



IN THIS ISSUE

- From The Editors Desk:
- Conservation Farming With Two Wheel Tractors – A Step Forward:
- News And Advertisements:
- In Focus Pictorial:
- Act Board Members Visit To Mwangaza Ffs In Karatu, Arusha Tanzania
- Editors Response To Readers Questions



FROM EDITORS DESK

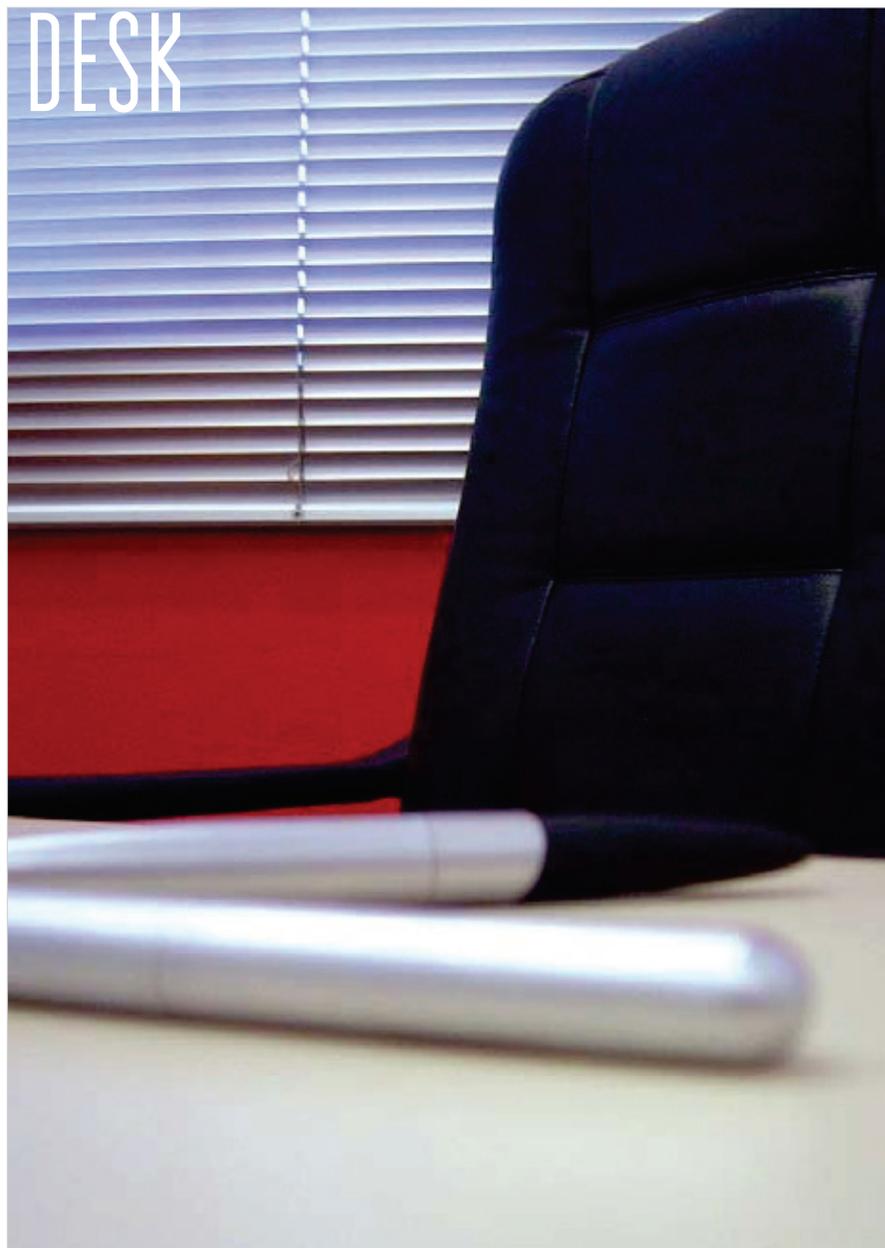
Welcome to the second issue of ACT E-newsletter. It is my great privilege that we are presenting the 2nd issue of the ACT E-newsletter; I hope you will like this issue like the first one.

ACT electronic newsletter is a quarterly forum which provides articles and research findings on conservation agriculture and other sustainable land management issues. The quarterly edition provides readers with an opportunity to share information on areas of Conservation Agriculture.

This edition in particular highlights experiences from different individuals ranging from farmers, CA equipment manufacturers/designers together with other CA experts.

The editorial team is highly thankful to all of you for embracing and contribution to this vibrant media of information sharing and on conservation agriculture aspects.

The articles, contributed by you, are stimulating and thought provoking as each one of them represent a unique context, in which certain initiatives in areas of conservation agriculture have been taken to the happiness and well being of the community you serve.



The editorial desk feels the articles contributed through this media are useful for shared learning and may get multiplier for wider dissemination and further action by relevant CA stakeholders, this edition answers some of the questions on Conservation Agriculture raised by readers and members.

Finally the editorial team will be more than happy to receive your articles, story contribution for the future upcoming editions. Thank you and wish you all enjoyable reading.

With Kind and Warm Regards,

Hamisi Dulla

On behalf of the editorial team

CONSERVATION FARMING WITH TWO WHEEL TRACTORS – A STEP FORWARD.



Two wheel tractors (sometimes called power tillers or walking tractors) are extensively used by small area farmers in many parts of the world. They are essentially the first mechanical progression from animal traction systems. Over 500,000 units are manufactured every year.

Although two wheel tractors are popular with small area farmers, the research community has largely up to date neglected them as traction units for Conservation Agriculture cultural operations. Whilst conservation farming has reached an advanced stage in many parts of the world, the necessary equipment has mostly been manufactured for traditional four wheel tractors.

In recent years significant numbers of two wheel tractors have been imported into Africa. In some cases purchase has been subsidised by

Government agencies. In normal configuration as sold into the market they are fitted with a rotary tillage unit (rotavator). Alternatively a single or two-row mouldboard or disc plough is can be fitted. While these attachments are used in traditional tillage farming systems, they are not suited for conservation farming methods.

Early development of conservation farming implements to suit two wheel tractors commenced in Bangladesh in the late 1990's. Both the Bangladesh Government authorities and CIMMYT (International Maize and Wheat Improvement Centre) were involved to a great magnitude in this work. This research has continued to the present time, with further input from ACIAR (Australian Centre for International Agricultural Research).

Agricultural engineers and other

associated agriculturalists that are interested in these developments are now in familiar international forum, which shares ideas and experiences with conservation farming using two wheel tractors.

As part of this forum, ACT has now commenced a research effort for conservation agriculture farming implements, based on the expertise and experience gained in South Asia. It has been observed that African small scale farmers who possess two wheel tractors will soon be looking for conservation farming implements to suit them.

Initially ACT has commissioned the manufacturer of several prototype zero tillage seed drills to suit the two wheel tractor. Intermech Engineering of Morogoro Tanzania has fabricated these implements that will be widely tested in East Africa. (the CEO and founder of Intermech – Peter Chisawillo- is a member of ACT).

The ACIAR designed units are of two main types. The first is a tined drill that is mounted on a purpose built tool bar that is fitted instead of the rotavator. This can sow from 1-4 rows of most crops. It also makes fertiliser deposits as required, and has press wheels fitted for seed firming.

The second type is a 'strip till drill' that is essentially a modification of

a rotary tillage drill, or the standard rotavator. Most of the tiller blades are removed to allow for / to give room for strip tillage, with the crop seeds being sown into the narrow tilled strips. Similar seed and fertiliser boxes with metering systems for most crops (as built in to the tined drill) are fitted. Press wheels are also available.

Yet a third No Tillage drill designed by Dr. John Morrison of Tennessee USA has been built and is now being tested. This drill has a disc opener system. Dr. Morrison spent many years as a research agricultural engineer with the United States Department of Agriculture and is an internationally recognised authority on No Tillage seeding systems.

All three seed drills types are now being tested in East Africa.

What does the future hold for Conservation Agriculture? Based on the experiences in South Asia, it would appear that these seed drills (possibly with local modifications) hold promise for conservation farming for small area farmers of Africa who possess two wheel tractors.

ACT will continue to press forward with this research (for as long as finances permit) in partnership with African Universities, Government Departments, and NGO's, both local as well as international.

For more information on how to join the two wheel tractor forum,

please contact:

ACT Executive Ocer Saidi Mkomwa at saidi.mkomwa@act-africa.org

Or the ACIAR consultant Je Esdaile in Australia rjesdaile@bigpond.com.



NEWS AND ADVERTISEMENTS

EMPLOYMENT

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Australia, host for the 5th WCCA and 3rd FSD, welcomes scientists and practitioners to Brisbane to discuss current and future developments of sustainable agriculture next year. The co-location of WCCA and FSD provides a great opportunity to explore the application of conservation agriculture practices and principles in a systems context. The common objective is the design of more productive, economic, and sustainable farming systems to meet the challenges of expanding population, global change, and environmental degradation. Conference program options and tours will cater for different interest groups, and take advantage of Brisbane's proximity to intensive, extensive and sub-tropical farming, as well as to world leading research groups and facilities.

Read more on www.wcca2011.org

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Have you Activated your online ACT membership Subscription? Check your email after Registration

INFOCUS PICTORIAL



The KARI, NARL Director presents certificates to the graduands of the Farmer eld school

Extension ocers examining an Animal drawn director seeder.



A tractor drawn ripper in action

Farmers celebrate high yields during harvest, got from practicing Conservation Agriculture.



This is how we do it: A trainer demonstrates the use of a jab planter

Dr. Okoba and Theo Fredrich share ideas during a CA Study Tour.



ACT BOARD MEMBERS VISITS TO MWANGAZA FFS IN KARATU, ARUSHA-TANZANIA

The ACT board meeting was held on 28th to 30th October 2010 in Arusha, and during the meeting some board members had an opportunity to visit Mr Swalehe Shaban who is a member of Mwangaza A CA-Farmer Field School group who is also a farmer facilitator for Mwangaza B CA-FFS in central Rhotia village, Mbulumbulu division of Karatu district. The visit was done on 29th October 2010 with support from CA-SARDII coordination desk by SARI-Arusha.

During the visit, ACT-board members were able to interact with CA farmers and share on their success and challenges. Among the visited farmers is Mr Swalehe Shaban who started adopting CA technologies since 2004 and has tried a number of combinations of CA options including minimum tillage mainly through ripping and use of Jab planter for planting.

Since 2004 he has been trying various legume cover crops options intercropped in maize elds; these include dolichos lablab (ngwara) and Pigeon peas (mbaazi). Apart from using legume cover crops for soil fertility improvement, both dolichous lab lab and pigeon peas are important food crops and cash

crops which also suppress weeds thus; reducing weeding costs of up to 75%.

Mwangaza FFS farmers shared a range of technologies they have been practicing, one of the exciting one is on how farmers have managed to control weeds and pests by spraying natural herbicides/pesticides, farmers explicitly explained on how the natural herbicides/pesticides is made by using natural available ingredients, however sometime they use shallow weeder or hand picking of emerging weeds depending on the weed intensity.

In particular, through application of Conservation Agriculture Mzee Swalehe is able to harvest between 15-20bags/acre of Maize as compared to average harvest of 9-12bags/acres experienced in Rhotia area by conventional farmers. He has managed to reduce production cost/acre as from Tsh 115,000/= in 2004 to Tsh 40,000/= in 2010 something which was commendable by board members and encouraged the group to disseminate CA technologies to even more farmers while investing the benet realized through application of conservation agriculture to other productive

economic activities.

Other benet Mwangaza farmers shared with board members included the fact that, since 2007, Mr Swalehe's farm has been under rotation between Maize intercropped with a combination of D. lablab and pigeon peas with Wheat while applying minimum tillage and cover crops and its through this kind of application of CA technologies he is able to harvest up to 20 bags of maize from 1 acre in 2009 of which before he used to harvest not more than 7 bags of maize from the same piece of land, he attributes the high production to CA principles mainly cover crop and rotation.

ACT board members were more impressed by the fact that, Swalehe and his colleagues of Mwangaza FFS has managed to convince a number of farmers in the entire village to adopt CA and among them Swalehe's closest friend Mr. Elias Mango who is currently practicing minimum tillage practices in his 22 acres where he rotates Wheat with a combination of legume cover crops intercropped with maize..

Regardless of these benets, Swalehe and his colleagues practicing Conservation Agriculture have managed to convert majority

of farmers in the village to adopt conservation agriculture albeit they are however faced with the following challenges

- Persistent drought condition
- Inadequate supply of input and CA equipments and when available are not affordable
- The area is occasionally attacked by wild animals who destroys crops

Since farmers maintain the cover crops throughout between seasons even after harvest, farmers are able to control soil erosion and livestock invasion in their farm, which used to be a problem before they adopted the CA farming.

Overall, ACT board members thanked and appreciated the good work the Mwangaza FFS group members are doing and specially to Mr Swalehe Shaban who has been a champion in promotion of CA technologies in Karatu District in Tanzania. The ACT board chairman Mr Reynold Shula in particular encouraged the group to work hard and share the already realized benefit of Conservation Agriculture to wider community members and importantly he encouraged farmers to work closely with ACT and seek any technical advice from its secretariat and partners whenever required.

EDITORS RESPONSE TO READERS QUESTIONS

Dear Reader

This is in response to your enquiry about Conservation Agriculture (CA), here are some basic information about the concept:

What is conservation agriculture?

Conservation agriculture (CA) is a farming technology that aims to produce high crop yields while reducing production costs, maintaining the soil fertility and conserving water. It is a way to achieve sustainable agriculture and improve livelihoods.

Conservation agriculture has three basic principles:

1. As Least soil disturbance as possible. The idea is to plant directly into the soil, without hoeing or ploughing. Tillage is reduced to ripping planting lines or making just small holes for planting

2. Keep the soil covered as much as possible. Mulch, special cover crops and/or crop residues left on the field protect the soil from erosion and limit weed growth throughout the year. This is opposed to conventional farming practices, whereby farmers remove, burn crop residues or mix them into the soil with a plough or hoe. As a

consequence, the soil is left bare, so it is easily washed away by rain, or is blown away by the wind.

3. Mix and rotate crops. Planting of the same crop each season - as sometimes practiced in conventional farming is minimized by planting the right mix of crops in the same field, and rotating crops from season to season. This allows a break down of survival and multiplication cycles of pests, diseases and weeds resulting in higher yields and maintenance of soil fertility.

To gain the full benefit of conservation agriculture, all three principles have to be applied at the same time. This however is not possible everywhere, but farmers should be encouraged into following this prescribed course of action that CA demands as much as possible.

History of conservation agriculture

In the 1930s, soil erosion in the United States had reached crisis proportions. The problem was particularly severe in the Midwest, where millions of tons of topsoil were blown away by the wind or washed into rivers, in what came to be known as

the 'Great Dust Bowl'. Supported by the government, American farmers started abandoning their traditional practice of ploughing. Instead, they left the crop residues on the soil surface, and planted the next crop directly into the stubble. Faced with similar problems, farmers in South America also took up conservation agriculture. They sowed cover crops to protect the soil, and rotated crops in order to maintain soil fertility. Because of the benefits, knowledge passed quickly from farmer to farmer.

By the year 2000, conservation agriculture had been practised on about 60 million hectares of land worldwide, mainly in North and South America. Government support has remained important in most countries that practice Conservation Agriculture. For instance in some states in Brazil, conservation agriculture is an official agricultural policy. In Central America, the Costa Rica's Ministry of Agriculture has a Department for Conservation Agriculture. which as a technology has been used to cultivate a total of over half the crop land in Paraguay, about one-third of the land in Argentina, one-third in Brazil, and one-sixth in the United States.

The many South American conservation agriculturists are organized into well structured local and national farmers' associations. They are supported by institutions from North and South America and have links with international

agencies such as FAO, GTZ and the World Bank. This support is essential to help farmers quickly adopt new approaches and technologies that many see as a radical change in the way they farm.

Green Revolution vs No-till or Reduced-till Revolution

The Green Revolution did not provide adequate benefits to vulnerable and resource poor farmers who did not have access to external inputs namely fertilizers, hybrid seeds, water and credit facilities for the acquisition of the said implements. In contrast to the Green Revolution concept, Conservation Agriculture is beginning to gain more ground and benefit all farmers and communities at large. CA is a silent multi-stakeholder movement driven by the need to produce more food at lesser costs (financial labour, and time costs), conserve land and water resources and help maintain and improve the entire ecological footprint.

CA therefore is a crucial component of in the achievement of food security, poverty mitigation, and rural development strategies, which in turn will enhance productivity, improve environmental quality and help in the preservation of natural resources at the same time.

Conservation Agriculture in Africa

Conservation Agriculture is of continuous and vital need in the African continent which has been facing a series of prolonged

droughts over the years due to changing weather patterns, leading to loss of life, poor agricultural productivity and declining economies. CA is beneficial to the region because through its tri-model concept, and once adopted effectively can control soil erosion, produce stable yields, and reduce labour needs, all to a significant magnitude.

The story of Conservation Agriculture in Africa is not new. Across wide areas of Africa, CA principles used to be normal practice, before the introduction of ploughs was done. were introduced. Farmers would cultivate by hand, often with hoes, rotating crops and fallowing fields for several years. However, the rapidly increasing rising population statistics and the use of ploughs changed all that. European settlers and colonial regimes introduced ploughs, and they quickly came to dominate existing farming systems because they enabled farmers to open up more land quickly and cheaply. But just as in the United States, the plough has gradually eroded Africa's soils in the many years of its use. Soil fertility rates and total yield production have fallen continued to drop, and many countries now face critical food shortages. But not. Nonetheless not all Africa's farmland was put to the plough, or to the deep-till hoe, and pockets of conservation-friendly farming still remain.

Conservation Agriculture emerged

in several different places around the same time in Africa. The most dramatic remarkable stories come from Zimbabwe and Zambia, where conservation agriculture came to have been used in an attempt to rescue revive of the land. Starting on one large-scale commercial estate in Zimbabwe, a combination of zero-tillage and direct planting into deep straw mulch meant a slow but sure recovery for degraded land. A moderate use of herbicides was needed to kill weeds. By the mid 1990s, nearly 4000 hectares were under Conservation Agriculture - all on large-scale farms. Efforts are presently being made to transfer this success to some of the many new small-scale farmers in Zimbabwe.

In Zambia around the same time, a dedicated extension unit, supported by donor funds, began to spread and disseminate the technology into other regions of the southern part of Africa. The message. Here, With time small-scale farmers found that Conservation Agriculture worked on their farms too. Currently more than 100,000 small-scale farmers in Zambia have converted from old farming systems characterised by complete soil disturbance to conservation agriculture.

Large-scale farmers in Kenya, South Africa and Namibia also use Conservation Agriculture practices. In South Africa, no-till farmers' clubs similar to those in South America have been set up. Initiatives by various government research

and extension agencies, donors and the private sector promote Conservation Agriculture for smallholder farmers in Cameroon, Ghana, Kenya, Madagascar, Malawi, Namibia, Tanzania, Uganda, Zambia, Zimbabwe, and other countries. Various institutions conduct research on or promote conservation agriculture.

The most important researchers and promoters of conservation agriculture in Africa are the farmers themselves. Every farmer is a researcher, who experiments every season on his or her farm. Farmers who find a new technology something that works is beneficial to them and their lands are more likely to repeat it the next season, and to tell their friends about it. This in turn would cause a ripple effect and the spread of the technology would be faster than in the absence of learning from individuals' experiences, also referred to as learning by association.

Why start using conservation agriculture?

You might start using conservation agriculture for many reasons.

1. To improve your yields

Zero disturbance of the soil structure:

Unlike the rest of the developing world, crop production in Africa is not keeping pace with population growth. Projected production per

acre in many areas is continuously diminishing. A major cause of this is declining soil fertility, often caused by the way of farming. The rising population has forced farmers to abandon traditional practices that left the land fallow for several years, and to cultivate ever-smaller plots. Intensive tilling and hoeing year in and year out can produce a hardpan in the soil that restricts root growth and stunts plants. Rainwater that falls unbroken to the bare soil surface pounds the bare soil it, forming a surface crust that the water cannot penetrate through. It runs off, taking the valuable topsoil with it. Erosion in some places is so severe that there is little soil left.

Reduced fertilizer application:

To get a good yield, farmers often apply more and more fertilizer. With less moisture in the soil, plants are more vulnerable to drought and start to wilt after a few days without rain.

Conservation agriculture enables farmers to reverse this trend by the planting of cover crops which prevent hardpans from forming, protect the soil, increase soil moisture, and restore soil fertility, thus stabilizing yields and improving crop production over the long term

2. To reduce your production costs.

In a highly capitalistic world with fuel and fertilizer production prices shooting up daily and

as influenced by world politics, conventional farming has become very expensive. Tilling the soil is expensive, and labour costs have risen continuously, while market prices of farm products produced have fallen. Many farmers cannot recoup their production costs by selling what they produce, so they end up making losses.

Conservation agriculture helps these farmers cut costs while increasing their yields.

3. To overcome labour and farm power shortages of labour and farm power. Many farm households suffer from a severe lack of labour and farm

power. Hunger and malnutrition combine to create a weak workforce of individuals who eventually become extremely weak, unable to work hard, and vulnerable to disease. Taking into account the bright light theory wherein young people are moving out of the rural areas where agricultural farming is dependent, to urban areas in search of better opportunities there is the continued increased creation in a void where there is a deficiency in the provision of labour, as well as the abandoning of agricultural land. The spread of pandemics and epidemics such as HIV/AIDS and malaria respectively, create a severe labour shortage due

to heightening mortality rates.

The lack of adequate food leading to malnutrition and disease as a result of harsh weather conditions and poor agricultural productivity has led to the death of many draught animals. This in turn has led to the loss of a crucial source of labour, especially for the animal drawn farming implements. In other events, or their owners have had to sell them to pay for medical treatment of sick family members and or burials of the same. The lack of adequate farm power, forces farmers to look for other ways to farm.

Conventional vs conservation

Both conventional farming and conservation agriculture include a very wide range of operations, which include: field preparation, planting, fertilization, weeding, harvesting, and field operations after the harvesting.

There are, of course, many variations in both 'conventional' and 'conservation' approaches, so therefore the descriptions are simplified and may not depict what happens in a particular area.

Conservation agriculture means less work because it is not necessary to encourage the ploughing of the soil and weeding as many times. It suppresses weeds and reduces erosion. It improves the soil structure, the ability to retain water, organic matter content and fertility. This can be achieved through the application of the three CA principles.

Weeds like all other plants are photosynthetic therefore need sunlight to be able to develop.

The use of mulch and cover crops prevent the penetration of sunlight to the soil level, hence the pre-management of weeds. Through the practice of CA, there is the reduction of the formation of the hardpan in the soil, hence no occurrence of soil erosion. The maintenance of the soil structure, water retention, fertility and organic matter content all lead to higher and more stable yields.

HOW CONSERVATION AGRICULTURE WORKS IN DIFFERENT TYPES OF FARM SETTINGS AND SYSTEMS.

The three principles of conservation agriculture (disturb the soil as little as possible, keep the soil covered as much as possible, and mix and rotate crops) can be applied in a wide range of conditions ecological surroundings. How farmers put them into practice will vary from place to place, depending on many factors.

Conservation agriculture can be practised on different types of farms, with different combinations of crops and sources of power. Here are some examples:

Hand hoe farming

Many African farmers cultivate their land by the use of hand farming implements such as, using hoes. These farmers can practise conservation agriculture by digging small planting holes in lines, at carefully measured distances, leaving the rest of the soil unturned. If hoeing in previous years has produced a hardpan, the ripping lines must be deep enough to break through this hard layer.

This is in attempt to reduce the rigidity of the soil, in the first steps of practicing Conservation Agriculture.

The farmers can put manure in the holes to raise increase the soil fertility and the water-holding capacity, then sow maize or beans. They can also sow implant cover crops between the planting holes to protect the soil from erosion and to suppress weeds. For the management of weeds, they can either pull weeds them out by hand, or slash them with a machete.

In the next season, to save on labour and time, farmers can make use of the same holes by planting different crops. in the same holes. It is not necessary to dig through the hardpan again, because the first season's crop roots will have penetrated deep into the soil and will help water to seep into the soil. So it is necessary to do hard work the digging of the pits only once.

Small holder farming with draught animals

Farmers who own (or can hire) oxen or donkeys to pull farming implements such as the plough, can use a different set of conservation agriculture friendly units. In the event that there is a hardpan a subsoiler can be used to break it up This is usually necessary only in the first year.

If there is no hardpan, the farmers can use an animal-drawn ripper to open up a narrow furrow for planting seed. The soil between these furrows is left alone for biomass build up and maximize on water retention. It is also possible to use rippers and sub-soilers that sow seeds and apply fertilizer at the same time, therefore saving time and work energy. Before planting the crop, the farmers can use a hoe or knife-roller to kill weeds, or apply herbicide using a sprayer or wiper. They sow a cover crop with the maize crop to smother weeds and to reduce evaporation from the soil surface. When harvesting the main crop, the farmers leave the crop residues (for instance maize stalks) and cover crop on the field. This in turn protects the soil from the sun and rain, and further controls weeds.

Mechanized farms

Farmers with tractors can use conservation agriculture too. They can replace their mouldboard ploughs, disks and harrows with rippers, sub-soilers and direct-drill planters. At the outset onset of a new season, large scale farmers can use a knife roller, sometimes in combination with herbicides, to

kill the previous season's cover crop and weeds. In the first season of conservation agriculture, they may need to use a sub-soiler to break up the plough pan. They then use a direct drill-planter to sow seeds. A post-emergence herbicide kills any weeds that come up after planting has been done and before the crop canopy can cover the surface. After harvest, as earlier stated, the crop residues stay in the field. The farmer then sows a cover crop to protect the soil until the next planting season.

Many farmers are able to use a combination of farming implements and different types of power sources. For example, a hoe farmer who uses a hoe to cultivate may be able to hire a neighbour with a tractor to subsoil her field. She can then choose among various options presented to her so as to get the full benefits of conservation agriculture.

Conservation Agriculture and its execution in different geographical locations situations

Conservation agriculture can be applied in all parts of Africa, it can be practiced in various climatic zones and under different conditions, though it may take different time durations from place to place and taking into account the level of degradation.

In semi-arid lands, conservation agriculture helps in the retaining of water in the soil, keeping of the

soil temperature at constant levels and protecting of the land from erosion during heavy downpours. Maintaining soil moisture is the main challenge in these areas, so harvesting methods (such as rainwater or any available source) can be very useful to increase the amount of water available for crops. Crops may have been planted with wide spacing, and there may not be enough moisture to grow a cover crop, so therefore farmers may have to rely on mulch or residue to keep the soil covered. Due to the fact that livestock rearing is yet another crucial economic activity in these areas, farmers are constantly reminded to restrict grazing of animals on their fields to keep as much soil cover as possible and minimise the disruption of the soil structure through the trampling of the same.

In sub-humid and humid areas, weeds and soil erosion are likely to be more of a problem. Crops are planted at closer spacings, and cover crops help suppress weeds and protect the soil.

On slopes, conservation agriculture can be used in association with terraces, contour grass strips and other erosion-control methods. Terraces already exist in many places and conservation agriculture can be incorporated in farms with these type of land topographies that demand management..

In densely populated areas, conservation agriculture can be

used to increase yields on small plots of land which have previously been under intensive cultivation.

On good soils, characterised by an intact soil structure, good water holding potential among other features, conservation agriculture maintains the soil health and sees to the crop production of high levels. It is therefore the most adequate technique for depleted and severely damaged soils.

Where labour is scarce, perhaps because of malnutrition and diseases such as HIV/AIDS, conservation agriculture enables farmers to produce good yields with less labour.

Challenges faced in the implementation of Conservation Agriculture

Conservation agriculture has the potential to change the face and agricultural productivity of Africa. But its success is not automatic mechanical. It faces various challenges:

Rigid mindsets.

Switching to conservation agriculture involves a fundamental change of mindset among the conventional farming fraternity. For example, farmers must drop their traditional practice of preparing the land with a hoe or plough, and instead rely on "biological tillage" by the plant root systems as well as soil micro-biological organisms such as earthworms. The switch

also encourages farmers to begin to see view their farms as a business rather than merely as a way to feed their families.

Poor maintenance of Crop residues

Although keeping the soil covered is important in conservation agriculture. But it can be difficult especially for farmers who have many uses for crop residues: as fodder, fencing and roofing material, roofing and as sources of fuel. In mixed farming societies, livestock keepers let their animals graze on stubble. In drier areas, it is impossible to grow a cover crop in the dry season, and crop residues are a become a vital source of animal feed.

If they are to keep the soil covered, farmers will have to protect their fields and find alternative sources of fuel and fodder. While in wetter wet, and more sparsely populated areas, this it is easy to carry this out, the reverse is true in drier areas, it is more difficult. Alternatives include fencing animals out of farming

areas, reaching agreements with livestock owners on grazing rights, and growing special plots of for fodder and fuel sources.

Other challenges

It can may be hard to find acquire seed (particularly of cover crops), inputs such as herbicides, as well as equipment, due to the lacking credit facilities that can be availed to farmers either individually or in groups. Crops such as teff, which has very small seeds, can be difficult to sow without disturbing the soil. And for various reasons such as poor group dynamics and politics in formation among other reasons, it can be difficult for farmers to work in groups, form organizations or get the support they need to begin practicing conservation agriculture

In conclusion, conservation agriculture involves radical changes in what extension services do. An effective way to promote conservation agriculture is through farmer field schools and other approaches that put farmers and their needs at the centre into focus,

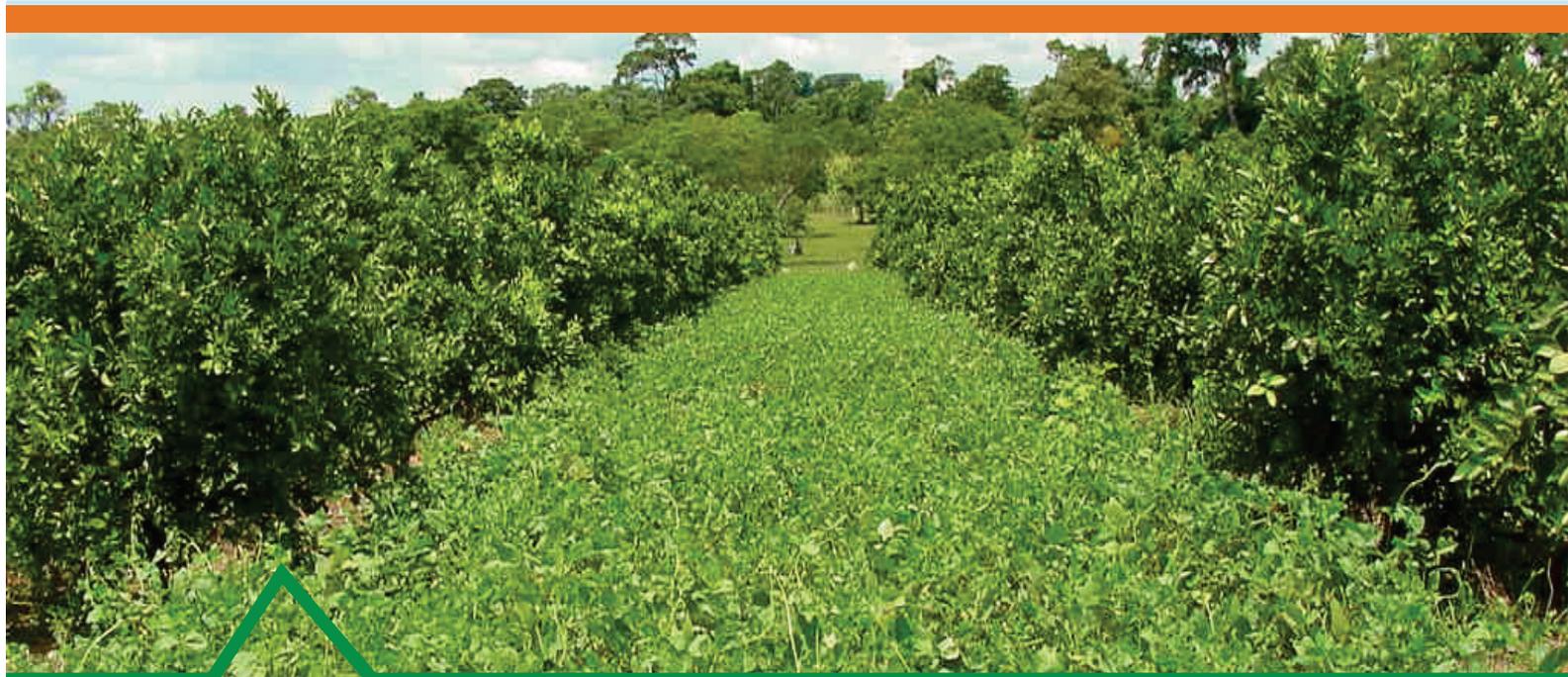
rather than instead of seeing them as mere recipients of advice. Such revolutionary changes require teaching, not only on the farm or demo site itself, but also within schools and colleges and other institutes of higher learning. Extension staff will need intensive and continuous training so they can learn and keep up with updates of the various CA technologies. Field demonstrations and awareness-creation campaigns will also be needed to enhance the widespread diffusion of the CA technology in terms of information dispersion. The creation of a cemented relationship with the mass media sorority must be harnessed to support the campaign against poor agricultural agronomic practices which lead to hunger and malnutrition. .

For more information on this subject please do visit our website www.act-africa.org

The Editor, African Conservation Tillage Network



On 30th November 2010, Eng. Saidi Mkomwa (ACT), Dr Kikki Nordin, Pedro deFigueiredo of the Regional Team for Environment and Economic Development (REED), and Dr. Dennis Garrity (ICRAF) held various discussions which mainly focused on new initiatives, especially the evergreen agriculture and the new Sida strategy for the African Regional Programmes. Areas of mutual collaboration were identified. The good news is that ACT, ICRAF and Sida signed an agreement for a grant of SEK 5,000,000 for a project on Conservation Agriculture with Trees (CAWT) for one year with prospects of renewal and the possibility of including other donors.



African Conservation Tillage Network (ACT)

P.O Box 10375 - 00100 Nairobi, Kenya.

Tel: +254 20 4444252 Fax: +254 20 4451391

Email: info@act-africa.org

Website: www-act-africa.org

CONTACT US!

We wish to hear from your experiences and views related to the subject of conservation agriculture