ACCELERATING CLIMATE SMART AGRICULTURE IN AFRICA

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Between climate change, food insecurity, poverty, and environmental degradation, agriculture in Africa faces many challenges.

To rise to these, African farmers are increasingly looking to implement climate-smart agricultural practices.

Climate-smart agriculture (CSA) is an integrated approach to managing landscape, including cropland, livestock, forests and fisheries, that addresses the interlinked challenges of food security and accelerating climate change.

In this Event Report, EURACTIV looks at the latest technological innovations that can help inspire and encourage the large-scale adoption of CSA and accelerate the transformation of Africa’s agriculture into a more sustainable and profitable sector.
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Boosting climate smart agriculture through access to ripping technology

By Natasha Foote | EURACTIV.com

With soil health high on the policy agenda, EURACTIV took a look at how advances in tractor technology can help boost climate-smart agriculture and promote no-till agriculture through the lens of a project in East Africa.

Soil health is at the heart of the EU’s new Green Deal and the United Nations Sustainable Development Goals, both of which aim to tackle biodiversity loss, reverse climate change and support sustainable land use.

Most recently, the EU adopted a soil strategy designed to offer an overarching policy framework for soil restoration, including plans for a soil health law by 2023.

But despite gaining increasing policy recognition, soils are in a sorry state across the world. According to current estimates, 33% of the Earth’s soils are already degraded while more than 90% are at risk of becoming degraded by 2050.

One way in which farmers are working to address these issues is via no-till, or reduced-till, agriculture.

A key component of the so-called Conservation Agriculture (CA), this practice involves planting crops without tilling the soil, which is the
conventional way of preparing the soil for planting by digging, stirring, and turning it over.

While tilling kills unwanted plants and allows for easier planting, it is costly and time-consuming and can lower the quality of the soil through soil compaction and erosion.

“No-till farming is an excellent soil conservation practice that’s been proven to help reduce soil erosion and runoff,” Barbra Muzata, head of communications for agrochemical company Corteva Africa Middle East, told EURACTIV.

As part of the company’s 2030 Sustainability Goals, she is involved in a number of projects intended to educate farmers on best practices, including soil health, and nutrients and water stewardship.

“Farmers are practising conservation agriculture on large-scale farms to improve soil fertility, increase yields, and boost profits,” she added.

One innovative tool that can be used to reduce reliance on tilling is ripping.

Ripping mechanically breaks up compacted soil layers using heavy tynes or blades which break up compacted soil layers but crucially, unlike tilling, without turning them over.

According to CGIAR, the world’s largest research partnership on food security, one of the main benefits of ripping is that it can help to break up the hardpan which results from traditional ploughing year after year, thus improving water infiltration and soil moisture.

This can improve crop productivity and build resilience to both drought and flood conditions in a way that also reduces soil erosion and degradation.

Despite the potential benefits that ripping technology holds, its uptake has been slow and access to such technology remains low in some areas of the world, such as across East Africa.

As such, a number of public-private partnerships have sprung up with the aim to encourage innovative techniques to promote the use of conservation agriculture and showcase to farmers the advantage of climate-smart farming.

One such project, spearheaded by several private players including Corteva and agricultural machinery companies John Deere and Hello Tractor, together with civil society organisations such as PAFID (Participatory Approaches for Integrated Development), is soon to be underway in Narok, Kenya, after several setbacks due to weather and COVID-related complications.

The project, coordinated by CGIAR and funded by both the International Fund for Agricultural Development (IFAD) and the EU, envisages four demonstration plots aimed at showcasing how ripping technology can improve agricultural productivity, resilience, and soil carbon storage.

A key innovation of this project is the integration of minimum till tractor services into a digital platform service for booking and routing tractors, created by agro-tech company Hello Tractor, enabling tractor providers to add ripping to the services they provide.

In this way, the project aims to broaden access to ripping services, including to smallholder farmers, according to CGIAR.

Moses Abukari, programme manager with the East and Southern Africa region at IFAD, said this is especially important given that, as it stands, the seasonal demand from farmers for conservation agriculture services is “increasing and currently outstripping the providers’ capacities due to limited equipment”.

Such programmes also have a lot of potential to generate employment and incomes while bringing multiple benefits to farmers, he said.

Experience shows that such programmes can also be especially beneficial for women, Abukari added.

This is because the conservation agriculture services are “time and labour-saving” but also because they boost crop production with “little or no soil disturbance and help conserve inputs,” he said.

According to Abukari, the next step is to build on the sustainability of the project, which includes ensuring that service providers are registered and can “build a credit history to access financing from banks to buy more equipment”.

Regulation is needed, he explained, to ensure the standardisation and quality control of the appropriate technology.

“Local equipment manufacturers need to be set up but they can’t progress without having first public investment in CA equipment, including the capacity building of farmers and climate-smart agriculture (CSA) providers,” Abukari added.
Read this interview in [German](#).

Europe’s push to decrease over-reliance on third-country food production is unavoidable due to the pandemic. Still, it could come in handy for encouraging African domestic production, according to the president of the UN’s Rome-based International Fund for Agricultural Development (IFAD).

Gilbert F. Houngbo is the president of the International Fund for Agricultural Development (IFAD) and former prime minister of Togo.

He spoke to EURACTIV’s agrifood editor Gerardo Fortuna.

European and African leaders are gathering in Brussels this week (17-18 February) to relaunch their partnership. What could be the role of agriculture in these talks?

Speaking in general terms, it is about time these two economic and political groups really take stock and re-galvanise their partnership because...
of many pending issues, from the sustainable development goals in general to climate change and economic migration, not forgetting the situation in the Sahel and the pandemic.

When it comes to agriculture, we know that this sector contributes to around 20% of the African countries gross domestic product (GDP), while two-thirds of the African population live in rural areas. Also, in Sub-Saharan Africa, more than 50% of the working population is employed in the agriculture sector.

At the same time, we have 12 million youngsters entering the African labour market every year. Clearly, the agriculture sector remains an important opportunity to create jobs for those youth. And I will particularly insist on the role of small-scale farmers, responsible for up to 70% of Africa’s ‘calorie intake’, so to speak, namely 70% of the production.

Did the COVID crisis worsen the situation for these people?

Unfortunately, the World Bank had estimated that around 100 million people had been pushed back below the extreme poverty line after the pandemic. Out of that, 30 million of these people are in Africa, where most countries remain either low-income or lower-middle-income.

We can also see from our activities on the ground that some producers have started selling their production resources because of economic distress, which means that they wouldn’t even have the equipment to continue their production. And that makes the situation even worse.

What can be done to reverse this scenario?

I think access to technology can play a role in response to COVID. We need to increase our investment in resilience and technologies at a different level: not only technology that will help us improve productivity from the human resource productivity perspective on the farm, but also in terms of total factor productivity.

Africa imports US$70 billion [€61.5 billion] in food products per year, so when the whole transportation system comes to a standstill, we have to rely on domestic production. But our domestic production cannot sustain this need if it is not competitive and if productivity is not improved, mainly through technology. This is why, at IFAD, we are working together with the Africa Development Bank on bringing technology down to the small producers in the rural area.

You mentioned a focus on domestic production, and the EU is also pushing on the concept of food sovereignty to avoid disruption caused by overreliance on other countries.

This principle of food sovereignty has to be balanced with the reality of life: we’re not going to live in a world where each country can only count and rely on itself. We must uphold multilateralism and continue working for better globalisation because the world will remain connected and dependent on others.

It seems to me that food sovereignty is a relative term because Europe cannot produce all that they need, just like Africa will not be able to produce all that it needs. However, to minimise that dependency from outside is essential, at least for Africa.

But could it be a problem for Africa if Europe decides to rely more on its food sovereignty?

I’m not so worried about Europeans being sovereign in terms of food production. Yes, it could reduce a lot of imports from Africa, which can impact the EU-ACP [African, Caribbean and Pacific] partnership agreement.

But if Africa can do the same with its own continental market, under its continental free trade agreement (FTA), this is a massive opportunity for the continent and growth from agriculture. That opportunity makes me less worried about the independence Europe is pushing for. That push, I believe, is unavoidable when you look at the consequences that we saw during the first month of COVID-19.

But I would like to encourage Africa to push in this direction by increasing the production to tap into it and not only respond to its own demand from a food security dimension. Africa needs to look at it as a business and job creation opportunity for the youth. When you see the current deficit in terms of supply-demand, this could be an opportunity for increasing intra-continental trade as well.

Other than the pandemic, there is also climate change to cope with.

Indeed, climate change is already affecting the producers, and they need to adapt now. Mitigation is essential; it is the long-term solution. But adaptation is also a priority, and quite frankly, with less than 2% of total investment in climate change that goes to small-scale farmers’ adaptation, I’m very much concerned that we might continue widening the gap in terms of our ability to catch up.

Speaking of investments, what is the future for development aids and international cooperation?

I sense that between the lines of this question is the issue of aid
effectiveness. I agree we need to have that discussion. I am among those who believe that aid is just a palliative and will not bring Africa out of poverty. We Africans have to make it by ourselves, by creating wealth and better managing our resources. Only this will get a long-lasting result.

But aid is a helper and remains an essential helper. After 60 years of independence in most African countries, we need to look at what has worked in international aid and what has not.

**According to you, what has not worked, and who’s to blame?**

I believe the responsibility lies on both sides. We Africans have an obligation in terms of good governance, maximising tax collection, fighting corruption, and better use of resources. On the flip side, international donors also have to meet their commitments. I don’t call for more commitment; I’m calling for the existing commitment to materialise.

We’re not going to the summit in Brussels just for taking commitment over commitment yet again. We need concrete action and, I can’t repeat that enough, we need to remind ourselves that those who are really suffering and those below the poverty line are the rural people. Eighty per cent of the world poorest are in rural areas.

It is also essential that rural people have a voice in determining their future and take part in defining and conceptualising the future they want. It is critical, and we should not have a top-down approach. It is going to be essential that we hear from the rural communities.
Matching farmers to innovation in Africa makes communities resilient to climate change

By Rhys Bucknall-Williams | CGIAR

On the frontline of climate change, farmers across Africa face huge challenges to their livelihoods. But EU supported projects show what can be achieved when we matchmake these farmers with innovations farmers from the private sector.

Rhys Bucknall-Williams is a Global Communications and Knowledge Manager at CGIAR.

The dust has settled on COP26. Food and agriculture appeared high on the COP agenda as never before, rightly taking its place as one the key sectors that contribute to climate change, yet also most vulnerable to its effects.

Campaigns like ClimateShot demonstrated how innovation helps vulnerable communities build more climate-resilient livelihoods and feed growing communities as the world's population is expected to reach 10 billion by 2050.

Nowhere is this more true than
in Africa, and next year’s COP27 in Sharm el-Sheikh, Egypt, is important.

Climate action for communities across Africa will be front and center of debate in Sharm el-Sheikh, with greater emphasis than usual on the role of agriculture, farming and food systems, which are central to so many African economies.

It’s critical that we better understand how farmers actually adopt climate-smart agricultural technologies and practices on the massive scale needed to address the climate crisis.

Projects like ‘Building Livelihoods and Resilience to Climate Change in East and West Africa’ – funded by the European Union and supported by the International Fund for Agricultural Development (IFAD) – deploy Agricultural Research for Development (AR4D) to answer how.

MATCHMAKERS MUST CONNECT INNOVATIONS TO FARMERS

Many of us are familiar with how apps like Uber and Lyft have radically changed mobility in major cities around the world.

In Kenya, a mobile app called Hello Tractor connects farmers to scarce tractor and related equipment that is often unaffordable to farmers to own outright.

The Hello Tractor business model is itself innovative, making older business models suddenly viable by connecting geographically disparate consumers (i.e. farmers) and using big data to allocate the use of those resources in a much more efficient way. The company literally map out delivery routes to minimise unnecessary journeys.

Kenyan tractor owner Dominic Kimani told Africa News:

“In the old days we used to park our tractors at shopping centres and patiently wait for customers who would not show up sometimes. However, with the use of this application I can get customers from far and wide and it has been easy to find work”.

Hello Tractor founder Jehil Oliver emphasised that:

“Nearly all farmers in the Africa region are reliant on rain fed agricultural systems....There is simply not enough labour available in these rural communities to ensure farmers have access to the labour that they need to plant on time and maximise their productivity. That is where Hello Tractor comes in”.

Kenya based researchers from the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) had separately met with both farmers and business leaders – including Hello Tractor and US tractor firm John Deere – in various community forums.

Meanwhile, AR4D research by CCAFS showed that farmers should adopt new tillage methods – namely ‘ripping’ – which required specialist equipment produced by firms like John Deere.

The CCAFS team introduced ripping technology into the Hello Tractor platform by connecting them to producers John Deere.

The impact emerged by taking disparate innovations a step further and ‘bundling’ them together, matchmaking producers with farmers.

BUndling innovations delivers greater impact than the sum of its parts

In Africa, 85% of agriculture is rain fed and that means rainfall heavily influences crop yields.

The problem is, rainfall is very poorly measured in many African countries, most of which have seen dwindling numbers of meteorological observation stations over past decades.

Satellites can help, but most farmers need ‘hyper-local’ measurements of rainfall to be able to plan how to farm, and only rain gauges on the ground can provide the granular data needed.

And without easily verifiable metrics of the climate risks that smallholder farmers face – particularly rainfall – it’s often impossible to overcome the ‘risk aversion’ that hinders the establishment of contracts between farmers and service providers like bankers and investors.

This is where ‘frugal’ innovations – simple, low-cost technologies – can be matched with data-driven digital platforms.

In West Africa, the agCelerant platform deploys ‘phy-gital’ agriculture – the combination of physical asset management tools with digital solutions – so that banking or investment service providers for smallholder farmers can be scaled across markets.

Assume that a farmer has taken insurance out against drought. If at the end of the season of poor rainfall, the farmers applies for a pay-out. How does the insurer know that the
farmer is telling the truth about the amount of rainfall on the farmers land in that year, and that they have just not been complacent?

To overcome this challenge, CCAFS and its partners developed prototype rain gauges, that were recyclable and enabled with ‘Internet-of-Things’ technology. These affordable gauges cost only US$ 50 apiece.

These gauges provide critical data and information to other key players in crop value chains who can provide finance, insurance and investment services to farmers, who are them empowered to better leverage climate risks.

So far, these gauges have been installed in Kenya and Tanzania, with further units ready for field deployment in Ghana and Ethiopia. Procurement for more units is underway to support projects in Mali, Burkina Faso and Senegal.

INNOVATION MUST BE DEMAND DRIVEN

Raising awareness of new innovations inevitably leads to greater demand, making them more sustainable in the long term with better value for money.

In Ethiopia, the CCAFS team collaborated with the Ethiopian Ministry of Agriculture (MoA), the Ethiopian Institute of Agricultural Research (EIAR) and the National Meteorological Agency (NMA) on a major public awareness campaign delivered through Fana Radio, one of the major media houses in the country.

Messages about climate-smart agriculture – and the innovations that are opening up access to such technology and practices – were shared with 15 million farmers across Ethiopia.

Making use of this extensive infrastructure (including 12 regional FM radio stations) and the Fana’s reputation, the broadcasting campaign delivered specific and highly contextualized information in the local languages to farmers in support of projects across different areas.

What this EU-IFAD supported project in Africa shows is how – on the frontlines of climate change – there is ample opportunity to connect and capitalise on all the innovation that’s already happening in communities vulnerable to climate change.

Major pledges at COP27 aside, such ‘grassroots’ efforts can be a major part of the solution to the climate crisis, especially when guided by the best climate and social science and supported with investment from international partners.
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Contact us

Name
Job title
email@euractiv.com
tel. +32 (0) # # # # #

Marco VENOSTA
EU Affairs Executive
marco.venosta@euractiv.com
tel. +32 (0) 2 226 58 19