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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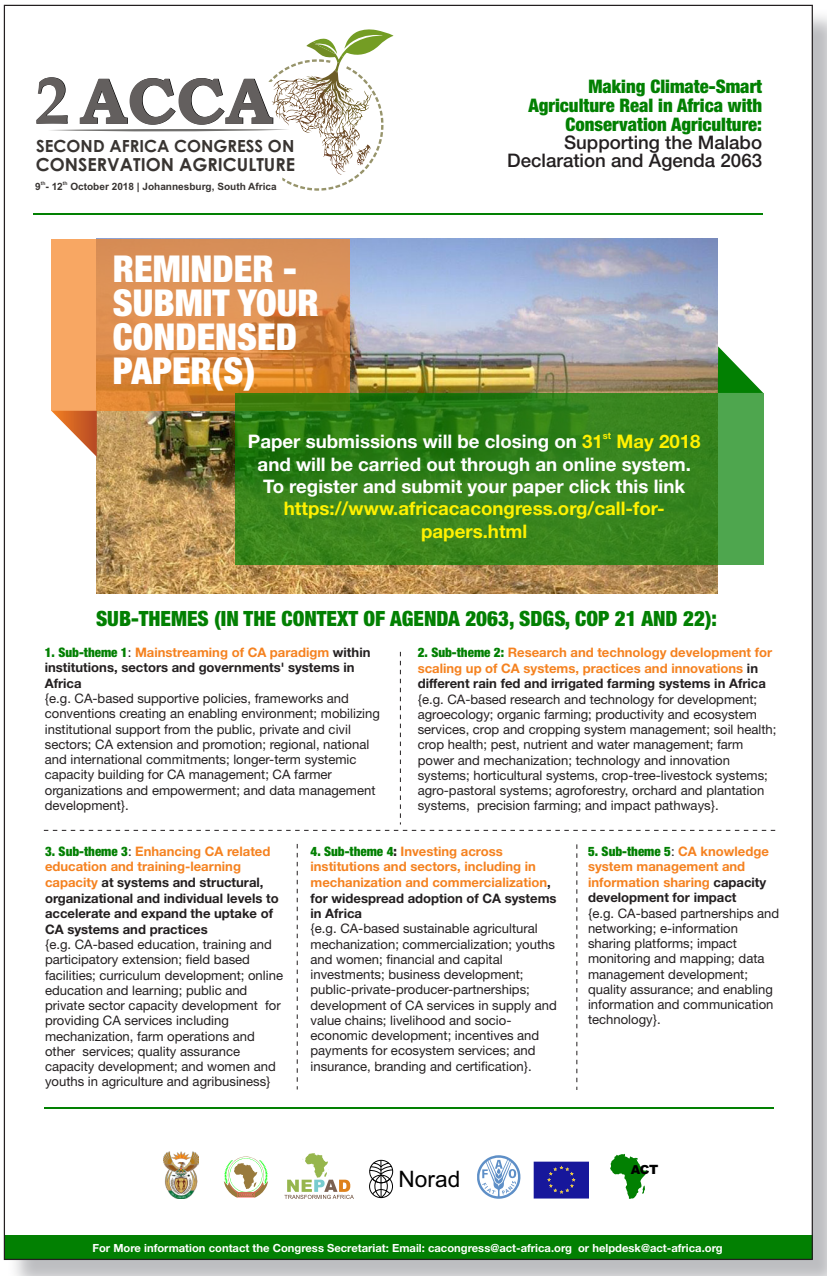
# Editor's view: Introducing the March, 2018 CA Alert

With registrations for the Second Africa Congress on Conservation Agriculture (2ACCA) to be held from **9th to 12th October 2018** at the Birchwood Hotel & OR Tambo Conference Centre, **Johannesburg, South Africa**, picking up, we remind our readers to share their CA experiences by submitting condensed papers and posters or booking for display booths and exhibition space. The deadline for submitting condensed papers has been extended to 31st May 2018.

We seek your total involvement in what of the sub-themes must be discussed at the 2ACCA and the entailing process. Share your views on programme activities to be included and we will also reach out to you for inputs.

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. Use the **#conservationagriculture, #africamechanize** to share links on articles, journals, news on CA and tag us on twitter **@ACTillage.**

Apologies for any cross posting of some articles.



# ACT Hosts the Southern Africa CARWG Meeting in Kenya

*CARWG Workshop on CA and Resilience Building participants at Jakaranda Hotel, Nairobi.*

Access to productivity enhancing technologies and proper management of transboundary pests can increase production and productivity among smallholder farmers. Conservation Agriculture (CA) stakeholders recognize the need to build the resilience of farmers to factors that lower farmer productivity including both underlying soil management factors and shocks such as transboundary pests like the Fall Armyworm (FAW). Given the complexity and scale of these challenges, a multi-stakeholder approach that takes into perspective a broader Climate Smart and resilience building practices approach is necessary.

National Conservation Agriculture Platforms and the regional Conservation Agriculture Regional Working Group (CARWG) aim to increase uptake of CA/CSA among farmers so as to increase production, productivity and build resilience of smallholder farmers. The CARWG, which comprises of members from National Conservation Agriculture/Climate Smart Platforms provides a platform for exchange of knowledge, skills and ideas on CA and CSA. Chairmanship of the Southern Africa CARWG is currently held by ACT based in Nairobi, Kenya.

*Aquaponics farm in Gilgil, Nakuru*

ACT in collaboration with and funding from FAO organized a knowledge-sharing meeting for the Southern Africa CARWG National CA focal persons. The meeting was held in Nairobi, Kenya from 20th to 22nd March 2018. The purpose of the meeting was to expose the CA focal points to broad opportunities in CA/CSA equipment, create awareness on CA synergies to Push-Pull approaches to managing FAW as well as to share knowledge and lessons on CA promotion. The meeting was expected to increase the knowledge of participants to CA/CSA resilience building options for farmers through meeting discussions and presentations from experts, field excursions and training on multi-purpose tillage equipment.

Twenty-two participants (five women) from 12 SADC countries and 7 from Kenya attended the meeting. Day one of the meeting was held at Jacaranda hotel, Nairobi, followed by field visits to Nakuru and Mbita in day two and three respectively, where they visited Aquaponics farm, CA farmer adopters, CA equipment service providers, Kenya Agriculture and Livestock Research Organization (KALRO) and Push-Pull technology at ICIPE in Mbita.

The participants were able to appreciate the importance and practicability of CA and CSA, the available and working options for FAW control by farmers and especially the biological options being promoted by ICIPE. Smallholder and large-scale CA mechanization options were demonstrated by the service providers. The meeting summed up with a call for closer collaboration between ACT, ICIPE and the Southern Africa Governments and stakeholders to mainstream CA and push-pull technologies as the sustainable and environment friendly methods to increase productivity, resilience to climate change and eradication of the fall armyworm in Africa.

To access the event photos, presentations and other shared information materials visit the CARWG portal at: http://carwg.act-africa.org/

*Mr Samuel Sana (right) showing his push-pull technology plot in Homabay*

# World Water Day 2018: Working with Nature to Improve Global Water Management

March 22nd, World Water Day (WWD), a day to celebrate one of the world's most precious resources and to raise awareness around global water issues. Every year, WWD coincides with the release of the World Water Development Report by the U.N. Educational, Scientific, and Cultural Organization (UNESCO). This report provides a specific theme to guide world leaders and policymakers for the next year as they pursue meaningful solutions for water issues on a global level.

This year's theme, "Nature for Water," focuses on innovative solutions for water management that are based on natural systems. UNESCO seeks to integrate man-made approaches to water infrastructure—grey engineering like drains, pipes, and sewers—with green water management systems that mimic nature, harnessing the power of natural systems rather than suppressing them. The report addresses water usage across all sectors—disaster prevention, sustainable city planning, and water quality improvement—but the sector that uses the greatest amount of water is agriculture. Only 0.001 percent of the water on earth is freshwater suitable for human use, and of this limited supply, approximately 70 percent of freshwater is used for agriculture.

The report highlights practical, nature-based management practices for agriculture that can accomplish the dual objective of robust food production and smart resource conservation. The report focuses on three main principles: minimal disturbance of the soil, permanent soil cover, and biodiversity. By planting crops with minimal ploughing, farmers can build up the natural environment of bacteria, fungi, and microorganisms in their soil, improving soil health and reducing erosion. Continuous plant growth and the use of mulch to keep soil covered improves water retention and reduces erosion. Biodiversity in farming has many benefits, but when used for water management, it can be beneficial for establishing crops that are resilient to pests and disease, reducing the need for chemical inputs.

In addition to improving water management, the practices identified in the report have benefits more broadly for agriculture, building soil health while also improving the overall efficiency of farm systems. According to the U.N. Food and Agriculture Organization (FAO), to feed the growing world population, farming systems will need to make significant improvements in resource management, including the use of water: "The global transition to sustainable food and agriculture will require major improvements in the efficiency of resource use, in environmental protection and in systems resilience."

This year, in honour of World Water Day, we encourage you to learn more about protecting this precious resource and challenge you to take a stand and advocate for nature-based solutions for water management in your community. Read More

# Soil is "Key to Sustaining Life on Earth"

The U.N. Food and Agriculture Organization (FAO) asserts that "land and soils constitute the foundation for sustainable agricultural development, essential ecosystem functions, and food security. They are key to sustaining life on Earth." Many of the U.N. Sustainable Development Goals (SDGs) are closely related to land and soils. Recent research and initiatives undertaken by governments, scientific institutes, and non-profit organizations are working towards these SDGs through sustainable land management and soil conservation.

The SDGs represent a global set of goals to guide governments, aid organizations, the private sector, and NGOs along the path of sustainable development. There are 17 goals in total, and each goal has specific targets to be achieved by the year 2030. SDG 15 is directly related to soil and land and aims to "protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss."

According to the FAO, the current rate of soil degradation is compromising sustainable agriculture, food security, and vital ecosystem services, both now and for future generations. FAO Deputy Director-General, Maria-Helena Semedo, states that all of the world's topsoil could erode within the next 60 years if current rates of degradation continue. Other U.N. and government officials are calling for stronger management of the planet's soils, stating that this critical natural resource could "make or break" climate change response efforts.

According to the 2015 U.N. report, Status of the World's Soil Resources, the loss of soil resources and functions can be avoided if more sustainable practices are promptly implemented. Thankfully, there are many organizations promoting action towards sustainable soil management, helping to increase soil fertility and biodiversity, mitigate against climate change, and reverse land degradation and desertification. Food Tank is highlighting innovative soil projects from around the globe that are addressing SDG 15 and building evidence on the benefits of sustainable soil practices. Read More

# Conservation Agriculture - Beating Drought and Poor Harvest

Agriculture plays a pivotal role in the lives of most Kenyans with close to 70 percent of the population - mainly women - relying on it. Yet Kenya's agricultural potential has been low with productivity reported to be on a gradual decline, affecting families, particularly in the rural areas. Arid and semi-arid areas make up 80 percent of Kenya's territory, yet their agricultural potential has not been fully utilised.

FAO and the European Union are supporting small-scale women farmers to grow more food and earn more from their crops by adopting conservation agriculture (CA), and linking the farmers to the markets.

### Conservation agriculture: what is it and how is it helping Kenyan farmers?

48-year-old Lucy Kigunda is a member of Ithondio women's group in Imenti North, Meru County, in the central region of Kenya. More recently, she has started planting sorghum, a grass species cultivated for its grain - used for consumption, animal feed and ethanol production. Its stem can be used as building material and its leaves for animal fodder.

"Before we started planting, we put in practice what we learnt. It is important to rotate the crops and to keep some of the crop residues on the soil to retain the moisture and protect the soil. These new ways of working our land have improved our farming, and we now have a much better harvest," says Lucy.

To date, more than 26,000 farmers are applying conservation agriculture. FAO aims to work with county governments to expand the use of conservation agriculture practices to at least 10 percent of Kenya's farming population. To reach the farmers, FAO has been working with community-based agricultural extension service workers, training 1,700 workers since 2014. Read More

# Women take lead in agriculture

The Food and Agriculture Organisation (FAO) has revealed that more women have participated in the agro-ecosystem management training, also known as Conservation Agriculture (CA).

CA is aimed at improving food productivity while preserving the environment, especially during the unstable climate change experienced in recent years. About 57 percent of the 2,225 farmers, who received training in CA during the 2017/18 financial year are women, FAO has revealed.

FAO project coordinator, Uparura Kuvare, says apart from the farmers, 57 extension and research technicians also received training. A national training manual has also been developed while a mobile phone-based extension and learning system is being piloted with 2,000 farmers so that it can be rolled out to the rest of the country.

CA is promoted to mitigate climate change effects including prolonged dry spells in order to boost food production. The Ministry of Agriculture, Water and Forestry (MAWF) is carrying out the programme in partnership with FAO. A Comprehensive Conservation and Agriculture Programme (CCAP) framework has been developed and launched to oversee the implementation of the project. In addition to FAO, the Namibia National Farmers Union (NNFU) is supporting the implementation of the CCAP through N$2 million funding from the United Nations for a period of two years. Read More

# Water shortages could affect 5 billion people by 2050, UN report warns

*A resident walks with a dog across the drying bottom of the Paraibuna dam, part of the Cantareira water system that provides greater Sao Paulo with most of its water, in August 2014. Photograph: Roosevelt Cassio / Reuters/Reuters*

Conflict and civilizational threats likely unless action is taken to reduce the stress on rivers, lakes, aquifers, wetlands and reservoirs

More than 5 billion people could suffer water shortages by 2050 due to climate change, increased demand and polluted supplies, according to a UN report on the state of the world's water. The comprehensive annual study warns of conflict and civilizational threats unless actions are taken to reduce the stress on rivers, lakes, aquifers, wetlands and reservoirs.

The World Water Development Report – released in drought-hit Brasília – says positive change is possible, particularly in the key agricultural sector, but only if there is a move towards nature-based solutions that rely more on soil and trees than steel and concrete.

"For too long, the world has turned first to human-built, or 'grey', infrastructure to improve water management. In doing so, it has often brushed aside traditional and indigenous knowledge that embraces greener approaches," says Gilbert Houngbo, the chair of UN Water, in the preface of the 100-page assessment. "In the face of accelerated consumption, increasing environmental degradation and the multi-faceted impacts of climate change, we clearly need new ways of manage competing demands on our freshwater resources."

Crucially, the report emphasises a shift away from watershed management towards a wider geographic approach that takes in land use in distant areas, particularly forests. Although farmers have long seen trees as a drain on water supplies, the authors recognise more recent studies that show vegetation helps to recycle and distribute water. This was apparent in the São Paulo drought of 2014-15, which the city's water authorities and scientists have linked to Amazon deforestation. Read More

# Zambia food secure despite poor rains

OVER the last three farming seasons, Zambia has been recording maize bumper harvests despite being faced with challenges as a result of effects of climate change challenges that threatens the country's food security.

Maize production in the 2016/17 season was recorded at 3.6 million tonnes from 2.8 million tonnes in the previous season while in the 2017/18 season, the country is anticipating to post another bumper harvest although estimates have not been given.

The increase in production is mainly attributed to favourable weather conditions, despite a delayed start in some parts of the country.

President Edgar Lungu, in his address to the nation presented in Parliament, observed that climate change has continued to negatively impacting on the country's food, water and energy security. President Lungu believes that it is important to address the effects of

climate change to warrant sustainable development through interventions such as afforestation and reforestation.

"There is also need for promotion of conservation farming and green energy to this effect over 2,500 hectares were planted in Luapula and Muchinga provinces in 2017," he adds. The President explains that Government is also promoting agriculture research to mitigate the impact of climate change on small-scale farmers through development, adoption and adaptation of appropriate technologies.

But, Government is optimistic that investing in sustainable rural agriculture communities is achievable through development policies designed to address the impact of climate change on food security.

Read More

# Agricultural mechanization: how far do women farmers benefit?

*(Left) In the original machine the pulley was exposed and women were afraid their children could be injured. Credit: VEDCO Uganda. (Right) An improved chopping machine with a protection cover. Credit: J. Kabirizi*

Agricultural machinery saves both time and labour for small-scale farmers and is increasingly available in rural areas. However, women's needs and interests are often not fully considered when these machines are developed, introduced and adopted by communities. As a result, they are often used and controlled by men more than women. Despite this, our research under the GENNOVATE project found that women have a strong interest in mechanization as a way to improve their own circumstances.

Based on these findings, the gender research team under the CGIAR Research Program on Roots, Tubers and Bananas (RTB) has developed a set of guidelines to support project leaders, researchers and development workers to ensure that gender is adequately addressed in research design and interventions in agricultural machineries. The guide includes five stories about machineries and their gender implications from sub-Saharan Africa, Asia and Latin America.

The stories give us three important messages.

Firstly, agricultural machines and equipment are mostly made by male mechanics. Adjustment is often needed to make it suitable for women farmers due to their body size, physical strength and limited experiences of using them. This was the case with sweet potato silage chopping machines in Uganda and potato grading equipment in Bolivia. Adjusting to women's needs is often undervalued in the process of development and introduction, but it is a very important factor to increase its adoption rate and thereby bring greater impacts.

Secondly, women's needs and interests are often ignored in the process of decision-making within the household, community and the project. Male decision-makers may be unaware of women's real needs or have little incentive to invest in equipment or machinery for women. This was the case in processing factories in Nigeria, where factory owners were not aware of women's health problems caused by harmful smoke and did not invest in smoke-reducing gari fryers that could reduce women's exposure to smoke and possibly increase productivity.

Similarly, in a project in Peru, potato-drying equipment was introduced but it was not adopted by women farmers. This was because during the needs assessment in the planning stage of the project, male researchers talked to male farmers and concluded that the installation of modern drying equipment would accelerate the potato drying process and improve the efficiency of the overall system. However, the women in the community were quite satisfied with their traditional method of sun drying. These issues could be avoided with more awareness of gender factors.

Thirdly, machines and equipment not only save labour and time but also create symbolic power. In the matrilineal Ede community in the Central Highlands in Vietnam, for example, many men perceive that their decision-making power is higher than their wives' because they can drive two-wheel tractors while their wives cannot. Tractors thus enable men not only to control some aspects of farming and increase their mobility, but they also strengthen men's symbolic power. The symbolic aspect of mechanization is a neglected topic in agricultural research, but introducing machineries without gender consideration risks supporting men's symbolic power and thereby contributing to sustaining the existing gendered power relationships. Read More

# Interesting Videos

### Conservation Agriculture for Increased productivity in Tanzania

A short informative video on Conservation Agriculture for Increased productivity in maize, rice, beans and soyabeans in the southern highland regions of Tanzania. View

### Conservation agriculture for efficient water use

Water is crucial to grow the food we eat. This video explains how the International Maize and Wheat Improvement Centre uses techniques such as conservation agriculture to use water more efficiently while sustainably increasing crop yields and improving global food security. #WorldWaterDay2018 #natureforwater : View

# Publications

### Integrated crop– livestock conservation agriculture for sustainable intensification of cereal-based systems in Central and West Asia and North Africa

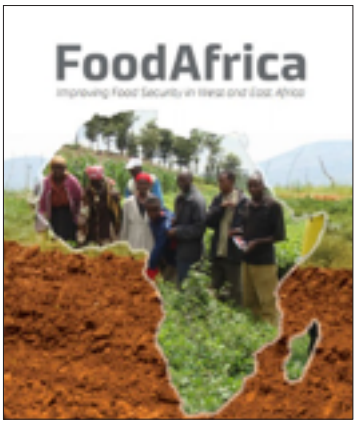
The three countries involved in this project (Algeria, Tajikistan and Tunisia), like most other countries in the region, are confronted with growing populations, increased urbanization, and changing food demands and preferences. The food security and livelihood security of rural populations in these countries depend largely on crop livestock production systems. Crop productivity and biomass are typically low under low rainfall dryland agricultural systems as a result of abiotic stresses and low input levels. Moreover, more frequent droughts and greater climatic risks further exacerbate abiotic stresses.

Conservation agriculture principles, such as no tillage, crop residue cover and crop rotation/intercropping, have proven to be key interventions for increasing crop productivity and improving resource use efficiency and soil health.

The current project was designed to address the above mentioned challenges while building on past experience in conservation agriculture. It aimed to develop strategic practical options for integrating conservation agriculture cropping and livestock systems. It therefore attempted to reconcile the demand by livestock for feed with residue retention as practised in conservation agriculture.

The goal of the project was to enhance the sustainability of natural resource use, increase the profitability of farms and improve the livelihoods of resource poor farmers through large-scale adoption of conservation agriculture technologies capitalizing on the system synergies of crops, livestock and soils in the drylands of Central and West Asia and North Africa (CWANA). Read More

### FoodAfrica programme has trained 20,000 farmers in sustainable farming practices




20,000 farmers in Benin, Cameroon, Ghana, Kenya, Senegal and Uganda have improved the security and quality of their food supply thanks to the FoodAfrica Programme. In addition to those farmers and their communities, it is estimated that the programme has also had an impact on the lives of over 200,000 people

"FoodAfrica has been an extremely interesting and rewarding programme," said Mila Sell, a senior scientist at the Natural Resources Institute Finland. "We have worked directly with people at different levels, from academics, policy makers, through to farmers, and they've given us immediate feedback. Through collaboration with these excellent partners, we have witnessed encouraging results. This initiative has definitely increased their knowledge and abilities on sustainable production of healthy and safe food. However, there is still a lot to be done to reach the Zero Hunger Sustainable Development Goal in Africa. The work must continue."

Funded by the Government of Finland, the FoodAfrica Programme, which works from solid research to effective action, has enhanced sustainable food production, food safety and nutrition, and market access and agricultural extension. The research component of the programme has seen the production of 300 publications and training materials targeting farmers, agricultural extension workers, academia and policy makers. The programme has also enabled 31 people from the six countries to obtain Masters and PhD degrees, highlighting the importance of building national capacity to ensure sustainability of food security. Read More

# Upcoming Events

## The Second Africa Congress on Conservation Agriculture (2ACCA) 9th -12th October 2018

The aim of 2ACCA is to bring together expert knowledge, information, and insights from practitioners from across different sectors and interests groups at all levels of agriculture development in the public, private and civil sectors. This diversity of knowledge and stakeholders is essential:

- to enable the desired multi-disciplinary and cross-sectoral development of CA as a core production component of climate-smart agriculture; and
- for the sustained mobilization of policy, institutional and community support to accelerate the widespread adoption and management of CA as a core element of the expanding climate-smart food and agriculture systems in Africa.

This diversity enables the desired multi-disciplinary and cross-sector "treatment" of CA for climate-smart agriculture – a feature essential for the success of CA

scaling-up as an integral part of the growing food and agriculture systems in Africa.

This is in line with the Malabo Declaration, AU's Agenda 2063 and the SDGs. The purpose of the 2ACCA initiative is to facilitate diverse and open sharing of experiences and information on CA thereby fostering learning and widespread awareness and interest in the uptake and spread of CA in Africa. This includes CA's role in enhancing sustainable agricultural productivity, strengthening environmental and social resilience, and fostering efforts to provide for food and nutrition security as well as jobs and economic opportunities, especially for rural communities, including youth and women. The 2ACCA initiative provides "neutral space" for networking, collaboration and partnership to support the scaling-up of CA systems as the sustainable basis for CSA development across Africa.

For more information visit: Second Africa Congress on Conservation Agriculture

*ACT programs, projects and initiatives are firmly anchored towards achieving the 2030 SDGs.*

SUSTAINABLE DEVELOPMENT GOALS

**Goal1:** End poverty in all its forms everywhere

**Goal 2**: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

**Goal 5**: Achieve gender equality and empower all women and girls

**Goal 13:** Take urgent action to combat climate change and its impacts

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Norad

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