

ISSUE 11  
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# CABI in Africa

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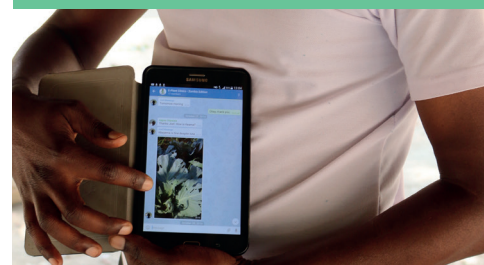
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## UK Parliamentary group briefed on invasives

CABI has highlighted the threat Fall Armyworm and other global invasive species pose towards achieving the UN's Sustainable Development Goals (SDGs) in a briefing to the All-Party Parliamentary Group (APPG) on Agriculture and Food for Development in UK.

CABI's CEO, Dr Trevor Nicholls, and Knowledge Bank Coordinator, East Africa, Dr MaryLucy Oronje, updated the meeting chaired by Lord Cameron of Dillington on the challenges presented by invasive species around the world, including losses worth billions of dollars which threaten Africa's maize harvest unless Fall Armyworm is successfully brought under control.

Dr Nicholls said: *"The global cost of invasive species is estimated at \$1.4 trillion a year – close to 5% of global gross domestic product. In East Africa alone, five major invasive species alone cause around \$1 billion in economic losses to smallholder farmers each year. Invasive species have a wide range of devastating impacts and are fast becoming one of the most critical barriers to achieving many*

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aspects of the United Nation's Sustainable Development Goals by 2030."

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““The global cost of invasive species is estimated at \$1.4 trillion a year”

Fall Armyworm is one of the greatest threats and has spread rapidly across Africa. CABI estimates that it could cause maize losses costing up to US\$6.1 billion per annum in 12 African countries, unless control methods are urgently put in place. About 40 African countries have now detected and reported Fall Armyworm attack on maize.

Dr Oronje said: "In Kenya alone it is estimated that 30% of maize yields were lost to Fall Armyworm in 2017, worth around US\$200 million. Governments and regional and international organisations in Africa are coming together to identify the best way to manage this pest which threatens to devastate crops and farmer livelihoods across the continent, but much more work is required to bring this invasive species under control."

The presentations to the APPG came after CABI launched the global Action on Invasives programme, funded by UK Aid and the Netherlands Directorate-General for International Cooperation (DGIS), which aims to protect and improve the livelihoods of 50 million poor rural households impacted by invasive species. CABI and its partners are seeking a \$50m investment to coordinate the Action on Invasives programme and implement a multinational invasive species framework.



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Dr MaryLucy Oronje and CABI's CEO Dr Trevor Nicholls briefing parliamentary group

## Vegetable exports from Ghana to EU resume

CABI's work in partnership to improve Ghana's phytosanitary systems means vegetable exports worth \$15 million a year are continuing once again after the lifting of a Directorate-General for Health and Food Safety of the European Commission ban imposed in 2015.

The lifting of the suspension, imposed due to concerns about the management of four quarantine pests including false codling moth, whitefly, thrips and fruit fly, means Ghana is exporting chilli peppers, bottle gourds, luffa gourds, bitter gourds and eggplants to Europe

once more.

As part of a €1.8 million project – part-funded by CABI and the Netherlands Ministry of Foreign Affairs and the private sector – CABI is helping to protect the livelihood of Ghana's vegetable growers by improving its technical and organizational capacity in the entire horticulture supply chain.

Working with partners including the Plant Protection and Regulatory Services Directorate (PPRSD) of the Ministry of Food and Agriculture, Ghana, and the



Ghana Association of Vegetable Exporters (GAVEX), CABI helped streamline the inspection and export certification as part of its improved phytosanitary systems.

One farmer benefiting from the lifting of the ban is Ernest Joe Agidi of Ada Irrigation Co-operative Farmers Association who has a 12-acre farm producing Chili pepper, Egg-plant (Ravaya) and Okra.

Ernest Joe Agidi said, *“The lifting of the ban will allow me to start producing chilies and Asian vegetables for export again. The Asian vegetables are not preferred by most Ghanaian consumers and we grow them mainly for the export market. I will be able to make more income to pay my workers, my children school fees and also invest in other ventures apart from my farming business”*

Walter Hevi, CABI’s Project Manager in Ghana, said CABI was invited in early 2016 to join the Export Task Force established by the Minister of Food and

Agriculture to collectively solve the phytosanitary issues facing the vegetable sub-sector in a way to ensure that the EU ban was lifted.

Some of CABI’s contributions to the improvements included producing and distributing posters on pests management to help train vegetable exporters and their out-growers on how to manage the four quarantine pests, distribution of insect traps for pest monitoring and provision of laboratory equipment to PPRSD.

Alex Akuffo, Treasurer at GAVEX, said, *“I pack produce harvested from my farm and my out-growers farms in my house. I am very happy the project is assisting me with 50% funding to build a sorting and packing facility at the production site of my out-growers. This will help me adhere to the standard operations procedure in my postharvest handling processes to export a clean and healthy produce to the EU market.”*

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## \$1.8 million plant biosecurity partnership pays...

A \$1.8 million partnership to improve agricultural productivity and sustainability in 10 African countries is starting to pay dividends thanks to the work of the Australia-Africa Plant Biosecurity Partnership (AAPBP).

The partnership, funded by the Australian Centre for International Agricultural Research (ACIAR) and delivered by a consortium led by Australia’s Plant Biosecurity Cooperative Research Centre (PBCRC), the Crawford Fund and CABI, has so far helped Tanzania access new markets for mangoes in Oman and Saudi Arabia,

and helped Zambia sell grapes and bananas to markets in South Africa.

Plant biosecurity is a major global issue and invasive species are estimated to cause US\$400 billion of damage a year.

The key goal of the partnership was to implement a programme that would enhance the capacity of middle level managers and decision makers in Burundi, Ethiopia, Kenya, Malawi, Mozambique, Rwanda,

Uganda, Tanzania, Zambia and Zimbabwe, to address, build and enhance national and regional biosecurity control capacity.

To facilitate this, the Australia-Africa Plant Biosecurity Network was established, comprising 45 Fellows and led by 15 Senior Fellows. The aim of the network was to deliver technical biosecurity training, forge mentoring relationships between African Fellows and Australian experts, and support the development of country-based and regional biosecurity action.

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“We have now been able to negotiate market access for export mangoes to Oman and Saudi Arabia”

Katemani Mdili, Senior Agricultural Officer, Tanzania's Ministry of Agriculture, said, “From my experience in Australia, when I got back, I approached the Association of Mango Growers directly, and they have responded

well. Fruit flies are everyone's problem, so we also need a regional approach. We have now been able to negotiate market access for export mangoes to Oman and Saudi Arabia.”

One of the project's strengths was that the same group of people from ten countries took part in the whole series of activities, developing a common understanding of the issues as well as forming lasting relationships within Africa and between Africa and Australia.

Bill Magee, Project Leader (Australia), PBCRC, said, “I recently visited Kenya to work on plant biosecurity issues associated with cut flower exports. The visit was hosted and organised by Mary Githinji, a senior fellow from KEPHIS who completed the AAPBP program. Mary's experience gained in the programme has contributed to improved market access opportunities for cut flower exports from Kenya. Mary has also drafted new plant biosecurity legislation for Kenya, incorporating lessons learned during her placement in Australia.”

Melissa Wood, General Manager of ACIAR's Global Program, said, “It is wonderful to see how highly valued the network is by key trade agencies in Africa (The Common Market for Eastern and Southern Africa (COMESA), the Food and Agriculture Organization of the United Nations (FAO) and the African Union) and that these agencies are already utilising the AAPBP Fellows in their programmes and have committed to supporting the Network in the future.”



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## Irrigation to enhance seed supply



Lack of access to quality seed, particularly of traditional crops that are not well into the formal sector, remains a key challenge for increased productivity of these crops in African farming systems.

CABI, working with national and regional partners, aims to strengthen seed systems in Africa through developing farmer seed enterprises and linkages to markets. Focus has been on traditional varieties that are farmer-preferred for their nutrition, food security, income and environmental sustainability. This is aimed at enhancing access to quality seed of farmer-preferred varieties locally, nationally and regionally.

In Uganda, CABI worked with farmer groups in central Uganda producing and supplying seed of African indigenous vegetables (AIVs). Common AIVs in central Uganda include; amaranths, scarlet eggplant, Africa

**Continued on page 5...**

# Datasets on IAPs published



CABI received a grant from the JRS Biodiversity Foundation to publish one of the most complete and current datasets on Invasive Alien Plants (IAP) in Eastern Africa. The project, led by Dr Arne Witt, Coordinator: Invasive Species, CABI, was built upon the successful results from a previously awarded JRS grant.

East Africa's biodiversity is under threat from the spread

## Continued from page 4...

nightshade, African eggplant, spider plant and pumpkin. However, the key production challenge remained prolonged droughts affecting seed quantity and quality, and subsequently supply. With support from European Union (EU) through the African Forum for Agricultural Advisory Services (AFAAS), CABI piloted appropriate irrigation facilities with three farmer groups. With irrigation facilities, farmers can plant at different times and ensure constant supply to the market all year round.

The availability of irrigation facilities has also aroused more farmer interest to engage in seed production. During one season in 2017, more than 10 acres of land have been put under seed production by smallholder farmers with an anticipated seed return of 1.5 tonnes from 4 groups (54 seed growers). This represents 60% increase in seed production compared to 2016 (season A and B combined).

The increase in number of farmers has also been attributed to the benefits they have achieved from seed

of Invasive Alien Plants (IAP), which can have a dramatic impact on biodiversity, crop and pasture production, human and animal health, water resources, and economic development, especially in developing countries.

Despite the severity of the threat, in the developing world there is little to no information available about the presence, distribution, or potential impacts of invasive species. The major barriers to effective IAP management include a lack of policy or implementation, a lack of awareness, and limited capacity.

This lack of information can be a barrier to development and implementation of effective management strategies. In much of the developing world there are no invasive species inventories or tools which interested and affected parties can use to identify invasive plants.

The project helped to fill these knowledge gaps in IAP management by cleaning and making available through the Global Biodiversity Information Facility one of Africa's most complete and current datasets on IAP species. This dataset was collected as part of a prior phase of this project and contains approximately 120,000 locality records of IAP species in eastern Africa, Malawi, and Zambia.



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production, particularly income from seed sales and access to quality seed for own vegetable production.

Working with Simlaw Seed Uganda Ltd, a schedule has been drawn for seed production by farmer groups to ensure balanced seed supply to the market. Previously, all farmers produced seed under rain-fed conditions and seed reached in the market at the same time, leading to over-supply. With irrigation facilities, farmers can plant at different times and ensure constant supply to the market.

*"We don't have to wait for rain any more to plant our fields. We can now produce all year round,"* said one of the members of Kyamutakasa farmers group in Nakaseke.



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# Fall Armyworm's cost on farmers



CABI published an 'evidence note' report on the invasive Fall Armyworm pest, showing how the caterpillar could cause maize losses costing 12 African countries up to US\$6.1 billion per annum, unless control methods are urgently put in place.

Fall Armyworm: Impacts and Implications for Africa was commissioned by the UK's Department for International Development (DFID) to review current evidence of the potential impact of Fall Armyworm in Africa. The document quantifies the likely economic effect on agricultural sectors in affected countries and regions if left unmanaged, and draws lessons for Africa from experience controlling the pest in the Americas.

Fall Armyworm in Africa has the potential to cause maize yield losses ranging from 8.3 to 20.6 million tonnes per annum, in the absence of any control methods, in just 12 of Africa's maize-producing countries. This represents a range of 21-53 per cent of the annual production of maize averaged over a three year period in these countries. The value of these losses is estimated at between US\$2,481-6,187 million.

According to the report, Fall Armyworm should be

expected to spread throughout suitable habitats in mainland sub-Saharan Africa within the next few cropping seasons. Northern Africa and Madagascar are also at risk. To date, the pest has been detected in almost all sub-saharan countries in Africa.

Dr Roger Day, CABI's Programme Executive, Action on Invasives (Aoi), says, "Thanks to DFID's support, we have been able to assemble exactly the information that many people in Africa are looking for. In the smaller-scale farming systems of Central and Southern America, Fall Armyworm is controlled using an integrated approach, and this is what is required in Africa."

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“... Fall Armyworm in Africa has the potential to cause maize yield losses ranging from 8.3 to 20.6 million tonnes per annum...”

Immediate recommendations in the report include raising awareness on Fall Armyworm symptoms, early detection and control, and the creation and communication of a list of recommended, regulated pesticides and biopesticides to control the pest. Work must also start to assess which crop varieties can resist or tolerate Fall Armyworm. In the longer run national policies should promote lower risk control options through short term subsidies and rapid assessment and registration of biopesticides and biological control products.



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# Space-age technology for fight against pest outbreaks

CABI is leading a consortium, funded by the UK Space Agency's International Partnership Programme (IPP), developing a Pest Risk Information Service (PRISE), which uses state-of-the-art technology to help inform farmers in sub-Saharan Africa of pest outbreaks that could devastate their crops and livelihoods.

Datasets obtained from a combination of the plant-pest lifecycle, earth observation and satellite positioning, are being used to spearhead the fight against pests that devastate an estimated 40% of the world's crops. The project will help farmers fight back against potentially disastrous pests such as the Fall Armyworm.

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“Despite the long distance between us, we regularly share pictures of pests or diseases and help each other diagnose”

The project consortium includes UK partners from Assimila, Kings College London, the Centre for Environmental Data Analysis. The technology is being deployed in CABI's Plantwise plant clinics to give timely alerts and advice to farmers, in person and by tablet or smartphone so they can respond more efficiently to the risks posed to their crops.

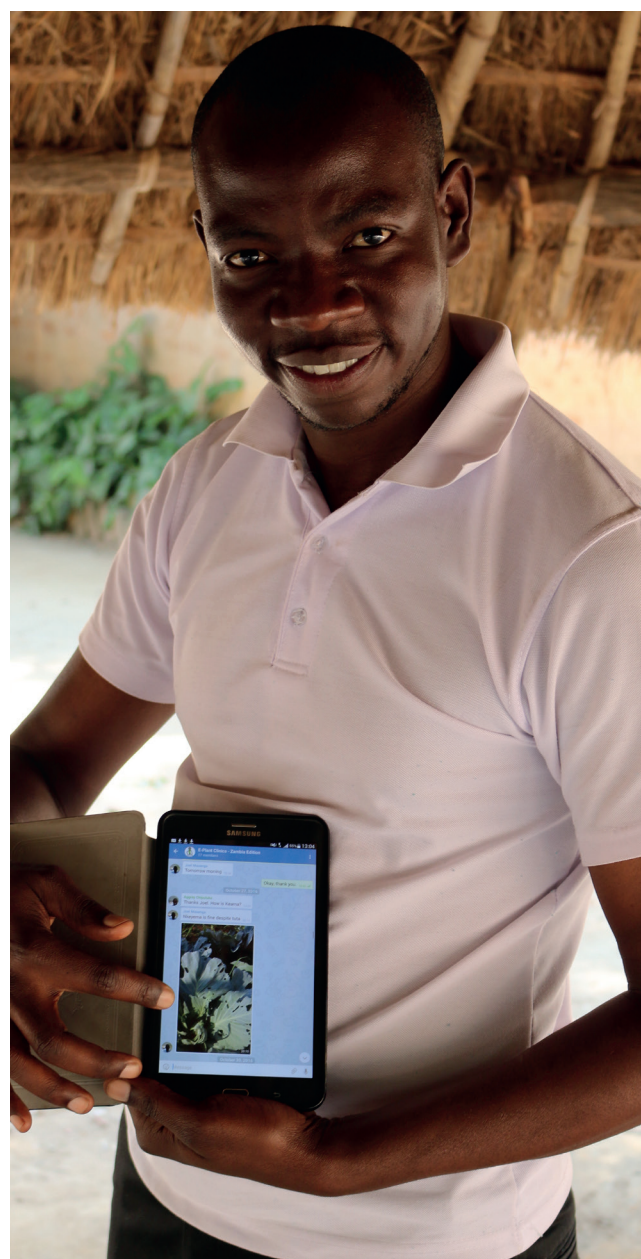
Brian Siame, who runs a Plantwise plant clinic in Zambia, said, *“This application helps me to communicate with other plant doctors who are part of the group. Despite the long distance between us, we regularly share pictures of pests or diseases and help each other diagnose. A good example is when we had the outbreak of Tuta absoluta and more recently the Fall Armyworm.”*

The PRISE project, whose other partners include the Zambia Ministry of Agriculture and the Zambia Agriculture Research Institute (ZARI), is expected to be rolled out to five further sub-Saharan African countries in due course.

Ray Fielding, Head of the International Partnership Programme at the UK Space Agency, said: *“The funding from the UK Space Agency will see CABI provide pest risk predictions in time for farmers to take vital preventive action and thus increase resilience to pest outbreaks. Innovation is essential to provide new solutions to the problem of pest outbreaks, and this project combines novel EO technology, satellite positioning, plant health modelling, and on-the-ground real-time observations to deliver a science-based service for sub-Saharan Africa.”*



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## Achieving 'zero hunger'

It's a sobering fact that, according to the UN Food and Agriculture Organisation (FAO), nearly 233 million children, women and men in Africa went to bed each night hungry in 2014-16.

CABI Board Member and 2017 Africa Food Prize winner Professor Ruth Oniang'o has devoted her career helping farmers grow nutritious and healthy crops, to not only help reduce hunger but to achieve sustainable and profitable livelihoods.

She says Africa must fully capitalize on its agriculture and take responsibility for exploiting its own lateral resources if the UN Sustainable Development Goal of achieving zero hunger is to be realized.

Professor Oniang'o, who was awarded for her contribution in helping farmers gain access to affordable

quality seeds and improving the nutrition of the food on people's plates, believes we must value Africa's smallholder farmers and equip them to produce crops that do not succumb to pests and disease.

In a recent [interview](#), she highlighted how CABI's Plantwise programme is a shining example which is working at the grassroots level of engagement helping millions of farmers lose less of what they grow to plant health problems.

Professor Oniang'o, is also a fellow of the International Union of Nutritional Sciences, the International Union of Food Science and Technology and the World Academy of Art and Science.



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