
6. Marketing and storage.
7. Financial management (production loans).

Advanced Farmer Programme
1. Calibration of planters and sprayers.
2. Tillage practices.
3. Setting of implements.
4. Production loans.
5. Access to grants and government support.

Demonstration trials
1. Different levels of fertilisation.
2. Cultivar selections.
3. Chemical weed control (programmes).

Farmers' days
1. Networking with the broader industry.

Radio broadcasts
1. Information transfer.

Pula Imvula
1. Information transfer.

PULA IMVULA

This publication is made possible by the contribution of the Maize Trust.

GRAIN SA
PO Box 88, Bothaville, 9660
(056) 515-2145
www.grainsa.co.za

PROGRAMME MANAGER
Jane McPherson
082 854 7171

MANAGER: TRAINING & DEVELOPMENT
Willie Kotzé
082 535 5250

SPECIALIST: FIELD SERVICES
Danie van den Berg
071 675 5497

DISTRIBUTION: PULA-IMVULA
Debbie Boshoff
(056) 515-0947

PROVINCIAL CO-ORDINATORS
Daan Bosman
Mpumalanga (Bronkhorstspruit)
082 579 1124

Johan Kriel
Free State (Ladybrand)
079 497 4294

Tonie Loots
North West (Zeerust)
083 702 1265

Jerry Mthombothi
Mpumalanga (Nelspruit)
084 604 0549

Lawrence Luthango
Eastern Cape (Mthatha)
083 389 7308

Jurie Mentz
KwaZulu-Natal and Mpumalanga
082 354 5749

Ian Household
Eastern Cape (Kokstad)
078 791 1004

DESIGN, LAYOUT AND PRINTING
Infoworks
(018) 468-2716
www.infoworks.biz

infoworks
Your ideas can fly

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

Our aim is to produce the best publication possible. Please direct any comments on the editorial content or presentation thereof, to Jane McPherson.

The Grain SA Farmer Development Programme explained

Jane McPherson (left), was pleasantly surprised by a visit from Mr Mzebenzi Zwane, the MEC for Agriculture in the Free State and Ms Nandi Mayathula-Khoza, the MEC for Agriculture in Gauteng at the NAMPO Harvest Day. They are also joined by Dr Limakatso Moorosi (right), the Head of the Department Agriculture in the Free State.

Gideon Ralepedi (Senwes), G. Motseng, Jane McPherson, B. Tswene (MEC, North West), N. Maloyi (Speaker) and in the front row, Japie Fransman (Senwes), C. Kanyane and Sello Lesupi also visited the Farmer Development stand at the Nampo Harvest Day.

Level 3 – Commercial producers – 250 tons upwards

Training courses
1. Farming for Profits course.
2. Maize Production under Irrigation course.
3. Barley Production under Irrigation course.
4. Wheat Production under Irrigation course.
5. Maintenance on High application tractors course.

Study groups
1. Marketing of grains.
2. Crop rotations.
3. Diversification and optimal use of resources.

Advanced Farmer Programme
1. Networking;
   - Agribusinesses.
   - Organised agriculture.
   - Input supply companies.
   - Banks and financiers.
2. Mainstreaming of the producers into the commercial agricultural sector.

Farmers' days
1. Networking with the broader industry.

Radio broadcasts
1. Information transfer.

Pula Imvula
1. Information transfer.

JANE MCPHERSON, PROGRAMME MANAGER OF THE GRAIN SA PRODUCER DEVELOPMENT PROGRAMME