

# CONSERVATION AGRICULTURE NEWSLETTER



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## Working with Service Providers to Scale Up CA Plus

**Neil Rowe Miller, Agriculture and  
Livelihoods Technical Advisor for  
Eastern Africa**

Service Providers are increasingly active in the CA+ programming of the CFGF network. The most common service provided by these individuals is ox-drawn ripping. These devices use oxen to open up a planting furrow, thus saving the labor of hand-digging planting basins. Rippers do not turn the soil and leave more residue on the surface, helping to achieve the CA goal of a minimum 30% soil cover.



**Harold Msanya, opens up planting furrows in Arusha, Tanzania with an Ethiopian-style maresha ripper.**

Historically, such ripping was accomplished using Magoye ripper points fitted to a steel plow beam. However, in East Africa, the traditional Ethiopian *maresha* ripper is preferred by many farmers and service providers because of its low cost (\$10-15 USD versus \$40-70 USD for a Magoye ripper) and superior soil penetration in most conditions. On the other hand, fields with many stumps or rocks can be difficult to rip with a *maresha*.

Other CA+ services increasingly provided in the context of the projects we support include tractor-powered ripping, custom spraying, and direct seeding with a modified *maresha* planter, developed in collaboration with the [ECHO East Africa Impact Center](#). In many communities, service providers also offer threshing services, however, this business seems to be profitable enough that they don't need encouragement or support from NGO partners.

At the recent Regional Networking Conference in Embu, Kenya a panel of Partner staff and service providers shared important lessons learnt over the past few years. These included:

### **SERVICE PROVIDERS NEED TO OWN THE SERVICE THEY PROVIDE.**

In the past, well-intentioned projects provided CA equipment at no cost to farmers and service providers. However, because they had no investment cost, there was little incentive to maximize use of these tools. When service providers pay for part or all of the cost of equipment, they are motivated to pursue enough business to return their investment. Earlier this year, one such service provider who bought a *maresha* direct seeder in northern Tanzania planted as much maize as 10 service providers who were given the same tool to use at no cost!

### **FARMERS NEED TO BE CONVINCED OF THE BENEFITS BEFORE THEY WILL HIRE CA+ MECHANIZATION SERVICES.**

Rippers and direct seeders can dramatically reduce labor at planting time, but since many small-scale farmers use their own household labor for field preparation and planting, hiring mechanization services can seem like an added expense. Once they try such services, however, many farmers realize that they are now able to plant larger areas with CA+ and in a more timely fashion. One Partner in Kenya provided project participants with cost-share vouchers for tractor-drawn ripping services as a way get farmers to try the service, and to assure the service provider of enough customers to justify his investment in a ripper.

### **CA+ MECHANIZATION BENEFITS WOMEN.**

The Anglican Diocese of Central Tanganyika and Msalato Theological College, Partners of Tearfund Canada and CFGB, received a Tearfund Innovation Challenge Grant to study the impact of *maresha*-based service provision. This study revealed that, while the majority of farmers who purchased ripping services felt women and men benefited equally, 23% felt that women benefitted more than men due to their reduced workload of land preparation and planting, thinning and gap filling. Virtually none of the respondents felt that men benefited most from mechanized CA.



Olivia Machimo rests in the shade of a baobab tree while service providers (in the background) plant her millet field. Mechanized CA can particularly benefit women farmers.

### **CA+ SERVICES PROVIDE BUSINESS OPPORTUNITIES FOR YOUTH.**

In the above-mentioned survey, the median age of service providers was 41 years old, much lower than the average farmer in the area. Furthermore, most of the older service providers hire younger men to operate their equipment.

### **WEED MANAGEMENT IN MECHANIZED CA+ CAN PRESENT A CHALLENGE...AND AN OPPORTUNITY.**

Mechanization allows farmers to increase their CA+ farm size. However, with larger fields farmers often find it more difficult to cover their fields with enough dry residues to suppress weed growth. Combining mechanization

services with use of green manure cover crops is essential in addressing this issue. Nonetheless, there will be situations (e.g. drought, heavy livestock pressure, etc.) in which soils are left without adequate cover, and weed growth threatens to drive farmers back to using tillage. Service providers can turn this challenge into an opportunity by providing custom herbicide application. A timely application of glyphosate just after planting can cost as little as \$12-15/ha, and often eliminates the need for mechanical hoeing in the first month or more after planting.

### **SERVICE PROVIDERS NEED TO DIVERSIFY INTO MORE THAN JUST LAND PREP AND PLANTING.**

In addition to custom spraying, service providers are adding threshing, transportation, custom spraying, seed sales, and other services in order to generate income throughout more of the year, and to make their business more profitable.

For more information on CA+ mechanization, the Food and Agriculture Organization maintains a website on [Sustainable Agricultural Mechanization](#) and publishes a [Training Manual for Small-Scale Mechanization Service Providers](#). The African Conservation Tillage Network has also developed a [comprehensive resource on ripping with oxen](#).

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## **Master Trainers Spread CA Beyond the Foodgrains Bank Network**

***Jean Twilingiyumukiza, Agriculture and Livelihoods Technical Advisor for Central/West Africa***

In March 2022, five women and nine men graduated from a two-year Master Training course in Conservation Agriculture (CA) organized by Canadian Foodgrains Bank in Rwanda. Representatives from government, non-governmental organisations, the World Food Program (WFP) and the Food & Agriculture Organization (FAO) gathered to celebrate their accomplishments. In their remarks, local government officials, WFP and Rwanda Agriculture Board (RAB) representatives all emphasized the benefits of CA and the need for wider training.



**Jacqueline Iradukunda receives her CA Master Trainer Certificate.**

The Rwandan CA Master Trainers include Foodgrains Bank Partner staff and government extension personnel, whose training is designed to provide wider and higher-quality CA training within their own organizations and as consultants for others. Candidates were selected based on their capacity for doing training, gender balance, experience with CA, and commitment to train others in their organization and beyond. Master Trainers acquire adult education and facilitation skills in addition to CA technical knowledge.

The course was originally planned in four one-week sessions separated by periods of practical implementation in the trainees' home areas. However, due to COVID-19, the four-month course ended up extending to two years. The facilitators adapted by delivering online coaching sessions and making field visits to help the trainees acquire the knowledge, skills and practical experience needed to train other CA trainers.

## ADULT EDUCATION SKILLS MERGED WITH CA TECHNICAL SKILLS:

Pastor Eustache Harelimana, chairperson of *Peace and Development Network* (PDN)—a Mennonite Central Committee (MCC) Partner, testified that the PDN technical team had greatly improved their training skills. “They now facilitate rather than impose or dictate,” Pastor Eustache said.

Jacqueline Iradukunda, is a CA Master Trainer graduate from *Association des Eglises Baptistes au Rwanda* (AEBR), a Partner of Canadian Baptist Ministries. Jacqueline said that “the group learned much about the CA principles: minimum tillage, soil cover and crop diversification as well as other good agricultural practices plus facilitation skills. It was a great opportunity...Now I can apply what I’ve learned and share CA skills with farmers and extensionists.”

## RAISING AWARENESS OF CA BENEFITS IN RWANDA:

Agriculture contributes 62.3% of total employment in Rwanda, including 71% of all women employed. It is mostly rain-fed, thus highly vulnerable to weather shocks, and dominated by small-scale farmers (72.4% of farmers own less than one hectare of land). In an attempt to feed more people, agricultural production in Rwanda has expanded into fragile environments: hilly slopes, wetlands, etc. While more than 90% of food grown goes to domestic consumers, production of beans, maize, and rice is not enough to meet Rwanda’s food needs.

CA is the ideal approach to address these challenges. Through it, small-scale farmers can produce more, and generate higher profits while improving soil health and preserving the environment. Shortly after the Master Trainer graduation, WFP Rwanda requested that the Foodgrains Bank network provide CA training for trainers in eastern Rwanda. MCC agreed to spearhead the training led by two CA Master Trainers with support from the Central/West African ALTA. 29 individuals (nine women and 20 men) were trained to reach 2,000 Farmers through 77 Farmer Field Schools in Kayonza District. Based on the success of this training, WFP has asked MCC to organize a similar training for two more districts in western Rwanda.



CA can increase production while improving soil quality for small-scale farmers in Rwanda and elsewhere.

After the CA Master Training, PDN and AEBR joined forces to advocate for the inclusion of CA in Rwanda's government agriculture policies. During the graduation ceremony for the WFP trainees, Venant Gato from RAB and the Kayonza District Representative stated that the Rwandan government is interested in promoting CA across the country as a way to cope with climate change, improve agricultural yields, and decrease soil erosion. RAB has established 120 CA study plots and trained 300 farmers in CA methods.

## CA MASTER TRAINING IS SPREADING MORE WIDELY:

A similar Master Training effort in Ethiopia, involving Foodgrains Partners and MCC with Packard Foundation support, has trained 252 CA Master Trainers (36 women), mostly government extension specialists, in four regions of the country. This training has since cascaded to nearly 13,000 farmers, a number which will undoubtedly continue to rise with time.

This year, Foodgrains Bank ALTAs launched CA Master Trainer programs in Kenya and Zimbabwe so that, by early 2023, several dozen individuals will be equipped and ready to provide similar training for NGOs and government extension agents in those countries. Interest in CA promotion is clearly on the rise in many African countries. ***Let us know if you are interested in taking advantage of these new resource people in your efforts to increase CA adoption in your country!!***

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**Habtamu Temegsen**

## CA Farmer Profile

Habtamu is a farmer in Ethiopia who took up conservation agriculture when it was introduced by MSCFISO, a partner of Mennonite Central Committee. In the past he used traditional methods, but with CA he sees how his soil is becoming more fertile – and to him – the health of his soil is incredibly important. With mulch cover, he can reduce soil erosion and survive the unexpected dry spells brought on by climate change. And when it decomposes, it builds more soil. Their crop can feed their family, but they can also sell it in their markets. And through his local collective, they now hold more power in negotiations of when and for how much they sell their crop.

Through this work, his family’s whole life has changed. Before there was hunger, now they have food. [Watch this short video](#) to see how the lives of Habtamu, his wife Yitayish, and their children have changed for the better.

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## Partner Profile: Africa Inland Church of Tanzania, Geita

### ***Neil Rowe Miller, Agriculture and Livelihoods Technical Advisor for Eastern Africa***

The Africa Inland Church of Tanzania (AICT) Geita Diocese was established in 1993 covering portions of Mwanza, Geita and Kagera Regions. The Diocese currently has 600 local churches, 135 pastorates and a stated mission of “building the capacity of her congregations and the community around to bring about holistic transformation.”

Beginning in 2012, the Diocese of Geita implemented food security and sustainable livelihood projects funded by Food Resource Bank in cooperation with World Renew (WR). From 2015 to 2020, they participated in the Scaling Up Conservation Agriculture (SUCA) project in 12 communities which resulted in 533 female and 771 male direct participants, and 134 indirect participants adopting Conservation Agriculture (CA-Plus). During SUCA, CA-Plus increased yields of maize and sorghum an average of 77%. The project also promoted gender equity, crop diversification, and enrolled 1,350 individuals in savings groups.

In 2021, AICT Geita began a follow-up agriculture and livelihoods project in 22 villages of Chato District Council, Geita District Council, and Geita Town Council. During the first year, the project worked with 500 SUCA participants who joined the project late and were not fully trained, as well as 320 new farmers. Ultimately, the project aims to reach 1,800 farmers with CA-Plus, IPM training, chicken management, kitchen gardening, and VSLA training. In addition, nutrition education and gender equity promotion will be included with support from the Baker Foundation through WR.

## EXTENSIVE ADOPTION OF COVER CROPS –

AICT Geita has done an outstanding job promoting CA with cover crops, especially velvetbean (*Mucuna pruriens*). It is somewhat unusual to see farmers adopting non-edible cover crops, like velvetbean, but the key appears to be that these farmers have enough land to fallow for a season, and the addition of a cover crop during the fallow period suppresses noxious weeds like couch grass and striga, and significantly increases main crop yields through enhanced soil fertility. In the meantime, the project is also promoting edible cover crops, including vining cowpeas, lablab and pigeon pea.

Most project participants have eliminated conventional tillage since the cover crop growth is dense enough to choke out all weeds. Farmers say that manure is no longer needed due to the added fertility provided by the velvetbean.



Heavy velvetbean and maize residue on the farm of Pauline Patrick

## CA MECHANIZATION: THE NEXT FRONTIER –

CA-Plus fields in the project range from one to three acres, even for first-year participants. Such rapid and large-scale adoption is an indication that farmers are convinced of the value of the new methods.

Large field size, however, brings other challenges. Hand-digging of planting basins is difficult on this scale, particularly among the Wasukuma who traditionally use oxen for field work. For this reason, AICT-Geita has also prioritized developing mechanized CA services through Service Providers. Both ox-drawn rippers and *Maresha*-based direct seeders are in the early stages of commercialization in Geita.

Mechanization with heavy cover crop residue has presented further challenges. Dried velvetbean residue tends to build up on the ripper/planter point, making it difficult to dig the furrows necessary for planting. Strategies for managing this residue include adding cutting discs and/or residue sweeps to the equipment, cutting residue into smaller pieces that are less prone to catching on the equipment, and as a last resort, moving the residue into alleyways prior to ripping/planting.



Jackson Nyaga prepares a maresha ripper beam during Service Provider training held in September, 2022.

AICT Geita has built a solid foundation on which CA-Plus adoption will undoubtedly continue to grow and flourish. Their extension strategy includes training and equipping local government extension agents alongside NGO staff, and they have already garnered significant attention from government officials and the wider community.

# ALTA TRAVEL SCHEDULES

## Lilian Zheke

**22 January-4 February, 2023**

**Blantyre, Malawi**

Partner visits (TSA and BIC-CODES) and Country Workshop

**16-23 February, 2023**

**Arusha, Tanzania**

Situation Assessment Writeshop, Team building & ECHO Symposium

**March, 2023**

**Mozambique**

field visit to ADRA Partner project

## Jean Twilingiyumukiza:

**23-27 January, 2023**

**Ruhango, Gicumbi and Bugesera, Rwanda**

Visit to MCC/PDN Project

**06-10 February, 2023 (tentative)**

**Mozambique**

field visit to ADRA Partner project

**16-23 February, 2023**

**Arusha, Tanzania**

SA Writeshop, Team building and ECHO Symposium

**March, 2023**

**DR Congo**

Country Workshop

## John Kimathi Mbae

**23-27 January 2023**

**Turkana, Kenya**

Capacity building- NCM-Kenya & ADRA

**6-10 February 2023**

**Nakuru Kenya**

Kenya Country-Level Workshop

**16-23 February 2023**

**Arusha, Tanzania**

SA Write shop, Team building and ECHO Symposium

**March 2023**

**Uganda**

Country Workshop & COU TEDDO Visit

## Neil Rowe Miller

**30 January-3 February, 2023**

**Blantyre, Malawi**

Country Workshop

**16-23 February, 2023**

**Arusha, Tanzania**

Situation Assessment Writeshop, Team building & ECHO Symposium

**March, 2023**

**Uganda**

Country Workshop