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*Building the resilience
of smallholder farmers*

*towards ending hunger
and poverty*

WELCOME

Dear Reader,

Agriculture in Rwanda - as in other countries in the region - has been affected by the fall armyworm— Africa's winged invader and farmers' latest foe. Fall armyworm was confirmed in Rwanda in early 2017 in all 30 districts of the country. The pest has affected mostly maize fields; destruction of 17,521 hectares of maize out of 46,403 planted has been reported.

In March, the Food and Agriculture Organization of the United Nations (FAO) launched two projects to support the Government of Rwanda to fight fall armyworm. Under this project, farmers will be trained on how to detect and monitor the pest. Pheromone lures and traps have been installed in maize farms to stop reproduction of the pest.

In this newsletter, you will read many stories of survival and resilience. For example, you will read about Christine Mushimirimana, whose house collapsed, forcing her to sell her land.

You will read about how FAO is building resilience of smallholder farmers like Andrea Habiyakare by providing cows to families.

FAO is working with partners to prepare for the challenge ahead, towards achieving zero hunger and no poverty by through supporting farmers.

I hope you enjoy reading our newsletter.

Jean-Pierre DEMARGERIE
FAO Representative (a.i)

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An agronomist shows a farmer in Nyagatare, Rwanda how the pheromone traps work.

Insert: Fall Armyworm in after eating a maize.



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Battling the Fall Armyworm in Rwanda

Fall armyworm, responsible for crop devastation in a large portion of the African continent, has not spared Rwanda.

The pest was detected in Africa in 2016. In Rwanda, fall armyworm was suspected to be present in February 2017 in Nyamagabe District, and was confirmed the following month by the Ministry of Agriculture. By the end of April 2017, the outbreak had been reported in all 30 districts of the country and had infested an estimated 17,521 hectares of maize out of 46,403 planted.

The fall armyworm outbreak attacked 91.7 per cent of the maize and sorghum planted in Nyamagabe District, and 100 per cent of the maize planted in Nyanza and Muhanga Districts. Due to limited research on fall armyworm, as well as limited systems which can detect the insect early and minimize its impact, the outbreak spread quickly.

On 23 March 2018, FAO launched two projects to support the Government of Rwanda to monitor and manage the fall armyworm pestilence, as well as develop

- early warning systems to mitigate future infestations.
- “Fighting fall armyworm has to be a collaborative effort between all farmers, producers, and agricultural workers. We’re promoting a community approach. It doesn’t help if one farmer controls the pest in their field when their neighbors are not,” said Mathew Abang, Crop Production Officer at the FAO Sub-Regional Office for Eastern Africa.
- **The pheromone traps technology**
- FAO has provided and installed 1,200 pheromone traps and lure for monitoring and prevention of fall armyworm in the six districts most affected: Nyamagabe, Nyanza, Muhanga, Rwanamana, Nyagatare and Kayonza. These districts are known for their vast maize and sorghum fields.
- Unlike synthetic pesticides which can be hazardous, pheromone traps are safe, environmentally friendly, easy to use and valuable tool for monitoring fall armyworm populations.
- Pheromone traps can be useful in detecting population movement patterns of fall armyworm, and can also be an important alert in communities of increased populations of adult armyworms.
- “Reliance on synthetic pesticides to control fall armyworm is not feasible for farmers in Africa. We need to promote the technology package which promotes safe application of pests control. If farmers are aware of cost-effective and less hazardous methods of controlling fall armyworm, they might be willing to use their own resources to invest in these technologies,” said Abang.
- If left unchecked, fall armyworm could threaten the food security of more than 300 million people in Africa, cause significant economic losses, up to US\$ 4.8 billion from loss of maize production alone.

Social Protection: safeguarding poor households against livelihood risks

Social protection measures are essential to reducing poverty and hunger, especially in rural areas and when linked with interventions in the agricultural sector.

In Rubavu and Nyabihu Districts, FAO supports agricultural programmes for social protection which allow poor, rural farmers to strengthen their ability to manage risks, which allows them to engage in more economic and productive activities.

Christine Mushimirimana is a 50-year-old widow with seven children and only a primary school education. Four of them are still in school, and one has recently completed secondary school, but is still unemployed. Two of Christine's children were forced to drop out of secondary school, as Christine could not afford school fees. Before, Christine supported her family through occasional labour, earning a wage of RWF 1,000 per day.

When Christine's house constructed in 1970s collapsed in 2015, she had to sell her extra land to build a four-bedroom mud house. Initially, Christine grew a few crops, such as beans, for family consumption, but it was not enough.

Christine is in the first Ubudehe category, Rwanda's socio-economic classification system. In 2017, Christine was selected as a participant in FAO's new social protection project, and received avocado seedlings, vegetable seeds, three goats, and fertilizer. She also received training on good agricultural practices for vegetable production through a Farmer Field and Life School. Christine is also currently benefiting from the Government's programme "Minimum Package for Graduation (VUP)" for vulnerable households, which aims to lift families out of poverty.

Each Farmer Field and Life School (FFLS) group was also encouraged to start a savings and loans group, through which households collectively save money each week. The goats she received give her organic manure, which she uses in her gardens to increase productivity of the crops.

"Before joining the project, I did not think about or know how to grow vegetables. After receiving the vegetable seedlings, I began growing them and realized they grow in a short time with a large output. I have since expanded my land for the farming and hope to make it a profitable business," said Christine.

- The goats she received give her organic manure which she uses in her gardens to increase the productivity of the crops.
- Each group was encouraged to join a Voluntary Saving and Loan Scheme (VSL) through which households collectively save money every week. She borrowed Rwfr15,000 from the scheme to start a small business. She sells vegetables and other commodities along Rubavu highway a few meters from her home.
- "I no longer go to work for others. I make good profits better than when I was doing casual labor. I get that money without investing much energy" Christine says with a happy face.
- Once her goats start reproducing, she plans to sell off some to get more income. With incomes from her business she hopes to send all her children back to school and buy more land to expand her farming activities.



• © FAO/Treopista Mutesi
• Christine Mushimirimana in her bean field. She intends to make agriculture a well income generating activity.

- The activities of the social protection project were aimed to strengthened the government's existing programmes for vulnerable households to be self-reliant.
- Skills empowerment is equally important to ensure that the people sustainably upgrade their socio-economic status.

Improving the livelihoods of the rural poor through forest and landscape restoration

Forest and landscape restoration isn't only about taking care of degraded environments. It's also about building the resilience of smallholder farmers.

Andrea Habiyakare has noticed a significant improvement in his quality of life after receiving a cow from FAO's landscape restoration project. As a 61-year-old father of seven, Andrea earns a living by laboring on fields and by growing vegetables on the wetlands owned by Rulindo District. His family is in the first Ubudehe category, Rwanda's socio-economic classification system.

In 2017, Rulindo District designated the wetlands where he farms for other agricultural activities. Andrea, along with the other vegetable farmers, were forced to leave their farmlands. Sick with acute ulcers and the only breadwinner of his family, Andrea had not been able to work.

When FAO launched its project " Sustainable Food and Agriculture/Forest and Landscape Restoration (SFA/FLR), Andrea received his cow to support him improve this family's livelihood.

- The cow gives him manure which he uses for his backyard garden, and sells some for RWF 1,000 every week. He also prunes banana trees for a small wage.
- **Hopes for the cow**
- "The doctor recommended me to take milk every day four years ago because of my ulcers. Now with the cow I will be able to get milk and hopefully my ulcers will ease," said Andrea.
- "When my cow gives birth, I hope to buy more animals so I can sell them and further improve my household livelihood," he said.
- A total of nine dairy cows were given to support nine vulnerable households benefiting from the project in order to increase their milk production for income generation, address malnutrition, and for soil fertility improvement.
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Andrea Habiyakare tends to his cow he received from FAO to improve his livelihood. ©FAO/Teopista Mutesi

ICT4Ag: Harnessing ICT to increase access to food and markets

Information and communication technology (ICT) in agriculture has the potential to increase access to food, boost production and improve farmers' access to markets.

By using ICT tools, farmers and agricultural producers can more easily access relevant and timely information, including acquisition of quality seeds, credit and insurance, water supply for irrigation, and understand livestock care and market prices. Connectivity improves market functions by allowing farmers to access accurate price information, coordinate transport and other logistics, and facilitate easier exchange of food products.

In February 2018, Food and Agriculture Organization of the United Nations (FAO) in collaboration with the International Telecommunication Union (ITU) organized a #HackAgainstHunger campaign, which aimed to identify and support innovative solutions to address challenges around food and agriculture. It also aimed to develop ideas into tech solutions to ensure food security and end hunger. The campaign attracted diverse practitioners, including local innovators, scientists, agronomists, and software developers.

After three days of brainstorming, Kiza Solutions emerged with the winning idea: an electronic sensor buried in the soil which transmits data from the soil to a web-based platform which can provide adequate information on the soil composition to the farmers. In March 2018, Kiza Solutions presented their idea at the #HackAgainstHunger event in Geneva at the World Summit on the Information Society (WSIS) Forum. Since the forum, Lambert Rulindana, leader of Kiza Solutions, has formed the company "KizaLab Agri" with his colleagues.

Lambert's experience with farmers inspired him to improve the initial soil application to help farmers make informed decisions about the crops to grow.

"Agriculture production in Rwanda has increased by 3%, which means we have enough food to feed everyone, but where is the food?" Lambert asked himself.

To use the soil sensor/application developed by KizaLab Agri, farmers take a picture of the field and send it to KizaLab Agri, and will receive real-time feedback via SMS on whether the soil is diseased, or if the soil is at risk of becoming diseased.



Farmers from Rulindo District consult with each other during a training on the use of mobile applications in agriculture. © FAO

- The application will initially be used by cooperatives in Musanze District in the Northern Province, targeting potatoes, and in the Eastern Province targeting maize production.

Did you know...

- There is more than enough food produced in the world to feed everyone, yet 815 million people go hungry
- More than 800 million people are currently undernourished
- About 75% of the World's poor live in rural areas and 2.5 billion people derive livelihoods from agriculture



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Farmers check their mobile phones during training in the use of a mobile phone app in Rulindo.

The Government of Rwanda, FAO, other UN agencies, and the diplomatic community bid farewell to the outgoing FAO Country Representative to Rwanda, Attaher Maiga, as he concluded his five-year term.

Maiga has worked tirelessly to advance FAO's mandate of zero hunger and no poverty in Rwanda.

During a press conference in Kigali, the Minister of Agriculture, Hon. Geraldine Mukeshimana said, "As a ministry, we worked very well with Maiga. FAO supported us to stimulate youth employment through the poultry project, and supported us in small scale irrigation and preparation of the fourth Strategic Plan for Transformation of Agriculture in Rwanda (PSTA4)".

Arnaud de Vanssay, Head of Section for Rural Development at the Delegation of the European Union to Rwanda, noted that Maiga's work with FAO facilitated a reinforced and more qualitative policy dialogue in the agricultural sector,

and allowed for better support to the Government in improving the agriculture policy framework.

The European Union has financed several FAO projects in Rwanda, including capacity development for agricultural innovation systems, and drafting the fourth Strategic Plan for Transformation of Agriculture in Rwanda.

Maiga commended Rwanda's work on macroeconomic and sectoral policies, which have promoted production and productivity in the agricultural sector.

He noted that he had a dedicated interest in Rwanda to apply FAO's technical skills towards achieving zero hunger and no poverty.

Maiga commended the collaboration between local and international organisations to further these goals. Maiga will move to his new appointment as Head of the FAO Mission in Niger.

Staff of FAO Rwanda present to Maiga a painting of a shield and a spear which depicts protection in the Rwandan culture. They said it signified his continued fight against Hunger and Poverty in the World.



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FAO Director-General, José Graziano da Silva shakes hands with the Minister of Agriculture, Geraldine Mukeshimana.

FAO Director-General meets Rwanda's Agriculture Minister

- On 14 February 2018 in Rome, FAO Director-General José Graziano da Silva met with Geraldine Mukeshimana, the Minister of Agriculture in Rwanda, to discuss effective ways to engage youth in agriculture.
- Following these discussions, the Minister agreed to host a continental conference for youth agricultural entrepreneurs titled "Youth in Agriculture as a Solid Solution to ending Hunger and Poverty in Africa: Engaging through Information and Communication Technologies (ICTs) and Entrepreneurship".
- The conference will take place from 20-21 August 2018 in Kigali, and youth engaged in agriculture across Africa are expected to attend.
- It will focus on the impact of ICT in the development of agriculture.

Upcoming Calendar of Events

June 5th: World Environment Day

July 11th: World Population Day

July 4th : Rwanda Liberation Day

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