GROUND UP

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A PELUM publication promoting sustainable community development

Conservation agriculture: lessons from the field

Inside:

GroundUp is a regional magazine of the Participatory Ecological Land Use Management (PELUM) Association. The magazine is published at the PELUM Association regional offices in Lusaka, Zambia, with contributions from members and correspondents in Eastern, Central and Southern Africa and beyond.

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Editorial

Welcome to the June 2010 issue of *GroundUp*. This issue focuses on conservation agriculture.

There are several reasons why farmers are increasingly taking up sustainable methods of farming. Some farmers can barely afford synthetic fertilisers and the use of cheap locally available resources is appealing. Others are now aware of the need to practice sustainable agriculture to cope with the effects of climate change. Some farmers are also aware of the need to practice sustainable agriculture to reduce greenhouse gas emissions. For other farmers, sustainable methods of growing food are earning them better incomes as they sell their 'clean' food exclusively to people who demand such foods. For some farmers, sustainable agriculture enables them to give back to nature as they consciously build on the soils and the environment around their farms.

For PELUM, practising sustainable agriculture is a good thing. PELUM has promoted sustainable agriculture since its inception in 1995. Over the years, it has laboured to convince governments and worked with farmers to use sustainable agriculture. PELUM is glad that the world and farmers are now recognising the importance of sustainable agriculture as the benefits start coming out. This is not to say there are no challenges in implementing sustainable agriculture, but to acknowledge that the benefits outweigh the challenges.

This issue of the magazine discusses the various arguments on conservation agriculture. It is clear from the outset that conservation agriculture has vast potential in African farming because it encourages the use of available resources on farms and if consistently used, the benefits are immense.

PELUM is grateful to Research Into Use Zambia for its support in the production of this issue. Research Into Use Zambia started its work in 2008. Since then, it has assisted farmers and the private sector to put past research findings on conservation agriculture into practice. Find out more at its website, www.researchintouse.com.

We hope that you will enjoy reading this magazine. Please contact us if you have any questions. You can also visit our website for more information (www.pelumrd.org), including our 2009 annual report.

Marjorie Chola Chonya
Editor

Principles explained

There are a few main principles of conservation agriculture: minimum tillage; permanent soil cover, using mulch and cover crops; and crop rotation. What is meant by these terms?

Minimum tillage

Minimum tillage involves growing crops without tilling the soil after the harvest of the previous crop. Crop residues are distributed evenly and left on the soil surface; no tools or machines are used to turn the soil, cultivate it or incorporate crop residues. Instead, seed is placed directly into place. The size of the seed slot and the associated movement of soil are kept at the absolute minimum. Ideally, the seed slot is completely covered by mulch after seeding. The seed slots or furrows are permanent and used year after year.

Land preparation involves slashing or rolling the weeds, previous crop residues or cover crops and seeding directly through the mulch. Crop residues are retained either completely or to a suitable amount to guarantee the complete soil cover, and fertiliser – PELUM advocates organic fertiliser – and amendments are either broadcast on the soil surface or applied during seeding.

Permanent soil cover

In conservation agriculture, crop residues are left on the soil surface. Cover crops may be needed if the gap is too long between harvesting one crop and beginning the next. Cover crops are mainly grown to improve soil fertility or as livestock fodder. A permanent soil cover is important to protect the soil against the rain and sun; and to provide the organisms in the soil with a constant supply of 'food'. Cover crops help in many ways: creating a more stable environment; protecting the soil during fallow periods, controlling weeds and pests, improving soil structure, adding phosphorus and potassium and making use of nutrients like nitrogen that have leached into the soil; improving water's ability to infiltrate the soil and the soil's ability to retain moisture; and increasing biodiversity.

Crop rotation

Crop rotation is the practice of growing a series of dissimilar types of crops in the same area in sequential seasons. A complete planned rotation may take a few years. The rotations are planned according to various objectives: food and fodder production; residue production; pest and weed control; nutrient uptake and biological subsurface mixing/cultivation. A traditional component of crop rotation is the replenishment of nitrogen through the use of green manure in sequence with cereals and other crops.

The alternating of deep-rooted and shallow-rooted plants improves soil structure and fertility. In addition, rotating crops prevents soil depletion of soil nutrients; maintains soil fertility; reduces soil erosion; controls insect/mite pests by stopping the carry-over of crop-specific pest from one crop to another; reduces reliance on synthetic chemicals; reduces pest build-up; prevents diseases; and helps to control weeds.

> **"It can be said with considerable truth that the use of the plough has actually destroyed the productiveness of our soils."**
>
> **- Edward H. Faulkner, in Ploughman's Folly (1943), a pioneering book on conservation agriculture**

The land is not ploughed. Instead, basins, where the seed is planted, are dug.

Conservation agriculture in brief

Q: What is it?

Conservation agriculture is a system for producing crops that tries to conserve soil and resources. It is characterised by:

- Low, or no, tilling
- Permanent ground cover, either by a growing crop or a dead mulch
- Crop rotation

These techniques enhance natural biological processes, build up organic matter and improve the soil. For example, cover protects the soil from direct rain and sun and stabilises its temperature and moisture, creating a nice habitat for organisms that 'till' the soil and through decomposition improve the soil. Improved soil means an improved growing environment for crops. Crop rotation helps to control pests and weeds and to build up soil nutrients.

Conservation agriculture minimises the most expensive inputs but does not necessarily forego all synthetic inputs. It is characterised by the precise concentration of inputs on each individual plant; its adaptability is high and the combination with other approaches is easy; sustainability is most important. It can be considered an intermediate between conventional and organic farming and is a necessary step in the transition to organic agriculture.

Q: Where can it be practised?

Conservation agriculture works everywhere. Conservation farmers grow all sorts of crops on all sorts of terrains under all sorts of climates.

Q: What are the benefits?

Farmers who use conservation agriculture techniques can expect many benefits:

- Less effort
- Less expense
- More income
- A more stable farming situation

Less effort: Tilling the soil is one of the biggest farming tasks. By not tilling the soil, farmers can save between 30 and 40% of time and labour. In addition, farmers do not need to spend much time weeding, since most of the land is never ploughed so weeds get no opportunity to seed.

Less expense: Farmers save money by not having to spend so much on external inputs like fertilisers and herbicides. They also save on labour costs and, if they own machines, on fuel, machinery operating costs and maintenance.

More money: Conservation agriculture improves soil productivity. Organic matter increases, soil structure improves and the soil holds more water and is richer in nutrients. All these things create a better growing environment. As a result, farmers can dramatically increase their yields. In addition, because they do not have to put energy into tilling, they can plant a larger area of land.

More stable farming situation: Using conservation agriculture creates a more resilient land, better able to withstand seasonal droughts and floods.

Farmers can farm the same land for generations, and even bring degraded land back into productivity, no longer having to move to find new land to farm. They can also count on having sufficient labour since the tasks to prepare the land are spread over several months, rather than being done at once.

The benefits extend beyond the farmer: Conservation agriculture enhances biodiversity by creating habitat for pests and species that feed on pests. The soil's improved ability to absorb water results in less surface runoff and therefore much less soil erosion, reduced groundwater pollution due to erosion and reduced flooding. As well, the soil becomes a 'carbon sink,' an important consideration with rising levels of carbon dioxide.

Q: Are there drawbacks?

Weeds and pests can be a major problem initially and good integrated pest management procedures will be needed. As well, it will take time for soil to improve. Three to seven years may be needed for all the benefits to take hold. But in the short term, farmers save on production costs and time and will get similar or better yields than with conventional systems.

PELUM's support for conservation agriculture for dryland farmers

Sunshine can produce heat, but luckily it cannot light fires. Only if you concentrate the sunlight of a coin-sized magnifying glass on a spot with a diametre of a millimetre, can you produce enough heat. It's what we call focusing, and it is the secret of success. You might do everything right in your life, but if you do not focus on doing the right things and not doing unnecessary things, you never succeed. Conservation agriculture means focusing.

Do less to achieve more

Instead of digging or ploughing and harrowing the whole field, you scratch narrow furrows, deep enough to break the plow/hoe-pan and leave the rest of the work to the bacteria, termites and earthworms. Instead of broadcasting seed and organic fertiliser, you sow and apply it in basins or rip-lines.

Modern farmers do not till the soil any more. They drill their seed and organic fertiliser directly under mulch and stubble of the last season. No work, no synthetic fertiliser and no rainwater for the weeds!

Moreover, the same rip-line or basin is used every year and improves every year, becoming soft and fertile, with termite tunnels for the crop-roots deep into fertile and moist horizons of the earth. The first year is the hardest as the farmer breaks the hoe-pan.

Small-scale farmers rely on manual labour or oxen. Their capacity to cultivate big surfaces is limited. To succeed, they need to get maximum profit per *hectare*. Large- scale farmers need to get maximum yield per *farm*. Their hectare yields also need to be high, but their profit per hectare is normally smaller than that of their small neighbors, because of huge costs related to mechanisation, fuel and inputs.

Crop rotation is crucial. For example, cotton uses the remaining nitrogen from a maize field while the decaying roots of cotton prepare for a soyabean crop. The soya beans fix nitrogen for the maize.

PELUM and CA

PELUM stands for Participatory Ecological Land Use Management. If small-scale farmers want to participate in food production, they need to wisely utilise nature's free services. Ecological means that the sun, the termites, nitrogen-fixing plants, earth fungi and organic matter are fertilising fields for free. Conservation farmers work in the dry season, they catch every drop of rain for their crop, when conventional farmers are starting to till the land. They have time to sow, while others are getting overwhelmed by work and weeds.

Trainers learn to prepare a field naturally fertilised and protected by sunhemp.

Nevertheless, even farmers who know about conservation agriculture do not practice it fully. This is because farmers have to hire some tilling services to increase the size of their hand-hoe fields. The tilling services do not have enough rippers and the farmers like the clean look of their fields after ploughing. Many farmers weed too late so that their weeds re-sow themselves every season.

Conservation agriculture is the answer

PELUM started conducting courses in conservation agriculture. Farmers start to work in heavily mulched fields, they smother weeds through sunhemp, cow-peas and other cover-crops. They learn how animals make highly fertilising manure-compost. They compost their fields, not wasting any of their farm-made fertiliser. They do not allow the sun or rains to damage their manure.

In Zambia, manure-applying conservation farmers get an average of five to six tonnes of maize per hectare plus a harvest from their cover-crop. On the other hand, conventional farmers who use conservation methods but apply synthetic fertiliser and herbicides have three to four tonness. Conventional farmers who use conventional tillage have less than one-and-a-half tonnes and high production costs, reducing their profit often down to losses.

PELUM promotes organic conservation agriculture because it reduces labour (particularly for women), utilizes rainwater, creates independence from external inputs and provides climate resilience, food and cash.

For more information, please get in touch with Wilfred Miga, the regional desk's new agriculture and rural development officer (wmiga@pelum.org.zm).

By Martin Bertram, PELUM Regional Desk

> **The 120,000 Zambian households already trained in conservation farming (9.5% of all crop-growing households) are harvesting 40-120% more on their land than the average conventional farmer.**

Organic CA is the way to go

Plant growth regulators and genetically modified organisms can be used in conventional conservation agriculture but they are not at all accepted in organic farming.

Organic conservation agriculture relies mostly on ecological processes, biodiversity and cycles such as nutrient cycles, adapted to local conditions, rather than use of external inputs that are expensive and have adverse effects. It combines tradition, innovation and science to benefit the environment.

The mulch that is left after harvesting is looked at differently in the two systems. In organic farming, it helps to supply micro-nutrients to the soil at the same time providing cover for the soil organisms. In conventional farming, the nutrients are mainly sourced from bought-in synthetics which destroy rather than help the soil and the mulch is only for soil cover.

Pests and disease in organic conservation agriculture are controlled using environmentally friendly amendments. Beneficial insects and organisms are used as well as other botanicals but in conventional farming these beneficial organisms and insects are killed with the different chemicals that are used.

It is more cost-effective to produce crops using organic conservation agriculture as one will mainly utilise locally available resources such as seeds and manure. With climate change disrupting agricultural productivity, organic conservation agriculture systems are highly adaptive to climate change due to the application of traditional skills and farmers knowledge, soil fertility-building techniques and a high degree of diversity, which are not considered in conventional conservation agriculture.

By Wilfred Miga, PELUM RD

Training in conservation agriculture

A recent training we organised brought together knowledge and skills from around the region to facilitate learning and teaching in the best natural farming practices

The six-day intensive training in organic conservation agriculture was held in March 2010 at Kasisi Agricultural Training Centre and was attended by a total of 32 trainers from Lesotho, Malawi, South Africa, Tanzania, Zambia and Zimbabwe.

Each participant brought their own expertise and experience to the group, making this training an exciting opportunity for the development of ideas and practices from around southern Africa. The course was designed to give all the participants a chance to share and learn from each other in a structured way. Each participant was told the course was a practical training with at least 65% of the training to be done in the field.

The course began with the introductions and expectations of the participants, focusing on where the participants were from and what they wanted to learn from the course and each other. As was expected, the group was full of knowledge, experience and passion to learn more. From there, there was a brief introduction to sustainable agriculture, from the beginnings of agriculture to present day thinking on best practices from around the world. Following that, the participants were given an overview of the conservation agriculture system as developed for small- and medium-scale farmers by the Zambian Government's Conservation Farming Unit and their many partners. The main points were discussed amongst the group including many interesting topics relating to the system as seen and understood by the participants in their experience.

Experienced trainers in conservation agriculture were then asked to demonstrate the practices relating to the theory which was discussed. The chaka hoe and magoye ripper were discussed as means of alternative ground

Participants at the recent training event.

preparation for small- and medium-scale farmers in southern Africa.

The practice in the field

The practical aspect of the course started with a trip to a field with a standing green manure crop of sunhemp (crotalaria juncea). This two-acre field was to be used throughout the course for the practical lessons. Three stations were established with two experienced trainers, training their fellow trainers in methods of managing green manure residues, A-frame construction and making spacing sticks, pegs and spacing ropes for the marking out of conservation agriculture permanent planting basins. This was to be the structure of all the practical learning sessions: trainers training trainers in their area of expertise.

The field work continued with experts in field preparation giving training on making permanent planting basins using the chaka hoe and ripping using the magoye ripper for donkeys, oxen and tractor, all of which were provided by the training centre.

Residue management combined with late weeding proved to be vitally important in making the ground preparation easy. Moving the residues away from the rip and basin lines was needed to make the job possible, as was proved by the angry white oxen when it pulled the ripper through the residue while trying to head-butt the person who was leading it! The residues piled up around the ripper beam, making ripping impossible.

Every participant had a feel for each method and practice before going back to the classroom to discuss the theory and benefits of reduced tillage and sub-soiling.

The training continued with a brief introduction to soil and soil fertility improvement using organic methods, then a practical in 'low labour' compost making. The three stations were one group cutting and transporting grass for bedding for the night shelter for livestock, another group making a small livestock shelter and the last group making compost with bedding mixed with manure, lime, ash and termite clay.

The work was tough and participants finished the structure and five-tonne compost heap just before dark.

The practical on compost and lime application as a basal application in the basins and rip-lines using buckets, hand carts, grain bags and donkey carts continued the next day. The compost was got from the training centre where compost is made on a large scale for use on its commercial organic fields.

The three groups were focusing on application rates in basins and along rip-lines for lime and compost; for different crops, backfilling was done to cover the compost and mix the lime – ready for planting! This was followed by a theoretical session on best methods for transporting organic materials on the farm and how and when to apply them to different crops.

Crop spacing and planting

Theory took the group through crop spacing and planting depth for maize, sorghum, millet, cotton, soya beans, groundnuts and sunflower in both basins and rip-lines and the practical saw the three groups applying the theory in the field, planting the six crop types correctly, under the supervision of the specialist trainers.

The seed coat is being grinded off to allow for easier germination.

Making holes in a plastic bottle for tree irrigation.

The participants also took a field trip to Moses Mulenga's farm to see the organic conservation agriculture methods in practice in his six-hectare field. An inspiring talk and walk through the fields made the learners smile, laugh and compliment Moses for his efforts.

Later the participants made out contours with A-frames and digging swales on slopes near the river at the training centre gardens. They also practiced in detail the techniques involved with weed control, top-dressing and under-sowing green manure crops. All these techniques go together in one operation to make the best use of labour. The theory of weed control for annual and perennial species was also discussed in detail.

The participants also discussed liquid manures as organic top dressing. Rates and possibilities were discussed and the practice of options was done in the field.

The last day of the training was dedicated to agro-forestry. Propagation and management methods for winter thorn (Musangu), Sesbania, Leuceana and Jatropha were discussed and practiced.

By Sebastian Scott, the lead facilitator for this training.

> "I am so grateful for the opportunity to attend this most useful course. The experience I have gained will enable me to improve my lessons straight away, better support schools who want to expand their fields and produce extra crops to sell, as well as assist large schools which have many people to feed. I'm motivated to do some research in my own garden (to adapt methods to our climate and soils) and then go out and share what I've learnt. Hopefully, I will also be able to help neighbouring small-scale farmers to increase their yields through practicing conservation farming methods. This information will always come in handy, I will be able to use it where ever I go for the rest of my life."
>
> *- Jessica Dreamtime, workshop participant and food gardens facilitator for the Midlands Meander Education Project* *(see page 16)*

Participants had the chance to practice using a magoye ripper.

Everything old is new again

Conservation agriculture is no new wheel being invented. Instead, farmers are going back to the old way of farming, as a PELUM Uganda member explains.

Conservation agriculture is not a new system in Uganda. Most farmers acknowledge that in past decades it was considered a taboo for one not to mulch their gardens.

Conservation agriculture proponents preach their gospel around minimum tillage and mulching so as to keep the soil full of living organisms, conserve moisture and ambient soil temperatures favourable for plant growth, increase organic matter levels and reduce reliance on cultivation. In most of the crops grown under conservation agriculture, farmers use very little or no mechanical equipment for cultivation. This is aimed at avoiding destroying soil structure and keeping the flora and fauna intact. Most farmers use hand hoes. Hand hoes are better suited than mechanised systems of farming. The farmers know that mechanised farming promises high yields in the initial years but later the yields reduce as the soil structure is destroyed. This is, however, not the case with conservation farming.

Diversity

Traditionally, every farmer produces a diversity of crops. In maize gardens, farmers plant sesame and other plants. Some of these crops are planted specifically to act as nurse crops. Certain pests and diseases prefer some plants to others. The presence of a nurse crop reduces the severity and occurrence of certain pests and diseases. This is termed integrated pest and disease control under modern conservation agriculture. It is imperative to point out that mixed crops and intercropping are traditional techniques that are applied to spread labour requirements during planting and harvesting. Most farmers have little financial muscle to plant different crops on different plots of land and sometimes the land itself is limited. In cereals, legumes tend to improve on soil fertility through their property of nitrogen fixation.

Based on the systems practiced traditionally, both traditional and conservation agriculture augment one another both in principle and operation. Since most of the practices under conservation agriculture are not necessarily new but just an emphasis on traditional ones, conservation agriculture has its roots anchored on traditional practices as they both look at soil productivity, co-existence of organisms and environmental quality.

A tree nursery. Agro-forestry is an important part of conservation agriculture.

Traditional practices

Concoctions used in conservation agriculture are applied in traditional farming. Most farmers apply ash on their crops like banana plantations and on leaves of those in the solanacea family (bitter berries and tomatoes). This does not only add nutrients to the soil but is an environmentally friendly way of managing pests and diseases. A mixture of animal urine, tobacco leaves, water, ash and pepper is fermented and applied around the banana stool to control weevils.

Farmers plant nurse crops that reduce pest effect on the required crop. In bananas, for example, traditional farmers plant red pepper. This helps in taming the pests which would otherwise impact negatively on the crop. Alternative hosts offer the pest with a wider variety of options (in most cases the nurse crops planted are more nutritious than the traditional crops).

Farmers who practice traditional farming, with a low resource base, rely on natural herbs planted along with crops to manage pests. They use different tree species for different purposes. In vegetables, farmers use a thin film of cassava and spray it on the vegetable. The thin film will stick on the leaf or any sprayed part and eventually suffocates the pest to death. This explains the many trees, herbs and shrubs planted in farmers' gardens. Agro-forestry is highly recommended in both traditional and conservation agriculture. Agro-forestry tree species, which offer a wider range of benefits to the farmer, are planted in nurseries before they are transferred to the main garden.

Crop rotation is a traditional technique that is highly emphasised in conservation agriculture. Most subsistence farmers alternate crops seasonally. They know that maize cannot grow in an area millet has just been harvested. This is in agreement with the scientific facts that crops in the same family or those with similar pests and diseases and similar soil requirements should not follow each other in a rotation.
Early planting, which is one of the pillars of conservation agriculture, is but a traditional farming practice. Most of the farmers practice rain-fed agriculture and have to harness early rains. Using the early rains helps the farmers have high yields and reduce severity of pest and disease attack. Farmers are cautious of the planting materials they use. During planting and/or sowing, clean good quality seeds or cultivars are selected. This is basically due to the belief by farmers that clean planting materials lead to healthy plants that are disease-free (or less susceptible to diseases) and pest resistant.

Soil and water conservation practices are encouraged. Soil and water conservation practices are the pillars upon which traditional farming is anchored. Farmers use mulching, contour ploughing, strip cropping and other water harvesting techniques. Mulching helps in containing water run-off, preserves the soil moisture relatively longer, reduces development of a hard pan on soil surfaces (mulching reduces the chances of soil capping) and reduces soil damage due to splash erosion. Under conservation agriculture, we promote *fanya juu* and *fanya chini,* the making of terrraces. Farmers make contours upon which a band of legumes and grasses is planted to reduce water run-off. In highly waterlogged areas, water run-off is channeled to such sites in the garden where it might be put to optimal use.

Farmers' attitudes

The majority of the farmers are positive about conservation agriculture as the practices implemented are similar to

traditional ones. Most practices under conservation agriculture are known to the local populace in certain communities. They can easily be copied from community members and tried without a lot of technical knowledge. From the principle of homophilly, it is clear that human beings learn a lot (mainly innovations) from their colleagues. Dwindling yields due to variations in climatic patterns are prime issues that make farmers embrace conservation agriculture. Since one of the tenets of conservation agriculture is upholding the integrity of the environment, many farmers now look at conservation agriculture as a cure to climate change.

However, due to the fact that some practices fail to work as expected, coupled with farmers' failure to get a premium price for products under conservation agriculture compared to conventional ones, some have reservations about it. This has indelible impacts on its adoption. Conservation agriculture needs to be effectively practiced to be reliable and able to offer tangible benefits to farmers for its adoption to be sustainable. For subsistence farmers, survival is the prime reason upon which they adopt conservation agriculture.

By Geoffrey Kaluya, crop and animal husbandry officer at Integrated Rural Development Initiatives, a PELUM member.

Southern dioceses showing the way

Recent floods and droughts have prompted Caritas Zambia to come up with strategies to ensure that farming communities have basic food despite the unpredictable climatic conditions.

From 1991 to date, Zambia has been hit by four major droughts. The country has also experienced some floods. The droughts have occurred more in the agro-ecological regions I and II, while floods have affected all the three regions of Zambia. The frequent occurrence of droughts has led to a drastic fall in the agricultural productivity of Zambia and Southern Province in particular, which was the breadbasket of Zambia for many years.

Drought and food insecurity

Southern Province became more vulnerable when the first major drought hit the country during the 1991/1992 agriculture season with subsequent droughts in the 1994/95, 2001/02 and 2004/05 seasons further worsening the situation.

Unlike other parts of Zambia, the Southern Province does not have an abundance of water resources, hence its dependency on rain-fed agriculture. In the event of a drought, the province experiences a lot of crop failure, exposing the people to greater vulnerability and as such the people have over time developed coping mechanisms to survive.

Among the coping mechanisms is charcoal burning which leads to deforestation, a reduction in soil protection and an increase in run off and siltation of streams and rivers. Evidence on the ground also shows that Southern Province has been hardest hit by the droughts because farmers were using poor methods to grow crops that destroyed their land and undermined their future.

Positive actions to combat poor conditions

Caritas Zambia has been involved in conservation agriculture (*bulimi bwa tulindi* as it is commonly known in Southern Province) through its sustainable livelihoods programme.

In order to achieve its mandate, Caritas Zambia works in collaboration with the Diocesan teams at community level. This supplements government efforts to try to provide basic human life sustaining goods such as food and income, and ultimately contribute towards poverty reduction. The programme is also responsible for promoting conservation agriculture in all 10 dioceses across Zambia. Caritas Zambia promotes conservation agriculture as a means to achieve sustainable agriculture.

The two southern dioceses of Monze and Livingstone have been very active in the efforts of conservation agriculture promotion. Evidence on the ground indicates that adoption levels are high in these dioceses. Farmers in these dioceses start preparing themselves for the next farming season as early as May, immediately after harvest. This is a sign of total dedication and conviction that conservation agriculture is working for them.

The farmers in the southern dioceses now use this theme:

Give to the land and it will also give to you.

Conservation agriculture is yielding results

The results of using conservation agriculture in Monze and Livingstone Dioceses cannot be over-emphasised.

Household food security, which most farmers had lost as a result of crop failures, is no longer an issue. Households now have enough food crops for consumption to last them throughout the year and even have surplus to sell. Income security is attained after the sale of surplus produce and households are able to take their children to school as well as to provide for them in terms of basic needs.

The crops do not suffer as much

stress when moisture reduces or drought spells occur.

The dioceses have carried out some agro-forestry activities such as promoting woodlots, soil improvers and fruit trees among others. Among the trees planted are ltephrosia vogelii, faidherbia albida (Musangu), oranges, mangoes, sesbania sesban, leuceana, musikili, gliricidia sepium and legumes.

However, the dioceses have gone an extra mile to work closely with organisations like the Ministry of Agriculture and Cooperatives, PELUM and the Government's Conservation Farming Unit, which promote conservation agriculture to ensure sustainability.

The conservation agriculture technologies have proved to be very effective, easy to follow and they work for our small-scale farmers. Farmers who have adopted them have overcome the problems of input costs by using fewer inputs and by planting early.

Environmental degradation is caused by man's poor relationship with the environment. Conservation agriculture is helping to change this. There has been improved soil fertility while charcoal burning has reduced now that farmers can rely on farming again. Many farmers in the southern dioceses have genuinely benefited from conservation agriculture and it can be seen from their faces.

Why Caritas promotes conservation agriculture

There are many reasons Caritas Zambia promotes conservation agriculture, such as the following:

Caritas Zambia focuses on natural resource recycling as opposed to conventional farming that is not environmentally friendly and a danger to the ecosystem.

Conservation agriculture is used as a coping strategy for the small-scale farmers that are affected or infected by HIV and AIDS because they can spread their labour over a period of months while they also tend to the patient at home.

It is good for female-headed households and the aged that do not have access to farming implements and assets such as cattle to plough the fields at the onset of the rainy season.

It is a means of attaining household food security for the poor farmers who cannot afford to buy fertilizer in the required quantities Even with little manure, one can produce enough due to the concentration of the manure in the basins.

Caritas Zambia is promoting conservation agriculture combined with agro-forestry and rotation with leguminous plants/crops as a way of reducing the cost implications of buying fertilisers for poor households. Legumes are harvested by January, providing the much needed proteins.

It should be emphasised that conservation agriculture highly recommends the use of manure as the best fertiliser for crops. A farmer just needs four tonnes (four scotch carts) of manure per hectare.

Conservation agriculture has brought back the dignity of the small-scale farmers from receiving handouts (yellow maize and peas) to self-sustenance throughout the year. **It works.**

By Mirriam M. Mwiinga at Caritas Zambia, a PELUM member.

Some participants at one of the trainings conducted by Caritas Zambia.

CA research findings put to use

Research Into Use Zambia (RIUZ) is focusing on supporting mechanisms that are aimed at scaling up the use of technologies, practices, processes and policy options in conservation agriculture and also collaborating with stakeholders in an effort to conserve natural resources through providing alternative sources of livelihoods for communities.

To achieve this purpose, RIUZ is promoting the enhancement of demand for and putting into use conservation agriculture-related outputs of renewable natural resources research strategy (RNRRS) and other research for the benefit of the poor. It is also learning by generating evidence about getting conservation agriculture research into use and sharing lessons and supporting policy dialogue.

In supporting the scaling up of conservation agriculture, RIUZ is largely contributing to the following four innovation narratives, with some degree of overlap.

Capacity development

The RIUZ is supporting development and strengthening of district stakeholder innovation platforms to increase stakeholders' participation, interaction and co-learning/sharing of experiences and best practices. This is being done to increase demand and use of conservation agriculture-related RNRRS and other research outputs. These fora are also designed to promote functional linkages among conservation agriculture actors including public sector, private sector, NGOs/CBOs and the media so that there is a coordinated and more effective approach in the targeted districts of Chipata, Petauke, Monze, Kalomo and Kazungula.

Green manure, cut for field preparation.

Public-private partnerships

The programme is supporting the draft power animals voucher system to improve access to draft power services (minimum tillage) for small-scale farmers in order to enable them to expand their fields. The use of the voucher system to deliver draft power related technologies to farmers enables the involvement of local private sector actors in the conservation agriculture input market and guarantees sustainability in the long term. Two private sector actors participating in this intervention in Chipata and Monze districts are selected farmers that are being assisted to transform into minimum tillage service providers to other farmers in their respective areas.

Research communication

RIUZ is supporting the production and broadcasting of innovative radio programmes using alternative (local/community) media outlets. RIUZ is working with Panos Institute of Southern Africa to promote conservation agriculture through community radio stations including Breeze FM, Sky FM, Radio Maria and Kwacha Kumawa.

Investment-led support

The programme has also partnered with Community Markets for Conservation to support the rice value chain in Northern Province . This intervention is expected to contribute to the conservation of natural resources as it offers an alternative source of livelihood for the local community. This will contribute to reduction in using destructive farming systems such as 'chitemene' – cutting down trees – and commercial charcoal making for food security and incomes respectively. In addition, RIUZ is supporting rice value chain stakeholder forums to enhance collaboration, linkages and coordination in responding to the challenges identified along the value chain.

In all the interventions, RIUZ has an innovation coalition which brings together sector stakeholders (public, private, civil society, media, research and academia, among others) at national level to discuss the progress, share the lessons and support the country team in leveraging policy-related issues in order to enhance the scale-up of conservation agriculture among small-scale farmers.

By Victor Makasa, Country Coordinator, RIUZ

The value of amigos

The story of a Brazilian organisation reveals the important role farmers can play in helping to spread conservation agriculture.

No country is farming a greater percentage of its land through conservation agriculture than Brazil. One organisation has played a major role in bringing about widespread, rapid adoption of the techniques: a farmer-led organisation, the FEBRAPDP, or Brazilian Federation for Direct Planting into Crop Residues.

The federation was set up in the early 1990s as the Zero-Tillage Association for the Tropics by several dozen farmers and technicians. They realised zero-tillage had great potential – the results of research and small-scale efforts over decades in the country had convinced them – but they felt there was not enough research out there on using it in tropical climates or facilitation to help farmers convert from the traditional methods.

Some reasons zero-tillage grew so rapidly in Brazil:

- **Appropriate knowledge was available in the region**
- **Effective farmer-to-farmer extension learning existed**
- **Good, practical publications were available**
- **Farm-tested and cost-effective technology was used**

While zero-tillage was attractive to farmers, the main obstacles to adoption were the lack of knowledge, information and technical support.

Establishing a network: the *Land Club*

The obstacles were overcome through establishing a network of clubs, the Clubes Amigos da Terra, or 'friends of the land clubs'. The clubs set up monthly farmer-to-farmer exchanges of experiences, through field days and debates, to help farmers new to the techniques. The federation served as a central support organisation to these self-managed, non-profit, non-commercial and non-political clubs. The clubs also organised on-farm research and pilot projects which helped to increase learning.

At the same time, the federation held a number of major conferences and built good relationships with government, the private sector and some NGOs and universities. Knowledge grew and spread.

After a few years, farmers resolved many early adoption challenges and, through the help of the clubs, were able to turn to more specialist advice. Through the clubs and the federation, medium and large farmers assisted small-scale farmers.

Like us, Brazilian farmers have realised the importance of learning from each other.

And the technologies the large farmers had created were adapted to small-scale farmers.

Within a few years, the federation became a significant force in the region and had achieved a reputation for technical leadership in tropical zero-tillage.

Today, the federation continues its good work. And the clubs have begun to develop into significant local pressure-groups lobbying for better policies and processes to support conservation agriculture.

It has been an approach combining mutual-help, farmers actively promoting conservation agriculture and support from the private sector.

The approach has been spectacularly successful. Since the early 1970s, Brazilian farmers have been switching to zero-tillage farming and today, more than 23 million hectares, or 60% of cultivated land, is under zero-tillage.

By Estelle Taylor, PELUM RD

Some organisations involved in CA

PELUM Members
Zvishavane Water Project, Zimbabwe
Joint Effort to Save the Environment, Uganda
Caritas Nebbi, Uganda (www.uecon.org/Nebbi.html)
Caritas Zambia (www.caritaszambia.org.zm)
Golden Valley Agricultural Research Trust, Zambia (www.gartzambia.org)
Integrated Rural Development Initiative, Uganda (www.irdiuganda.org)
Rwanda Rural Rehabilitation Initiative (www.rwarri.org.rw)
Fambidzanai Permaculture Center, Zimbabwe (www.fambidzanai.org.zw)

Non-PELUM Members
African Conservation Tillage Network, Kenya
Agence Française de Développement
Association for Strengthening Agricultural Research in Eastern and Central Africa
China Agricultural University - Conservation Tillage Research Centre
Common Market for Eastern and Southern Africa
Conservation Agriculture - Knowledge and Information Management Forum
Conservation Agriculture for Rural Development
Conservation Farming Unit of the Zambian National Farmers Union
Economic Community of West African States
Empresa de Pesquisa Agropecuária e Difusão de Tecnologia de Santa Catarina
European Conservation Agriculture Federation
Food and Agriculture Organization of the United Nations
French Centre for International Co-operation and Agricultural Research for Development
German Development Cooperation
German Ministry of Food, Agriculture and Consumer Protection
Global Forum on Agricultural Research
International Centre for Research in Agroforestry (World Agroforestry Centre)
International Crop Research Institute for Semi-Arid Tropics
International Fund for Agricultural Development
International Maize and Wheat Improvement Centre
International Water Management Institute
Kenya Agricultural Research Institute
Kenya Conservation Tillage Initiative
Ministry of Agriculture and Cooperatives in Zambia
Ministry of Agriculture and Food Security, Tanzania
Ministry of Agriculture of the Republic of Kenya
New Partnership for Africa's Development
Professional Alliance for Conservation Agriculture in India
Research into Use Zambia
Selian Agricultural Research Institute, Tanzania
Soil Conservation and Amelioration Project Arusha, Tanzania
Southern African Development Community
Swedish International Development Cooperation Agency
Zambia Agricultural Research Institute

These organisations are just some of the many that can help you learn more about conservation agriculture. Get in touch or contact PELUM country offices, whose staff can also help.

News on conservation agriculture

PELUM to produce a conservation agriculture 'cookbook'

PELUM, with financial support from Research Into Use Zambia (RIUZ), is in the process of producing a conservation agriculture manual, or 'cookbook'. The manual is intended to provide practical reference material on conservation agriculture for farmers and field workers.

This manual is being produced following a training of trainers' workshop that PELUM organised for farmer trainers from Lesotho, Malawi, South Africa, Tanzania, Zambia and Zimbabwe. The book will utilise the knowledge (theoretical and practical) that participants shared at the training. The manual will contain details (because the devil is in the detail) about the most crucial topics in conservation agriculture:

- minimum tillage with hoe, oxen- and tractor-ripper
- weed control, cover crops, fallows, mulch and sunhemp
- on-farm fertiliser production
- the use of some agro-forestry plants

Legislators embrace conservation agriculture

Members of Parliament (MPs) from the Common Market for Eastern and Southern Africa (COMESA) member states and from Botswana and Lesotho have endorsed conservation agriculture as a viable and sustainable agricultural system. They reckon that if properly applied, conservation agriculture can lead to increased farm yields and the attainment of food security at the household, national and regional levels.

The MPs came to this decision during a regional conservation agriculture study tour for policy and decision makers jointly organised by COMESA and the sub-regional office of the Food and Agriculture Organisation, held 24-25 March 2010 in Harare, Zimbabwe.

CA yielding results

A farmer in Zambia has found that conservation agriculture has improved his yields and made his family food secure.

Mr Elleman Mumba grows maize and groundnuts on his small plot of land in Shimabala, south of Lusaka. His wife had received free training in conservation agriculture and persuaded him to try it. Before he adopted it, he says that his yields were low and he had to rely on food handouts and relief food.

Mr Mumba started using a chaka hoe, digging a series of shallow rectangular planting basins in his field during the dry season. It was a tough job to break the sun-baked soil, but he persevered, and was ready to sow his seed with the first rains. He followed the research advice that for each day's delay, the potential yield shrinks by between 1% and 2%. The basins are always

Participants at our recent training, making a-frames

dug in the same place, so digging becomes easier with each successive year. Weeding takes less time because manure is applied only to the basins and not the whole field.

The crop flourished in spite of low rainfall and some of Mr Mumba's neighbours regarded his success as the work of witchcraft. That season he had enough maize harvest for sale and was able to pay school fees for his children.

Source: Nigeria Daily News

Accenture grants funds for conservation agriculture skills

Accenture announced at the end of April that the Accenture Foundations have awarded Concern US $1.5 million to fund the development of conservation agriculture (CA) programmes in Zambia and Malawi. The grant will be used to educate and assist local farmers and communities in sustainable farming practices. The three-year Concern project will train 6,400 farmers in Malawi and Zambia in CA techniques. Local trainers will provide participating

farmers with the skills necessary to attain food security and harvest surplus produce.

"This is one of the largest single private sector grants received by Concern in recent years for the support of one specific project," said Concern chief executive, Tom Arnold.

"This project is all about encouraging and training farmers to take a radically different approach to crop production. We have good evidence from our work in Zimbabwe that conservation farming leads to higher crop yields and therefore increased food security. We are delighted that Accenture is giving us the opportunity to develop conservation agriculture skills with farmers in Malawi and Zambia. I believe that this project will not only equip thousands of farmers and their families with new skills and a sustainable future, but will also enable parents to save enough to send their children to school every year."

Source: MarketWatch

Arumeru farmers change to conservation agriculture

For Abraham Richard Laiza, farming the conventional way was no longer viable because it choked up much of his time, demanded more of his energy but at the end of the day, yields were low and unpredictable.

"Most of the villagers harvested nothing last year because of drought, but I was lucky. I harvested maize and pigeon peas," said 27-year-old Mr Laiza, who has an acre cultivated under conservation agriculture.

Earlier this yer Mr Laiza briefed the United States Ambassador to United Nations agencies, Ertharin Cousin, saying that conservation agriculture is the future of rural life in Tanzania. Mr Laiza said while he harvested seven bags of maize and two more of pigeon peas, his neighbours who cultivated using the old method of farming got nothing.

Mr Laiza is also chairman of Parachichi Conservation Agriculture Farmers Field School at Karangai village in Arumeru district. Arumeru district is one of the areas in Arusha region which has experienced persistent drought for the past three years due to the effects of climate change. In order to salvage rural dwellers from the effects of global warming which have cut short rainy seasons, caused regular droughts and eroded soil fertility, the Tanzanian government and donors came up with conservation agriculture and rural development project.

Among other things, the project, which is funded by the German Ministry of Agriculture and Consumer Protection, involves three key principles of land management, development of permanent soil cover and minimum soil disturbance during cultivation. An important partner in the project is Arusha-based Seliani Agriculture Research Institute (SARI), which has conducted research on drought-resistant maize varieties, trained field staff on the new form of farming and followed up on outcomes from fields.

Dr Hussein Mansoor, a researcher from SARI, said not only is conservation agriculture profitable and reliable, it is also sustainable because farmers do not have to till whole acres of land for planting which exposes the soil to erosion by rainwater.

Source: Daily News of Tanzania

Mr Richard Laiza (left in suit) briefing Ambassador Cousin (in dark glasses) on conservation agriculture equipment. (Photo courtesy of the US Embassy in Rome).

News from PELUM Association

Workshops help to mainstream gender and HIV and AIDS

PELUM Regional Desk held workshops in Zambia and Zimbabwe recently to enable organisations to mainstream the issues of gender, HIV and AIDS, because mainstreaming these issues are critical for farmer success.

"Women play a crucial, major role in small-scale farming but they do not always have a strong voice over decisions. Farmers need to be healthy to undertake their important work but HIV and AIDS is making many of them sick. We hope these workshops will help our member organisations to help to address these two problems," says Lea Acallar, the regional desk's gender, HIV and AIDS officer.

In Zambia, one workshop in January was with the Mthila Kubili Sustainable Agricultural Program in Zumwanda in Lundazi, which has 100 farmer groups. The other workshop, in February, was with the Kaluli Development Foundation in Sinazongwe. In Zimbabwe, the workshop was organised for PELUM members.

The process was interactive and participatory, with both facilitators and participants learning from each other. The sharing of experiences created a friendly atmosphere between women and men in the workshop. Discussions on the first day focused on gender relations and equal opportunities; on the second day, HIV among farmers, support for affected people and awareness-raising in the community.

Mainstreaming action plans came out of the workshops, with plans for creating gender policies and HIV and AIDS workplace policies. The workshops helped staff at the regional desk in updating its own gender policy.

Budget workshop held

Thanks to PELUM Zambia and the Institute for Democracy in Africa, organisations in Zambia are better equipped to influence the Government's budget so that farmers' needs are taken into account.

The two groups organised a two-day workshop in May on monitoring budgets and tracking expenditure. A couple of dozen PELUM Zambia member organisations, as well as staff from PELUM RD, attended.

"It was amazing how facilitators managed to humorously and yet in a technically simplified way present the complex concepts on budgets, budget analysis and public expenditure tracking, keeping us actively engaged throughout," said Agnes Yawe, CAL officer at PELUM RD.

The workshop introduced participants to the Zambia budget process, the roles of civil society organisations and entry points for influencing budget processes, community-based budget monitoring systems and budget advocacy.

The workshop was an eye opener to many about their potential role in enhancing public financial accountability and transparency.

This trained team provides an important group for PELUM Zambia's upcoming budget-tracking project, funded by DanChurchAid.

Working for family farmers - big campaign launches and we need your help

We are working with others to get an International Year of Family Farming declared by the United Nations.

The declaration will go a long way towards making people aware of the problems family farmers are having and the important role family farms plays in food security.

Family farmers in Africa face many challenges:

- Low investment in agriculture by African governments. For example, only five countries in Africa are allocating 10% of the annual budget to agriculture
- Lack of extension services
- Inaccessibility to appropriate technology such as irrigation equipment and ox-ploughs
- Heavy dependence on rain-fed agriculture, a problem being exacerbated by severe and prolonged droughts resulting from climate change
- High illiteracy levels, especially among women
- Lack of financial intermediaries in rural areas and therefore lack of access to credit
- Complex land tenure systems
- Gender disparity
- High post-harvest losses
- Poor linkages in commodity chains/lack of access to markets
- Health hazards: malaria, HIV and AIDS, which affect availability and quality of labour
- Land grabbing

We need an international year of attention on family farming because the challenges are felt in all continents – and they require concerted, international efforts to fix.

The campaign is being spearheaded by the World Rural Forum. So far, 280 organisations have supported the campaign. Of the 73 in Africa, about are PELUM organisations!

We will continue to encourage organisations and governments to support the campaign.

Take action: Please encourage organisations to support the campaign. A draft support letter and other campaign materials can be found on the campaign website: familyfarmingcampaign.net

PELUM organisations supporting the campaign

Kenya
Community Mobilization Against Desertification
Community Sustainable Development EMPOWERMENT Programme
Kima Integrated Community-Based Programme
Network for Eco-farming in Africa
PELUM Kenya
Sustainable Agriculture Community Development Programme
Youth Action for Rural Development

Malawi
Churches Action in Relief and Development
Greenline Movement
Lipangwe Organic Manure Demonstration Farm
PELUM Malawi

Rwanda
PELUM Rwanda

South Africa
Department of Agriculture and Environmental Affairs, province of KwaZulu-Natal
PELUM South Africa
Abalimi Bezekhaya

Tanzania
PELUM Tanzania

Uganda
Agency for Integrated Rural Development
Community Development Resource Network
International Centre for Tropical Agriculture
Jinja Diocese Development Coordinating Organisation
Joint Effort to Save the Environment
PELUM Uganda
Rural Community in Development (RUCID)
Rural Community Development (RUCODE)
Send a Cow Uganda
Sustainable Agriculture Trainers' Network
Uganda Environmental Education Foundation
Voluntary Efforts for Development Concerns

Zambia
Organic Producers and Processors Association of Zambia
PELUM Zambia

Zimbabwe
Africa 2000 Network

PELUM pushes for improved access to food

We're working to influence food security policies in Malawi, Tanzania and Zambia.

Under the "Innovation Africa" project funded by the European Union, the capacity of civil society organisations (CSOs) will be built to advocate for local and national food security policies which recognise and capitalise on the potential of pro-poor and local innovations. Ultimately, this should ensure that national food security policies are formulated via the development of local plans and research-based evidence to improve access to food for marginalised households in rural marginalised communities.

The project is targeted at organisations involved in food security. The final beneficiaries are the food-insecure population in the selected regions in Burkina Faso, Malawi, Niger, Tanzania and Zambia. These are mainly marginalised farm households.

The project will run for three years. An inception workshop has been held and activities planned.

After the project, CSOs will have developed local food security plans and strategies for influencing national plans, joined networks and partnerships to coordinate and share lessons and scale up good practices, and increased their capacity to support development on food security.

We're working on this project with ETC in the Netherlands, ODI in the UK and IED Afrique Senegal.

PELUM Uganda completes its farmer-led documentation project

For the past few years, PELUM Uganda - with the support of Oxfam Novib and PROLINNOVA - has been working on a major project to discover and share good ways of having farmers document their knowledge and practices.

'Farmer-led documentation', as it is called, is an empowering, participatory way for farmers to share practices about what works and what does not, as well as to share knowldge, values and beliefs – in order to improve their farming.

Farmers use group discussions, interviews, story-telling, drawings, music or dance to document their thoughts, recording them on tape recorders, cameras, video cameras, pen and paper or computer.

In March 2010, the project finished and a useful report -- containing case studies from Kenya, Tanzania, Uganda and Zambia, lessons and tips -- was produced.

Find out more: The report is on our website, www.pelumrd.org.

PELUM Kenya promotes indigenous foods

PELUM Kenya has been busy promoting indigenous foods. In February, in collaboration with INADES Formation, it organised an indigenous food exhibition among the Kamba Community in Kathonzweni Division. Earlier in 2009, alongside RODI Kenya and YARD, it organised and held community exhibitions in the lake region and central Kenya. Secondary school students as well as the local residents in various development sectors of health and agriculture participated. In all the exhibitions, trophies and gifts were awarded to the winning groups.

This spring PELUM Kenya aired a television documentary and a radio programme about indigenous foods. The television documentary can be found on PELUM's YouTube channel: youtube.com/PELUMAssociation.

The Midlands Meander Association Education Project

The Midlands Meander Association (MMA) is located in the KwaZulu-Natal Midlands, South Africa. For the past 25 years, MMA has worked on protecting the natural environment while assisting communities. In 2003, it launched the MMA Education Project (MMAEP) as one of its social and environmental responsibility initiatives.

The MMAEP's main focus is on educator support through co-teaching in many areas with a special focus on environmental education. Since its launch, 20 schools with over 3,200 learners are involved in the project. According to the programme coordinator, Nikki Brighton, the project is aimed at fulfilling the organisation's belief that everyone has a right to wholesome food, grown without harm and everyone should know how to grow their own food.

"Our vision is to help Midlands' schools nurture capable, confident and curious children, who are sensitive to environmental issues, have the resilience to cope with a changing world and are able to contribute positively to their communities," Ms. Brighton said.

Support for inclusion in the school curriculum

MMAEP supports educators in their efforts to include environmental topics in the curriculum as required by the Department of Education. It also encourages whole-school improvement by guiding children to deal respectfully with one another. "I used to think gardening was for grownups, but now I help my Gogo (grandmother) in the garden and it is fun. Do some schools still give pupils gardening as a punishment?" asked Gugu Nxumalo, a Grade 7 pupil at Carshalton School.

Fresh foods to feed learners

Learners are guided in making appropriate choices, avoiding over-processed and over-packaged goods. Traditional knowledge of wild foods is gathered through simple surveys in the surrounding communities and proves a popular topic, particularly at lunchtime when a delicious "wild" meal is shared.

"Every day we are able to give the learners something fresh to eat from the garden. At home they only know fried cabbage and they used to throw out the carrots, broccoli and cauliflower, but now they eat them. The children look so beautiful. You can tell they are getting something from this feeding scheme," says Linda Zuma, Principal of Cedara Primary School.

The MMAEP would like to improve the sustainability and yield of the gardens, encourage the planting of traditional food crops, promote the innovative use of available resources, and reduce reliance on outside assistance. Field workers encourage the use of permaculture. Through working in the gardens, a better understanding is fostered of topics such as health, ecosystems, resource use and team work.

By Marjorie Chola Chonya, PELUM Regional Desk

Schoolchildren showing that education can be fun.

A letter from John Wilson

I was in Matobo District in low-rainfall southern Zimbabwe last November, carrying out an evaluation exercise for a Christian Care programme in the area when Ma Ndlovu explained to me her interest in conservation agriculture: "I used to think I was not a farmer and could not be a farmer until I had draft power. Now I know I am a farmer. I am a conservation farmer. I can prepare my quarter-hectare plot gradually during the dry season and I am fully prepared by the time the rains come. I plant very soon after the first good, soaking rains."

"How did you start practising conservation agriculture?" I asked.

"I saw a couple of my neighbours' fields producing well in the 2007/08 rainy season and I asked them what they had done. They showed me exactly how to lay out the field and prepare the planting stations."

For a long time, high-input agriculture advocates have said that one cannot practice low-input or sustainable agriculture in seasonal rainfall environments without large amounts of manure, beyond what many farmers have. With conservation agriculture a compost heap of 2 x 2 x 2 metres will easily provide enough compost for a quarter-hectare field, according to the River of Life Training Centre, one of Zimbabwe's leading conservation agriculture institutions.

There are many different versions of conservation agriculture. I am talking about the conservation agriculture that organisations like the River of Life and Fambidzanai are promoting. This is conservation agriculture with compost (or manure), where one uses one baked bean-sized tin of compost per planting station. Planting stations are 60cm apart in rows that are 75-90cm apart, depending on the crop.

Monsanto, too, is promoting conservation agriculture; in fact, is trying to get carbon credit for it in the climate change talks. But this is conservation agriculture that includes widespread use of herbicides and chemical fertilisers and GMO seeds. This to me defeats the purpose. What are the chemical fertilisers and herbicides doing to the micro-organism life in the soil that lies at the heart of conservation agriculture?

Let us step aside and take a little look at soil micro-organism life. According to Elaine Ingham, whose organisation does extensive research into soil biology and the use of compost and compost teas, one gram of good compost can have 22,000 species of bacteria and 8,000 species of fungi. Species! And science has only named around 5,000 species of bacteria to date. If we start using herbicides and fertilisers, we will kill this very micro life that we are introducing into the soil and on which proper conservation agriculture is based.

I have stated elsewhere that in the short term Zimbabwe cannot feed itself without fertilisers. But we need to recognise that fertilisers, as fossil fuel derivatives, are not sustainable. While using them, in as small doses as possible, we need to be working on ways to phase them out. Conservation agriculture is one such practice that can help this phase-out but not if practiced in the way that multinational chemical companies are promoting it.

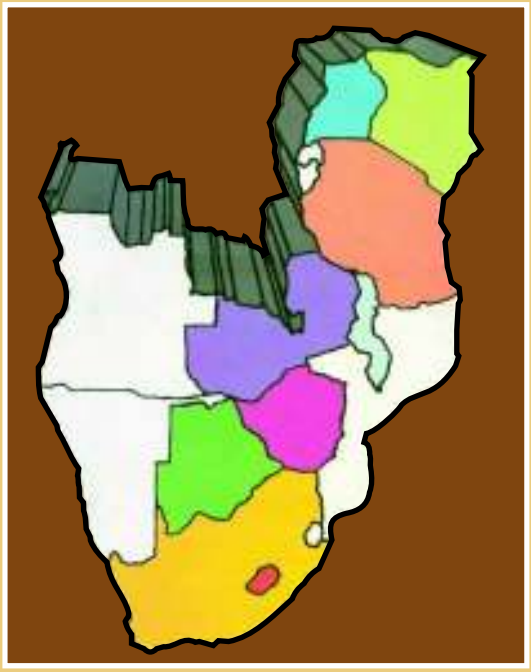
As we talk about conservation agriculture we must be very clear about what we are referring to. We also need to go further than the conservation agriculture that is generally being promoted. We need, for example, to look for intercrops to cover the soil better and to provide the diversity that is the basis of a healthy ecosystem.

Conservation agriculture is exciting because it provides a way for all levels of farmers to produce food crops effectively now. It is a short-term solution that is also a first step to longer-term solutions.

Mainstream agriculture's weakness of the last 50 years has been that it has focused on production only and has not looked nearly enough at sustainability. One critical part of sustainability is looking after the ecosystem on which all production depends. In our rush for production we have forgotten about such basics. Now we know that it just would not work to ignore nature's processes. We must work hand in hand with them. This is what conservation agriculture, using well-made compost, does.

John Wilson was PELUM Association's first coordinator.

PELUM country contacts



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About PELUM Association

We are a network of civil society organisations operating in central, east and southern Africa.

We have come together to facilitate learning, networking and advocacy in sustainable agriculture, natural resources management and household food security so as to achieve community development among small holder families in the region.

We learn through linking our experiences, alternative approaches to agriculture and participatory development. We bring our strengths together and generate added value to what each member strives to achieve.

Our key strategies include information sifting and distribution, advocacy, networking and short and long-term training.

This, we hope, will contribute towards food security and increase small holder farmer income. And for our own sake as an institution, we do consultancies that bring some income towards our sustainability.

We run workshops to train community development workers, identify and distribute useful books and articles and other relevant information materials and also work to facilitate networking among ourselves and with like-minded outside organisations.

We have a dream: "sustainable communities in east, central and southern Africa", and it is towards this that our energies, talents and resources have been, and will continue to be channeled.

The association was founded by 25 members in 1995. Today over 200 member organisations in 10 countries in east, central and southern Africa make up the association. These are mainly NGOs working towards rural sustainable development.

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