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A tomato farmer in his field (Credit: CABI)

New PlantwisePlus programme launched

A new CABI-led worldwide programme – PlantwisePlus – has been launched to help support low and lower-middle income countries to predict, prepare themselves for and prevent plant health threats in a changing climate, reducing crop losses and empowering farmers to increase income, food security and food safety by producing more and high quality food.

PlantwisePlus builds on CABI's Plantwise and Action on Invasives programmes, which have already helped millions of farmers in over 30 countries diagnose and treat pest threats and reduce crop losses by strengthening national plant health systems.

For the first 3-years of the programme, PlantwisePlus will test new interventions in 6-7 countries in Africa, Asia and the Americas. These include enhanced digital advisory tools to boost climate resilient agriculture and greater availability of more sustainable biological plant protection products.

Dr Morris Akiri, CABI's Senior Regional Director, Africa, said, "PlantwisePlus will enhance the on-going elements of Plantwise and Action on Invasives but will also introduce brand-new elements to address gaps and opportunities identified through lessons learnt. This will help smallholder farmers have increased incomes and grow safer and higher quality food through sustainable approaches

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to crop production.”

PlantwisePlus will seek to accelerate the availability of nature-positive and low-risk plant protection products to reduce reliance on high-risk farm inputs. The new programme will also create and transform employment to support economic development and contribute to consumer demand for safer, higher quality and locally produced food to drive the uptake of safer production practices.

Dr Akiri added, “*PlantwisePlus will bridge the gap where at the national and regional level there is no consistent or coordinated mechanism for detection*

of and response to pest outbreaks, or for providing the technical support needed to identify plant health problems and deliver effective solutions.”

PlantwisePlus will draw upon a range of existing CABI open access products and projects. These include the CABI BioProtection Portal – a free tool to enhance the awareness and uptake of biocontrol and biopesticide products by growers and advisors – and the Plantwise Knowledge Bank and factsheet app.



Morris Akiri

Senior Regional Director, CABI Africa

Apple snail spread raises farmers' rice production costs



Apple snail in a rice field in water (Credit:RC Joshi)

The invasion of the apple snail *Pomacea canaliculata* in Kenya is estimated to have led to an increase in production costs for rice farmers in Kirinyaga County, Kenya, with an additional Kshs 9,668,100 (USD 86,000) spent on 781 acres.

A field scoping exercise conducted by CABI – involving stakeholders including the Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MoALF&C), Capacity Development Project for Enhancement of Rice Production in Irrigation Schemes (CaDPERP), County Government of Kirinyaga, the National Irrigation Authority Mwea Irrigation Agricultural Development (NIA-MIAD), the Kenya Plant Health Inspectorate Service (KEPHIS), Plant Protection and Food Safety Directorate, Pest Control Products Board

(PCPB), Agrochemicals Association of Kenya (AAK), International Centre of Insect Physiology and Ecology (ICIPE), local agrodealers and millers – determined that urgent action is needed to control the pest.

Kirinyaga County is the main producer of rice in Kenya and working with NIA-MIAD and other stakeholders, the scheme produces 110,000 metric tonnes (mt) of paddy rice annually whose net worth has an estimated value of Kenya shillings 7.7 Billion (USD 68.5 million) and supports approximately 7,000 households directly.

Rice production in the county however, faces a new threat-the invasive apple snail. The snail was first spotted in the Murubara River in February 2020 and since then, it has spread primarily through irrigation

canals and mechanised farming implements and is presently found in the entire scheme.

A Multi-Institutional Technical Team (MITT) on crop health set up by MOALF&C visited the affected areas when the pest was detected and spearheaded management efforts. Working with the County Government of Kirinyaga and NIA-MIAD and other stakeholders, technical information and management options were consolidated to advise farmers on how to manage the pest. The PCPB was also instrumental in conducting trials and fast tracking registration of products that could be used to manage the snail.

To build on these efforts, CABI conducted a one-day stakeholder workshop and focus group discussion with a group of 48 farmers from Mwea, Tembere, Thiba, Wamumu and Karaba sections of the irrigation scheme, to assess farmers' awareness/knowledge of the pest, the extent of the invasion, and management practices

currently being used.

The findings from the scoping visit, stakeholder workshop and focus group discussions are expected to inform the design of a communication campaign aimed at increasing awareness of farmers, merchandised service providers and agrodealers, of effective management practices to control the pest in Kirinyaga, and potentially prevent its spread into other production schemes in Kenya.

Other actions in the near future include organising a National Stakeholder Forum to explore best practices from Asia and other parts of the world that might fit into the Kenyan context and raising the awareness of farmers on the need to adopt an Integrated Pest Management Approach (IPM) to managing the snails without an over-reliance on chemicals.



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Addressing plant pandemics to solve food insecurity in Africa



Dennis Rangi, Director General, Development

On World Food Day held recently, CABI's Dr Dennis Rangi, Director General, Development, asked how we can apply the determination and urgency shown to the COVID-19 pandemic to plant pandemics on the African continent in order to help food insecurity.

The COVID-19 pandemic has shown that when we come together on a global or regional level, we can quickly address the biggest threats to society. During the pandemic, governments across Africa showed great determination and urgency in tackling COVID-19. On World Food Day, can we address other deadly threats – like hunger and poverty – using the same level of

resolution and speed shown during the pandemic?

COVID-19 and food security are already closely intertwined. Not only did the pandemic bring dramatic disruptions to food supply chains, which many of us experienced first-hand, but it also brought to the fore the importance of access to good nutrition for human health and resilience to illness.

Critically, it also gave us valuable lessons that we can apply to crop and plant pandemics – challenges that threaten food security now and in future.

You can read the full article, which has been published by Science Africa, here: <https://scienceafrica.co.ke/address-plant-pandemics-to-solve-food-security-in-africa/>



Dennis Rangi
Director General, Development

Improving access to legume technologies in Ghana



Groundnuts at the weekly market of Chiana, Kassena Nankana District, Ghana. Credit: Axel Fassio/CIFOR (CC BY-SA 2.0)

In Ghana, legumes offer an important food staple and commercial crop for smallholder farmers, with legume value chains making a significant impact on food security and household incomes. However, production of legumes such as soybean, are on the decline in sub-Saharan Africa. This can be attributed to a number of factors, but chief among them is a lack of improved production technologies, poor access to production inputs and erratic incomes from production due to lack of appropriate linkages to markets.

Despite legume cultivation technologies being available and widely promoted, a lack of access to practical

information has led to a low adoption rate among farmers, a shortcoming examined by a working paper published by CABI. This study aimed to identify the extent of farmers' access to agricultural knowledge on legume technologies and information flows within farming households in Ghana, and to help with selecting the appropriate ways to reach men, women and youth involved in farming.

An intrahousehold survey was conducted as part of CABI's Gender and Legume Alliance (GALA) project, to help address the opportunities for improving access to and capacity to use information and knowledge by smallholder farmers to achieve sustainable legume production in Ghana.

The findings provided a starting point for the GALA project, and also enabled the selection of suitable information dissemination pathways for men, women and youth for scaling up legume technologies. Public, private and non-governmental organization sectors can also benefit from the findings, as it provides the opportunity for increased engagement with evidence on which communication channels work, and what support is required to strengthen legume value chains in Ghana. Smallholder farmers, particularly women and youth, will be enabled to profit from legume technologies that allow intensification without further land degradation.



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Uganda reaps benefits from crop-livestock advisory services



Farmers receiving advise at a joint crop-livestock clinic (Credit: CABI)

A CABI-led pilot project applying a 'One Health' approach to advisory services to help 1,200 smallholder farmers in Uganda tackle major crop and livestock health and production problems, is already reaping benefits despite challenges faced by the COVID-19 pandemic.

The project has so far established four joint crop-livestock clinics in four villages in Luwero, Buikwe, Kayunga and Mukono districts, where men and women farmers receive advice on a range of crop and livestock topics including 'One Health issues' such as

mycotoxins, zoonoses and the safe use and handling of chemicals such as acaricides. District crop and livestock advisors work side-by-side to address the issues and support each other.

Funded by the Biovision Foundation and carried out in collaboration with VSF Suisse in Kenya, Makerere University, the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) as well as the District Local Governments, the project builds upon a previous study to assess demand for livestock advice during plant clinic sessions in selected countries including Kenya and Uganda.

Christine Alokit, CABI's Communication and Extension Scientist, said, *"Following our discussions with VSF Suisse it is hoped that we can pilot three sites for crop-livestock clinics in Kenya from 2022: Isiolo, Elgeyo Marakwet and Trans Nzoia counties, depending*

on the availability of trained plant doctors and VSF's engagements."

A number of agreed operational strategies and priorities have already successfully been adopted at the joint crop-livestock clinics. These include development of data capture and management systems that can enable easy capture of interrelated crops and animal health issues. The project team is closely studying how the interface with crop and livestock farmer queries can be handled to enable efficient cross learning among farmers and extension and how to best quickly follow up on animal health queries that are currently restricted to the joint clinic.



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Multimedia increases sustainable agricultural intensification uptake



A female farmer in Ghana attends a film screening in her village as part of a soybean campaign which also included SMS, music videos and printed materials (Credit: CABI)

A multimedia approach to extension services has helped increase the uptake of Sustainable Agricultural Intensification (SAI) in Ghana, Nigeria, Tanzania and Uganda as part of the Africa Soil Health Consortium's (ASHC) scale-up campaigns focused on the key crops of maize, common bean, soybean, cassava, potato and banana.

New research, led by Dr Monica Kansime, reveals that ASHC campaigns achieved scale of farmer reach and spurred adoption of promoted SAI technologies through 18 campaigns that employed radio programming, dramas, comics, community video screenings, Short Message Service (SMS) sent through mobile phones,

printed materials, demonstration plots and Village-Based Advisors (VBAs) – often in an integrated manner.

The study – published in the journal *International Journal of Agricultural Sustainability* – demonstrates that the mixed media approach in advising smallholder farmers on ways to improve their crop yields resulted in the adoption of SAI practices by at least 20% of those exposed to the campaigns.

Dr Kansime said, *"Our study shows that exposure to multiple communication approaches – essentially using the same message sent through various channels to reinforce message retention – was associated with increased uptake of promoted practices and*

technologies, compared to the use of a single channel”.

Dr Kansiiime said adoption varies based on the nature of the practice or technology being promoted, farmer motivating factors such as access to input and output markets, farmer investment capacity and the value of the crop, etc.

She added that the wide array of technological options

available and their interactions requires farmers to identify a ‘logical stepwise sequence for adoption’ that fits their socio-economic circumstances.



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Effects of credit guarantee scheme in opening up lending to smallholder coffee cooperatives



Coffee processing (Credit: Negussie Efa Gurmessa)

CABI coffee value chain experts have led research which examines the effects of a partial credit guarantee scheme in increasing lending to credit constrained farmer cooperatives in Ethiopia – Africa’s largest coffee producer and the world’s third and fifth largest producer and exporter of Arabica coffee, respectively.

The study, conducted in the Oromia and the Southern Nations, Nationalities, and People’s regions – which account for 99% of the coffee produced in Ethiopia – and published in the journal *Development in Practice*, revealed that while the credit guarantee scheme improved financial additionality among the cooperatives in eight zones of the two major coffee-growing regions of Ethiopia, it had limited reach and impact on the terms and conditions of loans.

The Common Fund for Commodities was the main financier and guarantor, while CABI and Ministry of Agriculture (MoA, Ethiopia), respectively, were the project executing and implementing agencies. Rabobank was involved partly in financing and risk-sharing, and Cooperative Bank of Oromia (CBO)

Dr Negussie Efa Gurmessa, said, “We found that integration of capacity building and technical support for the lending banks and borrower cooperatives was identified as one of the merits of the scheme. However, the partial credit guarantee scheme had limited influence on the lending banks’ behaviour and practices to adapt and/or relax their lending approaches, loan terms and products.”

The researchers acknowledged that both internal and external factors affect the effectiveness of the guarantee scheme targeting farmer cooperatives. Particularly, weak business and financial management capacity of the cooperatives had limited their effective uptake and utilisation of the guaranteed loans.

The scientists conclude that in view of their nature and the social and economic benefits they render to the farming community, farmers cooperatives may need to be treated differently in accessing financial resources.



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Stakeholders hail positive impact of FDOV project on Ghanaian vegetable exports to EU market



Phytosanitary system development extended to the vegetable processing facilities (Credit: CABI)

Stakeholders involved in the implementation of a project to deal with interceptions of vegetable produce from Ghana to the EU market because of harmful organisms have hailed the positive impact of the project on exports.

Speaking at its closure meeting, the stakeholders lauded the contribution of the project in reversing the trend of high interceptions and restoring the hope of farmers. The interventions contributed to a reduction in interceptions of harmful organisms in commodities exported to the EU markets from a peak of 330 in 2014 to 11 in 2020.

According to Dr Victor Attuquaye Clottey, Regional Representative of CABI in West Africa, this project was requested by the Plant Protection and Regulatory Services Directorate (PPRSD-MoFA) in 2014 to develop a functioning phytosanitary system for the country. He further explained that the project was executed through a Public-Private Partnership led by CABI using a multi-stakeholder approach involving the government, commercial farmers, exporters and Dutch importers to overcome some challenges of the horticulture sector.

The project was co-funded by the Netherlands Facility for Sustainable Entrepreneurship and Food Security (FDOV) and partners included CABI, Plant Protection and Regulatory Services Directorate (PPRSD)/MoFA, Ghana Association of Vegetable Exporters (GAVEX), Quarcoo Initiatives Co. Ltd (Quin Organics) and EOSTA B.V.

On key successes, the Project Manager – Walter Hevi of CABI, said the project worked with other

stakeholders to establish an effective phytosanitary system supported by regulatory protocols, standard operating procedures and surveillance systems for the vegetable sector. All these promoted good agricultural practices in the vegetable supply chain.

The project enhanced compliance with production standards, implementation of management systems, availability of technical assistance for certification, infrastructure for sorting, inspection, packing and storage and relations based on proper business conduct between exporters and farmers as well as support the development of a new supply chain of organically certified citrus produce from Quarcoo Initiatives Co. Ltd. (Quin Organics) in Ghana to EOSTA B.V in the Netherlands.

Expressing the positive impact the FDOV project has had on his business, the CEO of Quin Organics, Mr Samuel Nii Quarcoo, said, *“Through the flexible marching funds facility the project provided, Quin Organics is in the process of constructing a modern standard packhouse for safe handling and packaging of our products to meet international export standards. He continued that, “Quin Organics has also benefitted from the technical capacity building programmes of the project enabling us to meet international standards for exporting fruits and vegetables to the EU market.”*

Another key intervention of the FDOV project was the procurement of various laboratory equipment for the PPRSD laboratory at Pokuase to aid in pest and disease diagnosis in the laboratory, field monitoring and data collection.

Commenting on the benefits her outfit enjoyed from the partnership with the FDOV project, the PPRSD representative at the meeting, Mrs Hannah Serwaa Nuamah highly praised the project for the immense contribution made to the operations of PPRSD by enhancing its human, logistical and operational capacity, which has greatly helped in the effective delivery of its mandate.



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Digital extension and advisory services for farmers amid COVID-19 come under the microscope



The challenges of using digital tools as part of extension and advisory services to help empower small and family farmers amid the COVID-19 pandemic have come under the microscope in a joint webinar hosted by the Food and Agriculture Organization of the United Nations (FAO) and Agrilink.

CABI's Dr Monica Kansime, participated in the event by taking part in a panel discussion looking at the role of advisory systems and related policies, in maximizing digital dividends and minimizing divides in helping farmers boost their yields and profits in testing times.

In particular, Dr Kansime drew upon research findings from her paper 'Challenges and capacity gaps in smallholder access to digital extension and advisory services in Kenya and Uganda,' published in *Frontiers of Agricultural Science and Engineering*, which highlighted how 78 percent of farmers accessed extension and advisory services mainly from radio and that low digital literacy and the high cost of the internet were key barriers to digital extension and advisory service use.

The webinar aimed to explore the 'opportunities, challenges and potential pitfalls, as well as the issue of smallholder farmer empowerment associated with the current trends in the digital delivery of extension and advisory services to farmers.' It drew upon the e-workshop's rich diversity of perspectives and expertise of colleagues working with agricultural extension and advisory services in both Europe and the

Global South.

Most recently, the COVID-19 pandemic has challenged agricultural extension and advisory services around the world to rapidly innovate and adopt remote and digital tools to allow them to continue supporting farmers, whilst complying with the necessary COVID-19 control measures.

Dr Kansime said, "Smallholder farmers face a myriad of challenges and capacity gaps in access to digital extension and advisory services. Our own research, in respect of smallholder farmers in Kenya and Uganda, for example, has shown that the ownership of digital devices, participation in post-production activities, and access to extension are key drivers of digital extension and advisory service use.

"Our recommendations for policy and practice include farmer profiling to understand the different needs of smallholders to provide targeted information and advisory services as well as the integration of digital communication within multimode advisory services that use different but linked communication channels for inclusive scaling of extension activities."

A discussion paper associated with the webinar suggests that 'both the advisory and farming communities need to be mobilised and empowered to take ownership of digital tools and to actively engage with them.'

The document goes on to argue that 'this may involve combining available technologies with social and organisational innovations, new infrastructures and an enabling environment of favourable policies, investment, regulations and improvements in capacity.'

The future role of extension and advisory services, it further contends, should include 'facilitating and supporting farmers to re-orientate themselves in the digital landscape.'



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Supporting SADC Member States to tackle key crop pests and diseases



Scouting for tomato leaf miner (*Tuta (Phthorimaea) absoluta*) (Credit: CABI)

CABI is working in partnership with the Food and Agriculture Organization of the United Nations (FAO) to support the operationalization of the Southern African Development Community (SADC) Regional Agricultural Policy that will help tackle five key crop pests and diseases affecting its 16 Member States.

Dr Ivan Rwomushana and Dr MaryLucy Oronje are leading a team of CABI scientists that are providing expertise on developing strategies to fight Maize Lethal Necrosis Disease (MLND), tomato leaf miner (*Tuta (Phthorimaea) absoluta*), oriental fruit fly (*Bactrocera dorsalis*), fall armyworm (*Spodoptera frugiperda*) and Banana Fusarium Wilt (*Fusarium oxysporum* f. sp. Cubense Tropical race 4 (Foc TR4)).

Dr Oronje said, “In order to mitigate the effects of pests and diseases within the region and

individual countries, national and regional capacities need to accurately identify the viruses associated with the diseases, analysing the risk of introduction and implementing SPS measures to prevent entry and provide a first line of defence.

“The project aims to provide support to the SADC Secretariat by strengthening national and regional capacities to prevent entry, control spread and manage five priority plant pests and diseases. Additionally, it will strengthen regional cooperation and coordination on SPS issues, focusing on those pests and diseases identified in the region.”

Other key activities within the project will include hosting a series of webinars on selected topics to enhance inspection and diagnostic skills, improve the understanding of SPS issues and provide updated guidelines for inspectors, regulators and other National Plant Protection Organization personnel.

The project will benefit the 16 SADC Member States under the three-year-long EUR 9 million project ‘Support towards operationalization of the SADC Regional Agricultural Policy’ (STOSAR) and financed by the European Union (EU) as part of its 11th Economic Development Fund Programme (EDF 11) – will also involve training on Pest Risk Analysis (PRA) and the implementation of Sanitary and Phytosanitary (SPS) measures.



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CABI shares expertise at 3rd International Phytosanitary Conference

CABI shared its expertise – gleaned from digital extension know-how and application in global programmes such as Plantwise, Action on Invasives (Aoi) and the new PlantwisePlus – at the 3rd International Phytosanitary Conference held recently.

Scientists based at CABI’s regional centre for Africa in Nairobi, Kenya, took part in two special sessions at the

conference – hosted and delivered virtually by the Kenya Plant Health Inspectorate Service (KEPHIS) as part of International Year of Plant Health 2020 – in alignment with the theme ‘Enhancing phytosanitary systems for healthy plants, safe and sustainable trade.’

Dr Morris Akiri, CABI’s Senior Regional Director, Africa, said, “A recent CABI-led study revealed that Invasive



Local traders selling vegetables in a market

Alien Species are estimated to cost Africa's agricultural sector USD 65.58 billion a year – equivalent to 2.5% of the Gross Domestic Product of all African countries combined.

"It is imperative, therefore, that we utilize opportunities

presented by events such as the International Phytosanitary Conference to come together and share expertise to find innovative and sustainable ways to help millions of smallholder farmers grow more and lose less to pests and diseases – thereby not only increasing their livelihoods but also local, national and global food security."

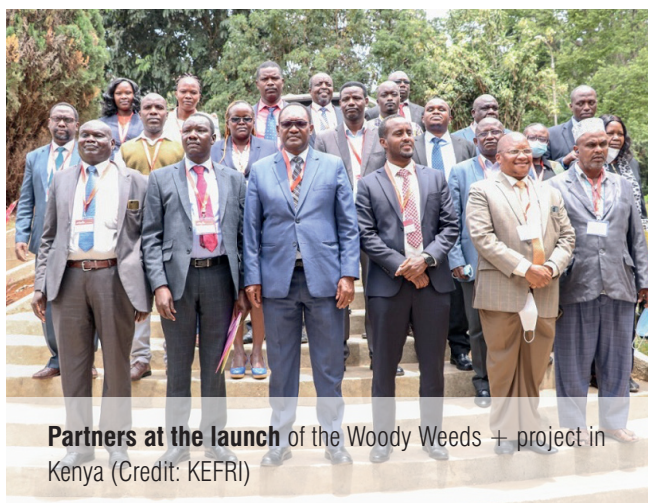
The conference was also co-sponsored by CABI along with others including the Kenyan government, the Center of Phytosanitary Excellence (COPE), the Common Market for Eastern and Southern Africa (COMESA), the International Maize and Wheat Improvement Center (CIMMYT), Syngenta, the Food and Agriculture Organization of the United Nations (FAO) and the International Year of Plant Health 2020.



Morris Akiri

Senior Regional Director, CABI Africa

Woody Weeds Plus project to support Kenya's prosopis strategy



Partners at the launch of the Woody Weeds + project in Kenya (Credit: KEFRI)

A new Swiss-Kenyan Woody Weeds + project was launched to support a National Prosopis Strategy (NPS) for Kenya which is aimed at the sustainable management of the invasive weed *Prosopis juliflora* – considered one of the world's most threatening non-native tree species. The three-year project builds upon the previous Swiss-funded Woody Weeds project which, assessed the effects of prosopis on the environment and rural livelihoods in Kenya, Ethiopia and Tanzania as well as ways to manage it.

Dr Chris K. Kiptoo, Principal Secretary for the Ministry of Environment and Forestry, said, "*Land degradation caused by human activities is one of today's greatest*

challenges to sustainable development. It undermines the well-being of over 40% of the human population, driving species extinctions and intensifying climate change. It is also a major contributor to human mass migration and conflicts over resource use."

The Woody Weeds + will also see the creation of an app that will help the dissemination of information, awareness raising and decision support within and beyond the target area. Dr Cheboiwo added that the NPS will gradually reach 22 counties in Kenya with technologies and approaches tried and tested in the three lead counties of Baringo, Isiolo and Tana River.

Woody Weeds + was launched in the presence of representatives from six implementing partners by Dr Chris K. Kiptoo, Principal Secretary for the Ministry of Environment and Forestry, and Dr Joshua Cheboiwo, Director General of the Kenya Forestry Research Institute (KEFRI). The project will strengthen livelihood security and environmental integrity in areas affected by prosopis by supporting the delivery of the NPS in pilot counties in Kenya.

For more information on the Woody Weeds project see the website: <https://woodyweeds.org/>



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