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Cabbages produced commercially under Conservation Agriculture

Editor's view: Introducing the July-August 2020 CA Alert

Africa can, without doubt, eliminate extreme poverty and end hunger and malnutrition through appropriate agricultural transformations that build greater resilience and economic empowerment. Africa must now scale up and domesticate what has worked well elsewhere and other promising technological successes in the sector across the continent. Mainstreaming sustainable agriculture systems in Africa is greatly necessary. If we have to offer farmers in Africa the means to transform farming from a livelihood for survival into businesses that thrive sustainably in an inclusive environment, the paradigms of agricultural production and management must be changed. It is imperative that

resource poor farmers are able to produce more with less, enabling them to produce a competitively priced surplus, penetrate markets and make them commercial. And, it is clear that we have an alternative, Conservation Agriculture, an agricultural paradigm which offers smallholder or large-scale farmers a real opportunity to commercialize agriculture efficiently, intensify agricultural output, increase profits, enhance soil health and the environment, improve quality of life, and contribute to national and international food security and poverty alleviation. This has and is happening in other developing countries outside Africa including Brazil, Paraguay, Uruguay, Kazakhstan, China and others.

As African agriculture becomes increasingly commercialized, the need to intensify production in a sustainable manner, value addition and food systems development all become integrally important. Whilst recognizing the urgent requirement for increased agricultural productivity, there is also the concurrent need to restore and nurture the planet's natural resource base. Therefore, if Africa is to intensify and mechanize its agriculture, it must do so with care and in line with the principles of sustainable production intensification based on environmentally friendly Conservation Agriculture (CA) and Sustainable Agricultural Mechanization with the aim of achieving resilience in the face



of a changing climate. Appropriate mechanization and related innovations are crucial if the continent is to transition from the wasteful and resource degrading tillage based agriculture to sustainable agriculture.

Amid the ongoing COVID-19 pandemic, many governments in Africa calls on farmers and agriculture stakeholders to intensify production and coordinate efforts to ensure timely support to production. Some have developed COVID-19 Protocols and Guidelines to guide sector actors to make the necessary adjustments to ensure that the agri-food supply chain does not contribute to the increase of COVID-19 infections across the region, but rather containment of the pandemic. The sector players need to acknowledge that good nutrition is very important before, during and after an infection. Infections take a toll on the body as extra energy and nutrients are needed. Therefore, maintaining a healthy diet is very important during the COVID-19 pandemic.

In this regard, ACT has continued to evolve taking lead in facilitating, coordinating and enabling knowledge and information sharing among Africa's agricultural stakeholders. The Network strives, always, to establish and execute appropriate knowledge and information sharing platforms and systems tailored to different target groups in the continent. It will continue to build new and stronger partnerships, uncover new and more efficient frontiers for

serving farmers and other on-the-ground stakeholders while contributing to global and regional alliances to unlock policy and investments support for the spread of Sustainable Agriculture (SA) across Africa.

In this issue, we have captured the newly launched FAO project aimed at strengthening partnerships to bring Conservation Agriculture to farmers across Southern Africa. During the virtual launch of the project on 12th August, 2020, Patrice Talla, FAO Sub-Regional Coordinator for Southern Africa, emphasised that "Conservation Agriculture can play a pivotal role in helping many countries in the region achieve their Sustainable Development Goal (SDG) targets by increasing productivity, helping to ensure food and nutrition security, and by promoting the sustainable use of natural resources." Currently though, many smallholders in the region do not practise CA, leaving an untapped potential that could positively transform production systems. On his part, Collins Nkatiko, Head of the National Conservation Agriculture Taskforce in Zambia, reiterated that "The benefits of adopting CA practices can be numerous, from increased yields and reduced costs for farmers, to healthier soils and greater carbon sequestration."

The issue also highlights "small is beautiful", illustrating how the Farm Mechanization and Conservation Agriculture for Sustainable Intensification (FACASI) project established seven ways to make small-scale mechanization work

for African farmers. Also reported is how the COVID-19 pandemic has shown that mechanization can allow farmers to keep growing and harvesting when farm labour might be scarce or working in close contact is undesirable. Various sustainable agricultural mechanization and research activities or findings on issues relating to CA and SAM are also captured. Notable is the longitudinal analysis of a long-term CA experiment in Malawi and lessons for future experimental design report. Links to sampled videos focused on agricultural mechanization and other relevant publications are provided.

ACT acknowledges the various sources, authors, reporters, organizations and practitioners whose articles appear in this July – August, 2020 issue. Their diversity is clear testimony of the enthusiasm and interest from various organizations, countries, researchers and scientists towards CA and SAM amid the current global pandemic. We encourage you to share your CA and SAM views and articles capturing the status and extent of their adaptation and adoption 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 or re-posting of some articles or information.

Building climate resilience in Southern Africa



Since Grace – a farmer and a mother from **Zambia** – left conventional farming behind for Conservation Agriculture (CA), her yields have increased and she has been able to buy cows. What's more, she and her family have become food secure in spite of the changing climate in her country.

Grace's story was one of several told during the online launch of the new project **"Strengthening coordination, scaling up and governance of Conservation Agriculture in Southern Africa"** (SUCASA), which brought together the Food and Agriculture Organization of the United Nations (FAO) and its multiple partners in the region.

The project signifies a renewed optimism that by increasing collaboration among agencies, governments and local authorities, resource and development partners, and NGOs, such as the Conservation Farming Unit, who helped teach Grace the CA techniques that have been so beneficial, farmers in **Southern Africa** will be better supported to increase their resilience to climate shocks and boost their food security. Warming at twice the global rate, Southern Africa is one of the epicentres of **global climate change**. Erratic rainfall patterns, which have caused recurrent droughts, have resulted in the disruption of production systems. And according

"A newly launched FAO project is aimed at strengthening partnerships to bring Conservation Agriculture to farmers across Southern Africa"

to the Southern African Development Community (SADC) Regional Vulnerability Assessment Analysis, an estimated 44.8 million people in the region are currently food insecure.

Through the Malabo Declaration, African heads of state declared that 25 million farmers should adopt climate resilient production systems by 2025 to protect their **food security** and **nutrition** and **livelihoods**.

According to Patrice Talla, FAO Subregional Coordinator for Southern Africa, "Conservation Agriculture can play a pivotal role in helping many countries in the region achieve their SDG [Sustainable Development Goal] targets by increasing productivity, helping to ensure food and nutrition security, and by promoting the sustainable use of natural resources." Currently though, many smallholders in the region do not practise CA, leaving an untapped potential that could positively transform production systems.

"The benefits of adopting CA practices can be numerous, from increased

yields and reduced costs for farmers, to healthier soils and greater carbon sequestration," said Collins Nkatiko, Head of the National Conservation Agriculture Taskforce in Zambia.

Saidi Mkomwa, Executive Director of the African Conservation Tillage Network and Chair of the Conservation Agriculture Regional Working Group during the online project launch said, "This means supporting the National Conservation Agriculture Taskforces and the Conservation Agriculture Regional Working Group to promote investment in CA to decision makers and its adoption by farmers. Above all, we need to make sure we're sending the same messages to farmers and policy makers: that in many cases CA can help make our food systems more resilient."

"By working more closely together, we will be better placed to document and share CA knowledge and best practices with key stakeholders, avoid duplications and ultimately help farmers to adopt CA practices." [Read More](#)

Conservation Agriculture feeds people and protects the environment



Promising high yields of white sorghum on a field in the mother trials in Mwenezi, Zimbabwe.

On June 5, 2020, the world celebrates World Environment Day as COVID-19 continues to cause challenges and restrictions. Existing threats of climate change with the new challenges of a global pandemic adversely affect the agricultural sector, a mainstay of most sub-Saharan African economies. This situation calls for increased attention to how agriculture is practiced and natural resources — such as soil and water — are cared for.

Smallholder farmers in Zimbabwe are custodians of these natural resources, yet climate variability of shifting rainfall seasons, El Niño and droughts threaten successful rain-fed farming. Coupled with conventional farming practices such as tillage and deforestation, the soil structure and chemical quality are gradually degrading. Each passing year has resulted in declining yields, food

insecurity and increased household vulnerabilities, particularly in drought-prone, low rainfall areas of southern Zimbabwe. With support from the Swiss Agency for Development and Cooperation (SDC), the R4 Rural Resilience Initiative, led by the World Food Programme (WFP), aims to enable vulnerable, smallholder farmers to increase their food security, income and resilience by managing climate-related risks. Building on R4, WFP has just launched the Zambuko Livelihoods Initiative, focusing on social cohesion of communities, improved crop and livestock production and improved access to finance, with support from the United States Agency for International Development (USAID). The International Maize and Wheat Improvement Centre (CIMMYT) is a partner to implement the project component on appropriate seeds and agricultural practices.

We discuss the R4 Rural Resilience Initiative with Christian Thierfelder, the Principal Cropping Systems Agronomist and a Strategic Leader for Africa at CIMMYT, and Munaye Makonnen, the Project Lead from WFP in Zimbabwe. [Read More](#)

Smallholder farmers in Zimbabwe are custodians of natural resources, but they are faced a new threat of climate change, majorly affecting rain-fed farming

Sowing the seeds of resilience

As part of the inaugural African city food month campaign, and in line with one of this week's theme's – resilience – FAO took the chance to speak to Collins Nkatiko, CEO of [the Conservation Farming Unit \(CFU\)](#) based in Zambia.

The CFU is working with the Food and Agriculture Organization of the United Nations (FAO) and other partners in Southern Africa to help farmers increase their productivity and build resilience to climate change. In particular, the project Strengthening Coordination, Scaling Up and Governance of Conservation Agriculture in Southern Africa (SUCASA) is focused on reinforcing partnerships in the region – between multiple agencies, NGOs, governments, international research organisations and the private sector – to promote the adoption of Conservation Agriculture (CA) and ultimately help farmers become more resilient.

FAO is working with partners among them African Conservation Tillage Network (ACT) in Southern Africa to boost the adoption of Conservation Agriculture

In this conversation, critical issues were discussed, they include: challenges faced by communities in Southern Africa in achieving food security and developing sustainable livelihoods, how CFU is helping farmers respond to these challenges, and how the adoption of CA practices support sustainable food systems. You can get more on this conversations in the link [Read More](#)

According to CFU, Conservation Farming works. It is not a technology that looks nice on paper but can't be scaled up by ordinary people faced by ordinary challenges. It works quickly and visibly and it changes lives. There are thousands of people who have testified to this – you can find testimonies of people who have been interviewed recently in the [farmers-testimonies](#)

Why Kenya should embrace Conservation Agriculture farming

Farmers across Kenya should embrace new agricultural techniques in a bid to avoid losses as a result of climate change as well as to address issues of food security affecting various countries.

Kenya, just like the rest of the African continent is losing its farmland productivity at a higher rate.

The country's current agricultural development plans project a Food Security pillar that can only be achieved if Conservation Agriculture (CA) is aggressively adopted by farmers of all sizes. Indeed, farming the CA way has a new dimension in a period of Climate Change, calling for Climate Smart Agriculture (CSA).

Farmers across Kenya should embrace Conservation Agriculture in a bid to build resilience and enhance food security and household income

In today's modern and mechanized farming, it is possible to plant crops without turning the soil. As a country we need to embrace a concerted efforts approach among all stakeholders in the public and private sector to give more attention to research and knowledge sharing on how to incorporate technology in farming and variety of crops to invest in. There is need for sustained innovation in areas like drought resistant varieties of seeds, environment friendly farming practices and better post-harvest management to reduce on losses. Dissemination of information to farmers across the country is also key in the implementation of climate proofing agricultural value chains.

Every year we are losing unforgivable volumes of fertile top soils that favour crop and livestock farming, to erosion, not only in sloppy, but all agricultural lands. Hard pans developed by hoe and mouldboard farming of the past cause flooding and erosion, to the detriment

of sustainable farming practice and food security. Land is quickly becoming desert, or simply unable to withstand healthy cropping. The resulting behaviour is one of shift cultivation and farmers wanting to farm on higher altitude lands, if not in forested areas like Mau and others of Kenya's water-harvesting Hills.

By practicing CA means farmers fitting themselves in landscapes and learning ways of increasing soil health and productivity per unit of land (sustainable intensification), other than putting more land under production, as a way of increasing overall produce volumes available at harvest time.

Farming the CA way means creating soil structures that prevent soil erosion where there is slope. It means planting trees to protect soils and creating clever tree-crop and livestock-crop mixes that keep the soil healthy, so that it can sustainably feed plants and animals alike. [Read More](#)

Small is beautiful



Can Africa's smallholder farmers adopt and reap the benefits of farm mechanization? The Farm Mechanization and Conservation Agriculture for Sustainable Intensification ([FACASI](#)) team set out in 2013 to test this proposition. With the [project nearing closure](#), the International Maize and Wheat Improvement Centre (CIMMYT) project leader Frédéric Baudron believes the answer is yes.

"We have demonstrated that small-scale mechanization is a pathway to sustainable intensification and rural

transformation, and can have positive gender outcomes as well," he explained.

Here are some of the key lessons learned along the way, according to the people involved.

1. Appropriate mechanization is essential

With many farms in Africa measuring no more than two hectares, FACASI focused on bringing two-wheel tractors to regions where smallholdings dominate, especially in Zimbabwe and Ethiopia. For most small farmers, conventional farm machinery is out of reach due to its size, costs, and the skills needed to operate it. The typical path to mechanization would be for farmers to consolidate their farms, which could lead to social and environmental upheaval. Instead, the FACASI team scaled-down the equipment to suit the local context.

FACASI has obtained evidence to dispel commonly held myths about farm power in smallholder farming systems," said Eric Huttner, research program manager for crops at the Australian Centre for International Agricultural Research (ACIAR).

7 ways to make small-scale mechanization work for African farmers

2. Test, develop and adapt technologies... together

From start to finish, the project [tested and developed technologies in collaboration with farmers, local manufacturers, engineers, extension agents](#). Together, they adapted and refined small-scale machinery used in other parts of the world to accommodate the uneven fields and hard soils of African smallholder farms. This co-construction of technologies helped cultivate a stronger sense of local ownership and buy-in.

"We gained many valuable insights by continuously refining technologies in the context of efficiency, farmer preference and needs," said Bisrat Getnet, FACASI national project coordinator in Ethiopia, and director of the Agricultural Engineering Research Department in the Ethiopian Institute of Agricultural Research (EIAR). [Read More](#)

Tractor sharing and the future of agricultural mechanization



Before COVID-19 disrupted public life and international travel, thousands of hopeful buyers from around the globe would flock to a field in Cambridgeshire in the British countryside each month with a singular mission: strike a bargain at the world's largest second-hand tractor auction. Here, local buyers would bid alongside dealers from Mali, Portugal or Afghanistan, and a sturdy tractor from the 1970s might attract as many bids as the latest high-tech harvester. The majority of machines would end up in shipping containers to far-away fields abroad, where they'd continue to ease the work of grateful farmers.

For more than a century, the tractor has been a symbol of mechanization

in farming. The enduring demand even for older models speaks to the potential of machinery, basic or advanced, to fundamentally change the way producers manage their land and time. Mechanized farm power can help farmers in different ways: It allows them to plant earlier and to the correct density, it helps them manage weeds and harvest on time. And it can improve post-harvest handling, which means farmers get more yields from their land. For smallholders in particular, having access to mechanized farm power can be truly transformational, because it lets them transition to market-oriented farming and break out of vicious cycles of poverty. What's more, the [COVID-19 pandemic](#) has shown that mechanization

can allow farmers to keep growing and harvesting when farm labour might be scarce or working in close contact is undesirable. From a global perspective, mechanization will be critical to meeting larger food security goals that will require farmers everywhere to do more with less, even while conserving the environment.

"Tractor services available on mobile phones are a promising innovation that can help farmers access the right technology and farm power to improve their production," says Josef Kienzle, Agriculture Engineer at FAO. "That's particularly true for women, who in some countries provide as much as 80 percent of the farm labour but often struggle to mechanize."

Applying the ethos of the sharing economy, these platforms have sprouted up across Africa and Asia to easily connect farmers and tractor owners through their mobile phones – either via smartphone apps or simple SMS quick codes to book a service for the day. Kenya's Hello Tractor and Ghana's TroTro Tractor were among the first to bridge this access divide with easy-to-use systems that let farmers schedule and pay for land preparation and harvesting services at the click of a button. [Read More](#)

Innovation for Agriculture: Sustainable Agricultural Mechanization for Africa



Mechanization and related innovations are crucial if the world is to transition to sustainable agriculture. Digital tools and platforms are driving mechanization service provision along the value chain. In 2018, FAO and the African Union launched the Framework for Sustainable Agricultural Mechanization for Africa (SAMA), setting out a long-

term vision and national and regional priorities, emphasizing cooperation with the agricultural machinery industry. Interventions aim to move smallholders from hand tool-based labour to innovative technologies. Sustainable mechanization cuts working time, relieves labour shortages, raises productivity and encourages youth into agriculture, creating jobs. It aids efficient use of agricultural resources, helping to mitigate the effects of climate change by reducing harmful emissions and increasing farmer resilience.

Better access to tools and technologies allows farmers to leapfrog from subsistence to market-oriented farming, boosting the sector. Increased

mechanization does not necessarily mean big investment in bulky machinery. It should focus on sustainable production through

Sustainable Agricultural Mechanization for Africa, equipping small-scale farmers to boost sustainable agricultural productivity

Conservation Agriculture, promoting and scaling up innovations and appropriate technologies (digital tools and precision equipment) and bolstering national capacity to promote progress towards sustainable agriculture and socioeconomic development. [Read More](#)

Video gallery: Sustainable agricultural mechanization can improve the livelihoods.



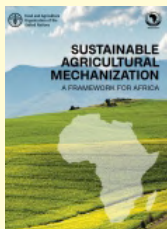
- Sustainable mechanization and Conservation Agriculture (2018): https://www.youtube.com/watch?v=H6Zb_DL89yQ&t=7s
- Agricultural mechanization: How to make it accessible to smallholder farmers (2018): <https://www.youtube.com/watch?v=uJn-WISq2nU>
- Sustainable Mechanization. Creating new perspectives in rural areas (2016) <https://www.youtube.com/watch?v=bJN-RpmBgAQ>
- Powering Smallholder Agriculture in Eastern and Southern Africa (2015): <https://www.youtube.com/watch?v=oe8J2ee4rAU>
- Mechanization of Agriculture (2013) panaac video: <https://www.youtube.com/watch?v=XC2N2orHb6s>

Sustainable mechanization can improve the livelihoods of millions of people & ensure there is enough food for everyone. Learn how machines & tools are transforming the way we farm by the video in the link: <https://youtu.be/vXE5wStOOio>

You can also watch several other videos from different source on agricultural mechanization:

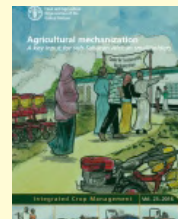
- Sustainable Agricultural Mechanization in Africa, ACT edited video (2019): <https://www.youtube.com/watch?v=ZhUjRXaXEvI>
- Importance of farm mechanization (2019): <https://www.youtube.com/watch?v=gZKglDbI9Dk>

You can also get the following publications that supports sustainable agricultural mechanization for more information and knowledge:



Sustainable Agricultural Mechanization. A Framework For Africa

This framework presents ten interrelated principles/ elements to guide Sustainable Agricultural Mechanization in Africa (SAMA). Further, it presents the technical issues to be considered under SAMA and the options to be analysed at the country and sub-regional levels. The analysis in the framework calls... [Read more](#)



Agricultural mechanization: A key input for sub-Saharan African smallholders

This publication is part of the Integrated Crop Management series, and it focuses specifically on agricultural mechanization, the opportunities provided by mechanization for intensifying production in a sustainable manner, value addition and food systems development, and the inherent opportunities implied... [Read More](#)



Hire services as a business enterprise: A training manual for small-scale mechanization service providers

This manual is specifically designed to help train actual and potential farm mechanization service providers, in order to increase access to sustainable farm power to raise the productivity of smallholder farmers. It focuses on two crucial aspects: the provision of... [Read More](#)



Hire services by farmers for farmers

Rural people depend heavily upon agriculture either as farmers, casual labourers, workers in agro-based industries, traders in agricultural produce or as hire service providers. Hire services be they rental, custom or leasing services, can commonly be found in many countries... [Read More](#)

Introducing No-Till System in the Ghanaian Savannah - AfDB & AAPRESID



“Ghana’s project” was held during 2018, in the framework of the project called Transformation of African Savannah Initiative (TASI) at the beginning, and finally called Technologies for African Agriculture Transformation (TAAT) of the African Development Bank (AfDB), with the cooperation between the Ministry of Food and Agriculture of Ghana (MoFA)

and the Argentinian No-Till Farmer Association (Aapresid). Two Aapresid technicians developed soybean and maize crops in four plots working closely with technicians from MoFA and local farmers. Also, two Argentinian machinery companies supported the project with a planter and a sprayer.

The Aapresid’s vision is guided by the objective to promote sustainable

production systems of food, fibre and energy through innovation, science and network knowledge management. This approach refers to the responsible and efficient use of the limited world’s natural resources to maintain the demands of their growing population.

During the initial phase, Aapresid designed agronomic protocols and implemented productive activities with the aim to adapt Conservation Agriculture technology packages for soybeans and maize production in Ghana.

In order to achieve this target, the strategy was based in adjusting activities and processes related to a no till tropical agriculture benchmark model, using the available technologies. It was key to understand how the current level of mechanization, inputs and agronomic skills could impact the productivity of the proposed system.

[Learn More](#)

Conservation Agriculture increases carbon sequestration in extensive crops

Agricultural activity is responsible for about 12% of the total emissions of greenhouse gases in Spain. Nevertheless, adopting good agricultural practices can help reverse this situation, by increasing the sequestration of organic carbon in soil. With the goal of compensating for CO₂ emissions produced by agricultural activity by means of fixing organic carbon in soil, the 4perMille initiative came about, in the framework of the Paris Climate Agreement (adopted at the COP21 in 2015).

Conservation Agriculture uses practices such as no-till farming (sowing without having previously tilled the soil), making use of the organic soil cover and rotating crops, which are beneficial in decreasing greenhouse gas emissions. In this vein, Rural Engineering Department Professor, at the School of Agricultural and Forestry Engineering, University of Cordoba, Emilio J. González, in the GI AGR 126 Mechanization and Rural Technology group, participated in the project working with Dr. Rafaela Ordóñez’s team, from



the Agriculture and the Environment Area at the Institute of Agricultural Research and Training. They analysed the potential of Conservation Agriculture to reach the aim of increasing [organic carbon](#) in soil by 0.4% yearly, which is the main goal of the 4perMille initiative. Applying the Carbon Benefit Project model, designed by the UN Environment Programme, they concluded that by using no-till farming for extensive crops, [carbon](#) sequestration levels could reach up

to three times the goal amount in the agreement.

After comparing the situation of conventional agriculture based on heavy tilling to data from the model based on a no-till farming situation with extensive crops (grains, sunflower, legumes, forage crops), regions appeared where carbon sequestration could triple the amount fixed by the 4perMille initiative, places such as the Guadalquivir valley, Navarre, Aragon and Catalonia. With this study, Conservation Agriculture’s capacity to mitigate [climate change](#) has been scientifically contrasted, and in doing so, tools are offered up for agricultural management policies such as the European Union’s Common Agricultural Policy (CAP), which is currently undergoing debate on green aims focused on mitigation and adaptation to climate change. This study is found within the European project called LIFE Agromitiga, whose objective is to contribute to shifting towards a low-carbon farming system. [Read More](#)

Could coronavirus drive farmers to adopt sustainable practices in India's breadbasket?



June marks the start of the rice growing season in India's breadbasket but on the quiet fields of Haryana and Punjab you wouldn't know it. Usually the north-western Indian states are teeming with migrant labourers working to transplant rice paddies. However, the government's swift COVID-19 lockdown measures in late March triggered reverse migration, with an estimated 1 million labourers returning to their home states.

The lack of migrant workers has raised alarms for the labour-dependent rice-wheat farms that feed the nation. Healthy harvests are driven by timely transplanting of rice and, consequently, by the timely sowing of the succeeding wheat crop in rotation. Without political support for alternative farming practices, crop losses from COVID-19 labour disruptions could reach \$1.5 billion and significantly diminish the

country's grain reserves, researchers from the International Maize and Wheat Improvement Centre (CIMMYT) warned.

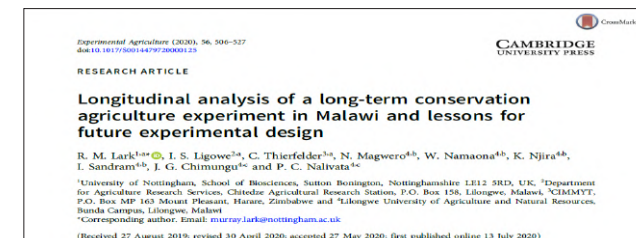
Researchers also fear delayed rice transplanting could encourage unsustainable residue burning as farmers' rush to clear land in the short window between rice harvest and wheat sowing. Increased burning in the fall will exacerbate the COVID-19 health risk by contributing to the blanket of [thick air pollution that covers much of northwest India](#), including the densely populated capital region of New Delhi.

Both farmers and politicians are showing increased interest in farm mechanization and crop diversification as they respond to COVID-19 disruptions, said M.L. Jat, a CIMMYT scientist who coordinates sustainable intensification programs in north-western India.

"Farmers know the time of planting wheat is extremely important for productivity. To avoid production losses and smog-inducing residue burning, alternative farm practices and technologies must be scaled up now," Jat said. [Read More](#)

Longitudinal analysis of a long-term Conservation Agriculture experiment in Malawi and lessons for future experimental design

Resilient cropping systems are required to achieve food security in the presence of climate change, and so several long-term Conservation Agriculture (CA) trials have been established in southern Africa—one of them at the Chitedze Agriculture Research Station in Malawi in 2007. The present study focused on a longitudinal analysis of 10 years of data from the trial to better understand the joint effects of variations between the seasons and particular contrasts among treatments on yield of maize. Of further interest was the variability of treatment responses in time and space and the implications for design of future trials with adequate statistical power. The analysis shows treatment differences of the mean effect which vary according to cropping season. There was a strong treatment effect between rotational treatments and other treatments and a



weak effect between intercropping and monocropping.

There was no evidence for an overall advantage of systems where residues are retained (in combination with direct seeding or planting basins) over conventional management with respect to maize yield. A season effect was evident although the strong benefit of rotation in El Niño season was also reduced, highlighting the strong interaction between treatment

and climatic conditions. The power analysis shows that treatment effects of practically significant magnitude may be unlikely to be detected with just four replicates, as at Chitedze, under either a simple randomised control trial or a factorial experiment. Given logistical and financial constraints, it is important to design trials with fewer treatments but more replicates to gain enough statistical power and to pay attention to the selection of treatments to given an informative outcome. [Read More](#)

Events and Opportunities

The most important events among others are as follows:

Invitation to join CoP on Sustainable Agricultural Mechanization

Warm greetings, The sustainable agricultural mechanization team of FAO is eager to invite you to join the Community of Practice on sustainable agricultural mechanization. Please click this link: <https://dgroups.org/fao/mechanization/>.

This CoP brings together people, institutions, organizations, and the public and private sector around the world with a shared field of interest: **sustainable agricultural mechanization adapted to smallholder farmers and small- and medium-sized enterprises (SMEs) to improve livelihoods.**

You can share your knowledge and experience on sustainable agricultural mechanization by sending an email to all the members to mechanization@dgroups.org. By sending an email you can ask questions, provoke discussion, and tell us about specific topics you would like to learn more. You can also upload information (e.g. publications, presentations, links) to the Community of Practice library (<https://dgroups.org/fao/mechanization/library>).

For more information, contact: Mayling Flores Rojas mayling.floresrojas@fao.org or Josef Kienzle (NSP) Josef.Kienzle@fao.org. The sustainable agricultural mechanization team, Food and Agriculture Organization of the United Nations (FAO)

Mechanization Hire Service Provision Training Courses in Kenya, Tanzania, Uganda and Zambia–September 2020

ACT jointly with FAO and the country partners who participated in the December 2019 Regional Workshop in Uganda are organizing in-country trainings for mechanisation hire service provision. The courses will be held within the month of September 2020 for Kenya, Tanzania, Uganda and Zambia. Some 15-18 service providers from each country will be trained on hire services founded on Conservation Agriculture as a business and eventually networked with each other and also

with clients, information and machinery service providers. Training will be offered online and complimented with practicals observing social distancing unless otherwise the Covid 19 situation changes.

For more information, contact: Weldone Mutai, weldone.mutai@act-africa.org

Global Symposium on Soil Biodiversity



As a precautionary health measure due to the outbreak of the coronavirus in Italy and globally, The Global Symposium on Soil Biodiversity has been **POSTPONED TO 2-4 FEBRUARY 2021**

Therefore, the **Global Symposium on Soil Biodiversity (GSOBI20)**, 'Keep soil alive, protect soil biodiversity' will be a science-policy meeting, held over three days, from **2-4 February 2021**, at the **UN Food and Agriculture Organization (FAO) headquarters in Rome, Italy**. It is jointly organized by the UN FAO and its Global Soil Partnership (**GSP**), the Intergovernmental Technical Panel on Soils (**ITPS**), together with the UN Convention on Biological Diversity (**UNCBD**) and the Global Soil Biodiversity Initiative (**GSBI**).

The **main objective** is to fill some critical knowledge gaps and promote discussion among policy makers, food producers, scientists, practitioners and other stakeholders on solutions to live in harmony with nature, and ultimately, achieve the SDGs through the conservation and sustainable use of soil biodiversity.

The symposium is based on three main theme:

Theme 1: State of knowledge on soil biodiversity

Theme 2: Soil biodiversity in action

Theme 3: Soil biodiversity shaping the future of food system

More information of the event available on [Read More](#). To register for the event, use the link: [Register here](#)

The 8th World Congress on Conservation Agriculture (8WCCA), POSTPONED to June 21st to 24th, 2021 in Zollikofen, Bern, Switzerland 2021



On behalf of the International Organizing Committee, it is a pleasure to confirm the new dates and arrangements for the 8th World Congress on Conservation Agriculture (8WCCA). They are as follows:

- The Congress will be held from June 21st to 24th, 2021 in Zollikofen, Bern, Switzerland,
- The indoor sessions during the first three days will take place at the INFORAMA Rtti in Zollikofen and at the School of Agricultural, Forest and Food Science HAFL, close to the Swiss capital of Bern, Switzerland. The two locations offer a variety of Conference Rooms of different sizes. Besides, there is a set of field tests at INFORAMA, including the long-term trial "Oberacker".
- The Field Day will be held on the fourth day of the Congress and will follow the same structure and arrangements as planned initially. It will take place at the estate "Witzwil" only 40 minutes away from Bern.
- The 8WCCA programme outline remains the same.
- Abstracts which have been accepted will be processed as foreseen unless for those authors who wish to withdraw their submissions. For this, all authors will be contacted soon by email to confirm their intention to either maintain or withdraw their abstracts.

For more information, [Download the Announcement](#)

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