AFRICAN CONSERVATION TILLAGE NETWORK
Partnering for Economic Growth, Improved Food Security and a Better Environment
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Updates & News Alert

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Editor's view: Introducing the May, 2017 CA Alert

The CA farm of Daniel Mushemi, Laikipia Kenya. Harvesting is immediately followed by planting of next crop. Photo B Njenga/ACT

Conservation Agriculture (CA) is steadily gaining pace as a sustainable farming practice in the face of changing and uncertain climatic conditions as demonstrated by the increasing scientific evidence and testimonies of farmers. In this issue, we feature amongst others, articles from Kenya covering experiences of farmers in a four-year project funded by the EU and implemented by FAO through County Governments. Farmer Stephen Njagi from Tharaka Nithi County recounts how he could hardly get 10 bags of sorghum from his six acres a year ago. He now harvests 40 bags of sorghum from the same area and inputs, after adopting Conservation Agriculture, the surplus of which enabled him to buy a Sh 50,000 threshing machine. Farmer James Mwenda, now a "no-till" service provider from Meru County, boasts of how he managed to get himself a job through providing services to other farmers in the County in addition to boosting his own farm income.

Keri Harvey reports of people living in the Simalaha Community Conservancy in western Zambia having risen out of poverty using CA methods to the effect of increased food security in the area, protecting the environment and actually improving the area's biodiversity. Lars Munkholm of Aarhus University conducted studies in Denmark leading to the conclusion that Conservation Agriculture offers tired soils remedies. The validation Workshop on the Framework for Sustainable Agricultural Mechanization in Africa as organized by The African Union Commission's Department of Rural Economy and Agriculture and FAO illustrates Africa's desire to operationalize components the Malabo Declaration.

Laura Barrera of No-Till Farmer shares the analysis of Rulon Enterprises in Indiana USA how cover crops free up fertility, increase yields, improve soil health, providing a $69.17-per-acre benefit, and achieve a 266% return on investment (ROI). Interviewed by Richard Schiffman of *Yale Environment 360,* soil researcher Rick Haney, who works with the USDA's Agriculture Research Service in Texas, talks about the folly of pursuing ever-greater crop yields using fertilizers and other chemicals and how farmland can by restored through natural methods.

Featured publications are the FAO and ACT new report: *Report of the Consultative Meeting on a Mechanisation Strategy: New Models for Sustainable Agricultural Mechanisation in sub - Saharan Africa*, and the FAO publication *The future of food and agriculture- trends and challenges.*

Notable amongst the upcoming events are the International Seminar on Drought and Agriculture at FAO Rome on 19 June 2017; the 7th World Congress on Conservation Agriculture in Rosario Argentina 1-4 August 2017; and the KwaZulu Natal No-Till Conference, 5-7 September 2017.

ACT acknowledges the various sources, authors, reporters, organizations and practitioners whose articles appear in this May 2017 issue.

We encourage you to share your CA views and articles capturing the status and extent of adaptation and adoption of CA in any Country in Africa or beyond for sharing with others. Please submit articles, links or views to kim@act-africa.org

Apologies for any cross posting of some articles.

I now harvest four times as much sorghum with less labour: Tharaka Nithi farmers thrive in Conservation Agriculture

Farmer Stephen Njagi uses a ripper in his sorghum farm in Nkarini village in Tharaka Nithi County.

Farmers in Tharaka Nithi County, Kenya, are multiplying their yields and doubling their profits thanks to a low-cost farming technique called Conservation Agriculture (CA) and collective bargaining called contract farming.

Stephen Njagi, a father of three, has been a farmer for many years in Nkarini village, Tharaka Nithi County. Before he learnt about CA, he could hardly get 10 bags of sorghum from his six acres. He adopted the new farming technique a year ago, and now he harvests at least 40 bags of sorghum. His proceeds have enabled him to buy a Sh 50,000 threshing machine. Previously he could not afford school fees for his children, but now, his firstborn son is in college, training in medicine, while the other son is in secondary school.

Food Agricultural Organization county Programme officer, Ambrose Ngetich says CA has helped farmers increase their harvest. Some farmers would get two bags in an acre but now harvest seven to fifteen bags per acre, he says.

Tharaka Nithi County have taken up CA and are now doing contract farming on sorghum. He adds that they are working with County governments in Kitui, Kilifi, Kwale, Laikipia, Machakos, Makueni, Meru and Tharaka Nithi counties. The main crops being promoted are sorghum, millet, green grams, cowpeas and pigeon peas. He says they provide resources and train farmers on the concept throughout the season, in addition to mobilizing farmers and helping them market their produce to attain the highest price for their crops. Last year, farmers in Tharaka Nithi were able to sell green grams to a tune of Sh 20 million from export and Sh 11 million in sorghum from the East African Breweries Limited. EABL last year contacted more than 2,000 farmers from 54 farmers' groups in the area.

The four-year project is funded by the EU and implemented by FAO through the County governments. Bessie Mukiama, Imenti Central sub county Food Crops officer, says adoption of CA in Meru and Tharaka Nithi counties has been fast, as farmers have seen the benefits. Mukiama attributed the high adoption of the technology to the economics of CA, adding that; "It is cheaper in the long-run, increases production and is time saving."

Article by Agatha Ngotho @agathangotho

Cross-posted from http://www.the-star.co.ke/news/2017/05/09/i-now-harvest-four-times-as-much-sorghum-with-less-labour-tharaka_c1548254

Kenya's parched farmers stop ploughing - but harvest more food and jobs

On a five-acre piece of land being prepared for planting, James Mwenda shouts at his two oxen, commanding them to move in a straight line as they pull a ripper that cuts a long slit into the unploughed ground. The "low-till" farming system - in which land is no longer ploughed and seeds are slotted into largely undisturbed soil - is gaining fans in drought-hit Kenya because it helps preserve moisture in the soil.

However, Mwenda likes it for another reason: it has given him a job. The 31-year-old is one of more than 1,500 people trained in Kenya to handle the special equipment needed to prepare land and plant crops under the new "low-till" system. Now he makes money hiring out his services to other farmers in Imenti Central, a sub-county of Meru County, who may not have the funds to buy the specialised equipment themselves. In Imenti Central, a total of 44 young men and women have been trained on how to handle the zero-till farming equipment, said Patrick Ng´ang´a, a former trainer now working as a desk officer in charge of Conservation Agriculture for Meru County. Mwenda, one of those trained, said income from his low-till planting business now has surpassed his income from farming his own land. "*This has become my main source of income,*" said Mwenda, who now can operate all the hand-held and ox-driven equipment, from rippers and jab planters to oxen-driven planters and shallow weeders.

According to FAO, over 10,000 small-scale farmers in Kenya´s eight semi-arid counties are already practicing low-till farming. Many farmers are adopting the techniques after seeing them used by neighbours and relatives. The techniques have also been promoted on popular television shows such as Shamba Shape-Up on Kenya´s Citizen TV.

***Article Credits**: The Thomson Reuters Foundation. Reporting by Isaiah Esipisu, editing by Laurie Goering.*

Cross-posted from: http://www.dailymail.co.uk/wires/reuters/article-4514700/Kenyas-parched-farmers-stop-ploughing--harvest-food-jobs.html#ixzz4hVeqgXQt

Conservation farming helps Zambian smallholders thrive

During training, farmers are taught about the value of intercropping. Photo credits: Keri Harvey

People living in the Simalaha Community Conservancy in western Zambia have risen out of poverty using Conservation Agriculture (CA) methods, according to Chrispin Muchindu, CA Manager at Peace Parks Foundation (PPF). Small-scale farmers living on the Simalaha Plains in the Zambezi Valley in Zambia traditionally relied on rainfall for the success of their crops. But climate change and drought left farmers struggling to feed their families. CA has proven to be the solution.

"This is a farming system cited to be beneficial to the community," says Chrispin Muchindu, CA manager at Peace Parks Foundation (PPF) in Zambia. PPF is an international partnership promoting wildlife conservation, ecotourism and job creation in Southern Africa, and in 2012 the conservancy, situated about 120 km from the town of Livingstone, was fenced in as part of the work being done by the foundation in the Kavango Zambezi Transfrontier Conservation Area. The project has increased food security in the area, and CA practices are gaining momentum across the country. "CA does not damage the environment and actually improves soil quality". "It has short- and long-term benefits for the community, who can grow and harvest their vegetables almost immediately," says Chrispin.

Through implementing CA practices, which began in Simalaha in 2013, the community was able to begin farming sustainably without disturbing or destroying the area's biodiversity. This is because CA results in minimal disturbance to the soil, as the potholing method of planting is used. With this method, only the area where crops are planted is tilled, leaving the surrounding areas entirely untouched. Because yields are high, less land is utilized and fewer forested areas need to be cleared. In addition, fewer mopane trees need to be burnt and sold as charcoal, as the community has now established an alternative income.

"In 2013, we started with 150 winter crop farmers and our target was to train 450 winter crop farmers in three years, but we have to date trained 887 farmers, though only 450 were supported by the project and received starter packs of seeds," Chrispin explains.

He explains that in a small area of 50m x 50m, farmers can feed their families and have surplus maize as they can harvest between 15 and 30 bags of 50kg each. The family cannot consume this in a year, and half the maize can be sold to pay for other things, like school fees.

Maize, sorghum, pearl millet and cassava are the winter crops, while backyard garden summer crops include onions, tomatoes, brinjals, pumpkins, groundnuts, maize, rape, okra, sorghum and cow peas.

Article by Keri Harvey. Cross-posted from - http://www.farmersweekly.co.za/crops/field-crops/conservation-farming-helps-zambian-smallholders-thrive/

Conservation Agriculture offers tired soils remedies

"When you are tired or hungry, you're not as productive. You may need to rest or eat. If you push yourself too far, you may get ill"

Soil gets tired and hungry, too. How do growers know that? When the fields are not as productive. Maybe yields are down, or diseases infect the plants. The soil can become too compact. It can lack nutrients needed to grow good crops. It may be more prone to erosion or have other physical problems. Leaving a field fallow, or resting it, means the field is empty for a season or more. The field does not provide income for the grower but the continued fertilization, or feeding, is expensive. A bare field also runs the risk of erosion.

Conservation Agriculture uses alternative methods to fallow and fertilization to revive soil while still nurturing the overall environment. Just like a doctor prescribes different treatments for different patients, scientists often recommend different methods for returning soil to health, depending on the soil's characteristics.

Lars Munkholm and research teammates at Aarhus University studied the impact of Conservation Agriculture techniques over a span of eleven years on two different farms. They combined the use of these techniques:

- creating very little soil disturbance (no-till or reduced tillage),
- ensuring permanent organic soil cover (residues and cover crops), and
- diversifying the crops grown on the farmland (crop rotation).

The fields they studied are in Denmark, and have sandy loam soils. An ideal soil for farming is usually a type of loam, with a good mixture of sand, silt, and clay particles. But sandy loam soils have less clay to hold the soil together. Typical small grain cereals such as wheat, barley, and oats were the dominant crops in the study. The team rotated these crops with rapeseed and peas. Rapeseed is an oil crop, providing income for the growers. Peas, as part of the legume family, can use nitrogen in the air as "food" and increase the amount of nitrogen available in the soil. This often reduces the need for chemical fertilizers. Researchers also used fodder radish as a winter cover crop. Their large, deep taproots help break up compacted soil.

This study found that in fields with less tillage, leaving crop residue on the soil was a good solution. In addition, growing permanent cover crops kept roots growing in the soil. This broke up soil clumps and made room for air and water. It also created a beneficial environment for soil microbes, fungi, and other organisms such as earthworms and ants.

More information can be obtained from: Lotfollah Abdollahi et al, Eleven Years' Effect of Conservation Practices for Temperate Sandy Loams: I. Soil Physical Properties and Topsoil Carbon Content, *Soil Science Society of America Journal* (2017). DOI: 10.2136/sssaj2016.06.0161

Journal reference: Soil Science Society of America Journal
Cross-posted from:https://phys.org/news/2017-05-agriculture-soil-remedies.html#jCp

Validation Workshop on the Framework for Sustainable Agricultural Mechanization in Africa

The African Union Commission's Department of Rural Economy and Agriculture and FAO have been implementing a Technical Cooperation project to promote sustainable agricultural mechanization in the continent. One of the outputs of this project is the development of a Framework for Sustainable Agricultural Mechanization as a guide to AU member states as they develop their individual strategies and mainstreaming such strategies in broader policy and strategy documents.

The workshop held 11-12 May, 2017 at the AUC Headquarters in Addis Ababa was attended by about 70 experts from private sector, national universities and research institutions, civil society, and regional organisations including the AUC, FAO, AfDB and UNECA. The meeting was officially opened by Madam Josefa Sacko, the African Union Commissioner for Rural Economy and Agriculture.

The main objective of the workshop was to validate a draft document for Sustainable Agricultural Mechanization in Africa (SAMA), and specifically:

- Review and agree on key elements for Sustainable Agricultural Mechanization in Africa
- Develop a detailed action plan for implementation of the framework
- Discuss the facilitation of cooperation and partnership for effective implementation

ACT participated in the workshop with representation by the Executive Secretary (Eng. Saidi Mkomwa) and the Policy and Strategy Advisor (Ms Meaza Melkamu).

For more information visit: https://goo.gl/0ounpk

Three ways to achieve a 266% ROI with Cover Crops

Rulon Enterprises in Indiana shares how cover crops free up fertility, increase yields and improve soil health, providing a $69.17-per-acre benefit.

In a down age economy, no-tillers may be wondering whether cover crops are worth the expense. But Rulon Enterprises in Arcadia, Indiana, finds covers do more than pay their way in their no-till system of 20-plus years. At the 2015 Iowa Cover Crops Conference, Ken Rulon explained and broke down the costs of cover crops for his family's operation in Arcadia, Indiana and the return on investment they have received from pairing covers with their long-term, 'never-till' system.

Ken stresses that his analysis is from data and assumptions for their farm, and other no-tillers may have different results based on their personal desires and farm attributes.

For Rulon Enterprises, the average cost of including cover crops in its rotation is about $14.27 per acre for seed and $11.73 per acre for seeding operations, totalling $26 per acre. The Rulons use oats, radishes, clover, annual ryegrass and cereal rye, with seeding rates varying between mixtures and how they are seeded.

Due to the size of their operation, the Rulons can seed covers on about 60% of their 6,000 corn and soybean acres each year. In fall 2014, cover crops were seeded on 3,527 acres and at $26 per acre the total costs of covers was almost $92,000. But when looking at the benefits, Ken finds there's little to no chance of not getting his $26 back.

"You can slice every benefit category in half and we still calculate a 50% return on investment," he says.

1. **Using covers to reduce fertilizer**

   One category they are saving on is their fertility program. Based on 20 years of 1-acre grid soil testing data and actual fertilizer use, as well as data from near-by no-tiller Cameron Mills' farm and tile discharge data out of Purdue University, ***the Rulons are spending $16 less in phosphorus (P) and potassium (K) fertilizer per acre every year compared to Tri-State fertilizer recommendations.***

2. **Using Covers to increase yields**

   The Rulons are also seeing their yields increase from their system. Comparing their five -year yield averages to their county average***, the Rulons' soybean yield is 113% of the county yield average, and their corn yield is 114%.***

3. **Using Covers to improve Soil Health**

   The final benefits the Rulons are obtaining from their no-till, cover crop system include reduced erosion and increased soil biology and soil quality, which based on numbers from the NRCS, provide a $14-per-acre benefit. The Rulons also receive a Conservation Stewardship Program payment of $40,000 annually, which breaks down to $10.91 an acre over 3,667 acres.

Ken calculates the total benefit of cover crops on their farm comes to $69.17 per acre, for a 266% return on investment.

"It's a little bit tough when you go to write Beck's a check for $85,000 for cover crop seed in August," he says. "But when we sit down and go through it, we just cannot find any data where the cover crop yielded less than straight no-till. So at some point you have to say it has some value."

He notes that these benefits don't typically happen in the first year of cover crops. They're the combination of many practices, including investment in drainage, variable-rate seeding, N application based upon yield goals, and of course, the farm's 23 years of 100% continuous no-till. Ken also adds that no-tillers must deal with some successes and failures with cover crops, and proper management plays a crucial role in achieving the benefits.

Article by Laura Barrera.
Email: lbarrera@lesspub.com

Cross-posted from: https://www.no-till-farmer.com/articles/6700-three-ways-to-achieve-a-266-roi-with-cover-crops-weekly#sthash.yLlzHHRD.dpuf

Why It's time to Stop Punishing our soils with fertilizers: an interview

Researcher Rick Haney travels the U.S. preaching the benefits of healthy soils. In a Yale Environment 360 interview, he talks about the folly of pursuing ever-greater crop yields using fertilizers and other chemicals and how farmland can by restored through natural methods.

Soil researcher Rick Haney of the U.S. Department of Agriculture USDA

The soil health movement has been in the news lately, and among its leading proponents is U.S. Department of Agriculture (USDA) researcher Rick Haney. In a world where government agencies and agribusiness have long pursued the holy grail of maximum crop yield, Haney preaches a different message: The quest for ever-greater productivity — using fertilizers, herbicides, pesticides, and whatever other chemicals are at hand is killing our soil and threatening our farms.

Haney, who works with the USDA's Agriculture Research Service in Texas, conducts online seminars and travels the country teaching farmers how to create healthy soil. His message is simple: Although the United States has some of the richest soils in the world, decades of agricultural abuse have taken their toll, depleting the dirt of essential nutrients and killing off bacteria and fungi that create organic material essential to plants. "Our mindset nowadays is that if you don't put down fertilizer, nothing grows," says Haney, who has developed a well-known method for testing soil health. "But that's just not true, and it never has been."

In an interview with *Yale Environment 360*, Haney describes how research is validating the value of natural methods such as plowing less, growing cover crops, and using biological controls to keep pests in check. In the face of a proposed 21 percent cut in the USDA's budget by the Trump administration, Haney also stressed the importance of unbiased, government studies in a field where research is often dominated by the very corporations that benefit from overuse of fertilizers and chemicals. "We need more independent research," Haney maintains. "We are only at the tip of the iceberg in terms of what we understand about how soil functions and its biology."

Read the full interview by **Richard Schiffman** a New York-based environmental journalist, poet, and author of two biographies at the link below.

Cross-posted from: http://e360.yale.edu/features/why-its-time-to-stop-punishing-our-soils-with-fertilizers-and-chemicals

New Report

Report of the Consultative Meeting on a Mechanisation Strategy: New Models for Sustainable Agricultural Mechanisation in sub - Saharan Africa

The Consultative Meeting provided a platform to discuss Sustainable agricultural mechanization (SAM), SAM strategies and implementation options, experiences and recommended concrete lines of future action for Sub-Saharan Africa (SSA). Lessons learned from Asia and experiences in SSA were presented, as well as various models for SAM collaboration and diffusion in SSA. This platform allowed better understanding of appropriate policies that may be required to support and promote the implementation of SAM at regional and national level within SSA.

A special focus was placed on three key areas which were the subject of debate and discussion in three working groups. These were: (i) new collaborative models of public-private partnerships; (ii) modalities and approaches for establishing a global SAM knowledge exchange platform and; (iii) the establishment of regional centres or networks for SAM in SSA. The meeting also received feedback on the on-going FAO-African Union Commission technical cooperation project that is seeking to develop a SAM strategy framework for SSA.

For the consensus reached and the way forward mapping,

Get the complete report at: https://goo.gl/1FXo2J

New Publication

The future of food and agriculture- trends and challenges. FAO 2017 publication

This publication analyses the key global trends that are influencing and will influence food and agriculture in the coming decades, together with the associated challenges to face ahead. The purpose of this report is to help mobilize the concrete and concerted actions required to realize these global agendas. It contributes to a common understanding of the major long-term trends and challenges that will determine the future of food security and nutrition, rural poverty, the efficiency of food systems, and the sustainability and resilience of rural livelihoods, agricultural systems and their natural resource base

The report can be accessed at: http://www.fao.org/3/a-i6583e.pdf

Upcoming Events

International Seminar on Drought and Agriculture

Date: 19 June 2017
Venue: Sheikh Zayed Centre, FAO Hq, Rome, Italy

The organization of a joint seminar on drought follows the letter by the two Permanent Representatives from the Islamic Republic of Iran and the Kingdom of the Netherlands, dated

02 December 2016, to the FAO Director-General that underlined the importance of integrated approaches to drought management and drought preparedness, suggesting a seminar to discuss these approaches along with scalable good examples and innovations for associated implementations and investments. The positive response by the FAO Director-General was followed by exploratory and preparatory meetings involving FAO and the offices of the two Permanent Representations.

The outcomes of the seminar are:

- Co-Chairs' Communiqué
- Publication containing a collection of experiences (to be launched on the occasion of COP23 of the UNFCCC, to be held in Bonn, Germany, in November 2017).

ACT, represented by the Executive Secretary and CEO, Engineer Saidi Mkomwa, will share Sustainable Land Management & Climate Change Resilience experiences in the seminar.

For more details, see the programme at: http://www.act-africa.org/image/a-bs902e_b(1).pdf

7th World Congress on Conservation Agriculture

Date: August 1-4, 2017
Venue: Rosario - Argentina

The 7th WCCA provides the opportunity to learn from No-Till farmers' associations and network with an international gathering of agricultural experts. Argentina, Brazil, Paraguay and Uruguay want to show the modern agricultural, based on the principles of Conservation Agriculture (CA), our known No-Till System, and with FARMERS, the crucial actors of this revolution. Agricultural production systems are not sustainable unless they are profitable, and CA holds the key to building and maintaining healthy soils and profitable farming systems. Food security, climate change, smallholder and family agriculture, gender equality, biotech, machinery innovations, bioenergy, water, soils, crops, agribusiness, legislation and more are going to be part of the 7WCCA proposal

For more details: http://congresoaa-presid.org.ar/

Second Africa Congress on Conservation Agriculture (2ACCA)

Date: March 2018
Venue: Johannesburg, South Africa

Look out for updates @ http://act-africa.org/events.php?com=68&com2=67&com3=

Pan African Society for Agricultural Engineering: Nairobi 2017 Conference Announcement

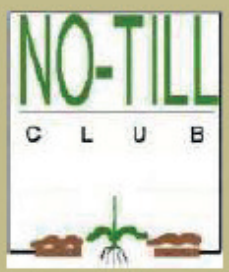
Venue: Southern Sun Mayfair Hotel, Nairobi, Kenya

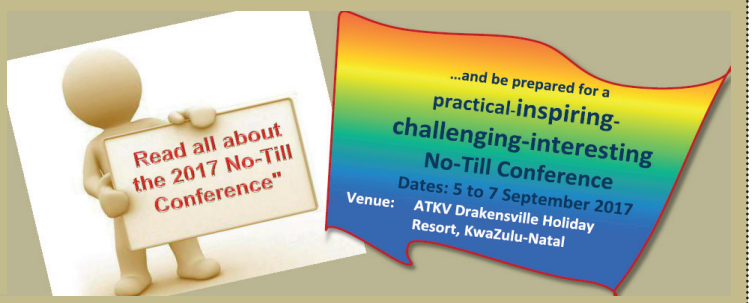
Dates: 19 - 21 November 2017

The Pan African Society for Agricultural Engineering and its partners will host its Annual Conference in **Nairobi, Kenya, on 19-21 November 2017** under the theme ***Engineering and Technology for Agriculture Transformation in Africa.*** The objective of the conference is to provide a forum for the private, public and academic sector stakeholders to meet and explore business opportunities through networking and exchange of experience and knowledge.

KwaZulu Natal 2017 No-Till Conference

Date: 5-7 September 2017
Venue: ATKV Drakensville Holiday Resort, KwaZulu-Natal, South Africa
For more details: Please download newsletter here





For more information, please contact: Executive Secretary | African Conservation Tillage Network
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Norad

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