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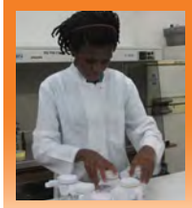

Strengthening plant biosecurity

Farmers in Africa seem to be suffering from a continuous stream of new pests...

Maize lethal necrosis disease, oriental fruit-fly, congress weed, South-American tomato moth and Panama disease (tropical race 4) of bananas are among the introduced pests that not only affect food security but also restrict trade. No one wants to import from a country where these pests occur if there's a risk of the pest being imported too.

"It's getting worse," says Dennis Rangi, CABI's Executive Director. *"Pests can move around much more easily than they used to, and countries are not always prepared. We have to think about how best to address this issue as African countries really want to trade, but these pests are a barrier to that trade."*

Protecting the economy and environment from the negative impacts associated with these pests is called plant biosecurity. CABI has joined the Australia-Africa Plant Biosecurity Partnership, a new programme to strengthen plant biosecurity in Africa. The Australian Plant Biosecurity Cooperative Research Centre is leading the project consortium, which includes CABI, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Crawford Fund, with funding from the Australian Centre for International Agricultural Research (ACIAR).

In Africa, COMESA is a key partner, together with Burundi, Ethiopia, Kenya, Malawi, Mozambique, Rwanda, Uganda, Tanzania, Zambia and Zimbabwe.

A successful workshop in Nairobi has prioritised areas to be addressed by the partnership. Activities will include short-term placements in Australia for African plant biosecurity specialists, a mentoring system, and support for developing biosecurity action plans. The partnership aims to leverage support from other agencies, and to complement other plant biosecurity work in Africa.

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Revolutionizing Rwandan coffee production

Coffee is one of the biggest foreign exchange- earner in Rwanda. However, the yields are low and the quality below its natural potential. This problem is further compounded by poor access to markets and weak farmers' co-operative societies.

CABI is working with the government of Rwanda to increase coffee yields and quality, and improve livelihoods through a credit guarantee scheme. Initially, farmers did not have sustainable finances, which affected processing and productivity.

There was also a lack of trust between banks and coffee co-operatives. Most farmers' co-operatives did not have the requisite processing skills and co-operative managers lacked management skills and financial literacy.

Aloys Gatera is one of the farmers whose life has been positively changed through the initiative. Aloys can now access loans and has been trained on finance and coffee farming systems. The yield on his 1,000-tree coffee farm has increased from 5 kg per tree to 7-10 kg per tree.
"I no longer struggle with paying school fees for my children, and have even bought two cows to supplement food and income in my household," says Aloys.

Because of higher cherry quality and modern machines for processing, farmers taking part in the credit scheme can sell their coffee at premium prices of up to 30% more than they normally get.

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Going digital to give farmers agricultural information

Mr. Patrick Muturi from Banana in Kiambu County, Kenya, has a reason to smile. His tomato crop would have failed had he not received information through his mobile phone on how to manage a spider mite attack on his farm last season. There has always been a gap in how easily farmers in Kenya can get reliable agricultural information.

Airtel Kilimo, a service funded by Airtel Kenya and GSMA mAgri initiative sought to fill this gap by providing small-scale Kenyan farmers with agricultural information via mobile phones. The mobile content covers livestock, subsistence and cash crops. Currently farmers can subscribe to get information on crops - maize, tomato, amaranthus (terere/mchicha), coffee, passion fruit, mango, Nerica rice, banana, cabbage, kale and dry beans. Content on potato, sweet potato, fish, chicken and dairy cattle will be uploaded by the end of 2014.

Airtel Kilimo subscribers have increased to over 18,000 since February 2014. CABI is the content provider while the Kenya Livestock Producers Association (KLPA) does marketing at county level. Kenya Agricultural and Livestock Research Organization's (KALRO) role is content validation and certification.

With increasing demand for instant access to agricultural information, CABI is also collaborating with KALRO on the Direct to Farm (D2F) project. D2F is a mobile-enabled agriculture infomediary service making information readily accessible to empower farmers to solve their everyday farming problems. This information is on livestock, agriculture, weather and market data, and is delivered to farmers as SMS or voice messaging by mobile service providers. Agricultural extension officers, NGOs and agribusinesses, can also access crop and livestock factsheets.
CABI has trained a content validation team of 18 from KALRO on the D2F database.

To date, the database has 68 factsheets on tomato, 61 on maize, 41 on cabbage and 64 on beans. In addition, two science journalists from Kilimo Media International (KiMI) and Kenya Broadcasting Corporation (KBC) have been incorporated in the content validation team as content copy editors. Over 5,800 short messages have been validated in the last year.

Despite the challenge of balancing the number of subscribers with the value of the crop and the number of farmers who produce it, Airtel Kilimo and D2F have been successfully synergized in up scaling projects. Future plans are to have a virtual helpline for the D2F database. There are also plans to integrate the two with other CABI projects – the Africa Soil Health Consortium (ASHC), Plantwise projects and soon upscale the D2F into a value-added service (VAS).

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CABI mentors young scientist

CABI has been seeking to reduce post-harvest losses by battling the Larger Grain Borer (LGB) in Ghana

CABI has partnered with Exosect, Agrauxine, University of Ghana, Savanna Agricultural Research Institute (SARI), the Plant Protection and Regulatory Services Directorate of the Ministry of Food and Agriculture, to experiment with the use of mycopesticides on maize.

Ms. Mavis Agyeiwaa Acheampong, a student working on her thesis on the Management of *Prostephanus truncatus* using *Beauveria bassiana* (Bb) at the University of Ghana, was sponsored by CABI and its partners to present her findings in the International Annual Congress on Invertebrates Pathology and Microbial Control held in Germany in August 2014. Preliminary results indicate that the bioproduct is pathogenic to the LGB (*Prostephanus truncatus*) and the maize weevil (*Sitophilus zeamais*). Experimental formulation of Bb successfully controlled the LGB in the laboratory and similar results are envisaged under field conditions.

Once complete, this proof of concept work will be a major step towards the development of a sustainable and cost effective management alternative.

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Ms. Mavis Agyeiwaa Acheampong

Consolidating 3 years of work and looking ahead

For the Africa Soil Health Consortium (ASHC), 2014 closes with some exciting milestones, but even more exciting are the plans for 2015.

A prolific Phase 1 saw more than 130 new extension support communications materials developed in partnership with numerous organizations in sub-Saharan Africa. All these new materials will now be available for wider sharing on the new and revamped website at africasoilhealth.cabi.org.

Speaking of partnership, we initiated 45 new ones, and Dr. James Mutegi had this to say about the ASHC-IPNI partnership on the Country Soil Health Consortia. *"ASHC has definitely improved the capacity of the Malawi and Tanzania Soil Health Consortia in repackaging scientific knowledge for non-technical users especially small holder farmers and policy audiences, in both print and audio-visual formats"*

The year 2015 brings excitement about how we to go forward with ASHC work. A recent consultative meeting in Seattle at the Bill and Melinda Gates Foundation indicated that they share in our dream to increase traction and engagement with country level initiatives. So plans for Phase 2 are now in preparation.

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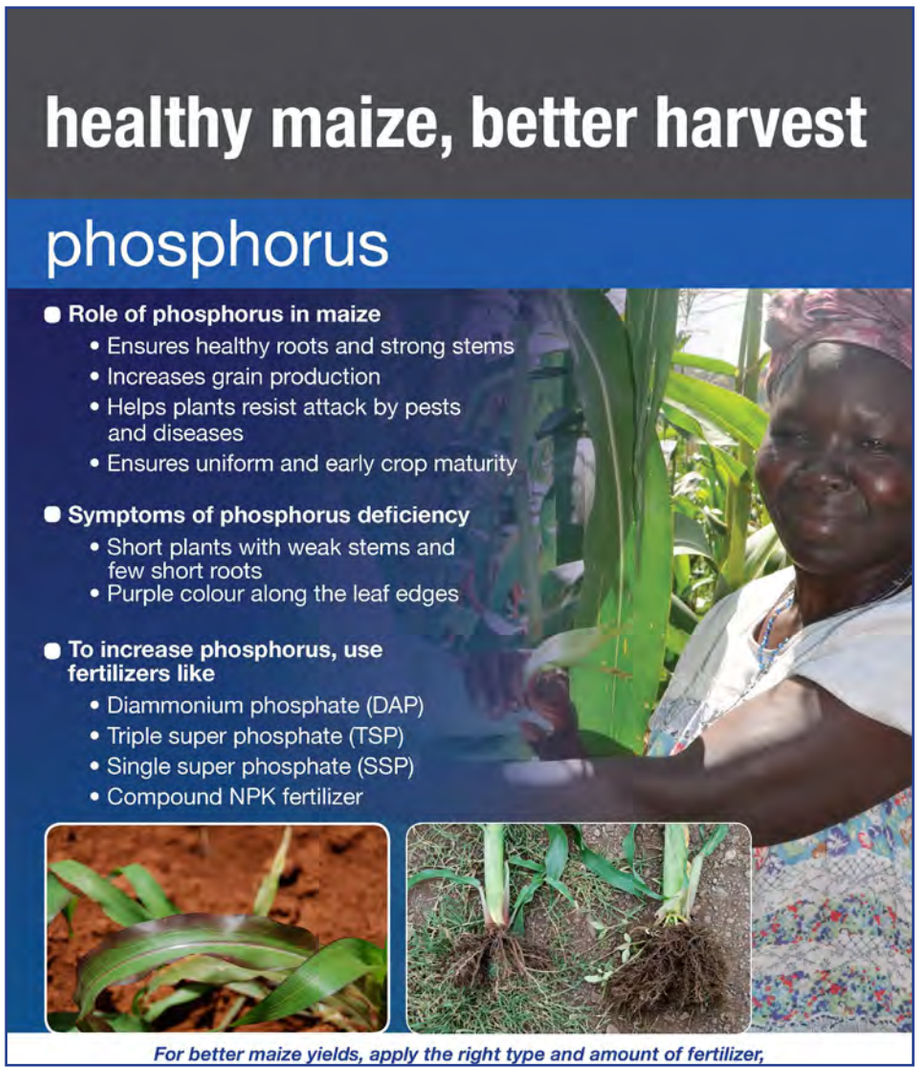

One of the posters produced in collaboration with IPNI

Contributing to college and university curricula in Ghana

CABI, with the Faculty of Agribusiness and Communication Science of the University for Development Studies (UDS), Ghana, held a meeting in Tamale, August 2014, to review and strengthen plant health themes in its curriculum. The meeting was also geared towards building partnerships for running the programmes and handling agribusiness issues in Ghana. About 50 stakeholders came from academia, public scientific and development organisations, private business concerns and NGOs.

Among the many changes made was transforming a course in Entomology to Crop Protection. CABI proposed content for the Crop Protection course with three credit hours, which will be taught four hours a week over 12 weeks.

"One of the key issues we want to address with these reforms is the plant health system and we are aware that CABI has global expertise in this area. Besides, as a University, we are also interested in the publishing expertise of CABI for our own future publications…," explains Dr Richard Nartey Yeboah, Head of the Department of Agribusiness Management and Finance.

The Centre has started taking some of the UDS lecturers through the modules, enabling them to develop a time-table and deliver the course, incorporating theory and practical exercises.

CABI is also pursuing other avenues to make similar inputs into the curricula of Agricultural Colleges of the Ministry of Food and Agriculture.

Participants at the UDS stakeholders workshop in Tamalé

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Mapping invasives

East Africa is home to important biodiversity resources, including the Eastern Arc Mountains and Coastal Forests, a Global Biodiversity Hotspot. The region contains many plant, bird, amphibian, reptile, and mammal species threatened by Invasive Alien Species (IAS). Little is known about the number of naturalized and Invasive Alien Plant species (IAPs) present in East Africa or their impact, due to a lack of information and tools supporting their identification and management.

The 'East African Datasets and Identification Toolkit for Invasive Plant Species' project was thus intiated to ensure development of appropriate informatics resources and comprehensive datasets. The toolkit will equip national authorities to access and manage data and allow them to identify and control IAPs. An Identification Guide including detailed descriptions of each species and information on various management options is being produced.

Surveys have been completed in Ethiopia, Tanzania, Uganda and Rwanda and initiated in Kenya to collate data on the presence and distribution of naturalized and IAPs. Similar surveys will be undertaken in Burundi in early 2015. The most widespread and/or problematic plant species include lantana or tickberry (*Lantana camara*), mesquite (*Prosopis juliflora*), famine weed (*Parthenium hysterophorus)*, devil weed (*Chromolaena odorata*) among others.

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Photo courtesy of CABI

Lantana camara

Policy makers: CABI's development partners

CABI in West Africa has intensified its efforts of educating policy makers on CABI's relevant capabilities in the region and positioning the Centre as a strategic development partner. On the regional front, CABI met with Mr. Salifou Ousseini, the Executive Director of the newly created technical wing of the ECOWAS Department of Agriculture, Water and Environment known as the Regional Agency for Agriculture and Food (RAAF) located in Lomé, Togo. The mandate assigned to the Agency is that of implementing the technical aspects of the regional investment programmes and plans on agriculture.

The growing visibility of CABI in the region was also evidenced by a courtesy visit by Dr Lapodini Marc Atouga, ECOWAS Commissioner for Agriculture, Environment and Water Resources paid to the West Africa Centre in July.

"I know the publishing side of CABI but not much on CABI drafting and implementing development projects. I am eager to learn more about CABI and see how we can work together in the future. In the meantime, I encourage you to develop synergies and partner with other organisations already working with ECOWAS", advises Dr Atouga.

Further interaction with ECOWAS RAAF will see CABI recognised as a technical partner contributing to the implementation of the ECOWAS agricultural policy.

Dr Clottey introducing CABI to Dr Atouga

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Plantwise: Growing in leaps and bounds...

Tablets are redefining data collection and processing in plant clinics in Kenya

In 2014, the Plantwise knowledge bank initiated a pilot project intended to explore how mobile based technologies can improve the current plant clinic model.

The pilot study has shown improvements on the quality and speed of data collection and processing. Initially, data recorded at the plant clinic would take up to 2 months to be received and captured at the national data centre. However, with the use of the tablets, data is now received in real time. Additionally, farmers really appreciate receiving recommendations through their mobile phones via SMS.

Elizabeth Kiveti, a farmer from Kiminini in Trans-Nzoia County, Kenya says, *"I am now able to permanently store the recommendations I receive at the plant clinic and share the SMS with fellow farmers."*

Another benefit is that plant clinic data is now being used with images embedded into them. Previously, crop pest experts relied only on the symptoms description provided by plant doctors to validate data collected. Plans are underway to provide tablets for an additional 15 plant clinics. This will also facilitate documentation of the impacts of mobile technologies

Plant doctor using tablet in a plant clinic

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Plant clinics launched in Kinshasa

Until 2013, Plantwise was supporting ESCO Kivu, Universite Catholique du Graben (UCG) and Centre de Recherches et d'Ations pour le Developpement (CERAD) to operate 31 plant clinics in DRC.

However, the Ministry of Agriculture and Rural Development formally requested that plant clinics be started in Kinshasa Province as well. So, 20 participants drawn from the Departments of Crop Protection, National Extension Service and Pesticide Control were trained to run plant clinics and give appropriate recommendations as plant doctors.

Consequently, 4 plant clinics were established in Kinshasa in 2014 under the coordination of the Department of Crop Protection in the Ministry of Agriculture and Rural Development. All clinics are currently being held at vegetable schemes run by farmer cooperatives. The schemes provide much needed vegetables for the large population in Kinshasa. Plant clinics are therefore helping farmers to maximise their production and income with limited loss to pests and diseases. The recommended pest management methods ensure that city dwellers consume clean vegetables with as little pesticide residue as possible.
Plans are underway to open more plant clinics in areas around Kinshasa.

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Plant doctors at Kinshasa vegetable scheme

Empowering farmers with pest and disease information in Malawi

Plant health rallies (PHR) launched in March 2014 are empowering farmers with information and knowledge to combat crop pests and diseases in Malawi. To date, over 4,030 farmers from 137 villages have been given practical advice through PHRs on how to manage maize streak virus, cassava mosaic virus, head smut, ground nut rosette, banana bunchy top virus diseases, witch weed, and the maize stalk borer.

Grivin Saulosi, after visiting the Thavite plant clinic says, *"I have been able to obtain more yield from my 0.2 ha farm and can now produce 750 kilograms of maize up from 400 kilograms. The plant doctors were able to diagnose the maize streak virus and recommend practical advice to combat it."*

Malawi's Ministry of Agriculture Irrigation and Water Management working together with the Lilongwe University of Agriculture and Natural Resources, Self Help Africa, World Vision Malawi, CropLife, and the Seed Traders Association of Malawi (STAM) are now jointly implementing Plantwise in Malawi.

42 plant clinics locally known as *zipatala za mbeu* currently operate in 4 districts of Lilongwe, Mzimba, Ntcheu, Salima, Balaka and Thyolo.

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Plant doctors attending to a farmer at a plant clinic

Zambia: Working together to implement Plantwise

After its launch in August 2013, the Department of Agriculture (DoA), Self Help Africa (SHA) and Zambia Agricultural Research Institute (ZARI) are now jointly implementing Plantwise in Zambia. The signing of the Plantwise Agreement by the government of Zambia early this year strengthened this partnership.

"Plantwise is a programme that is going to enhance delivery of extension services. The Zambian government is fully committed to bringing more districts onboard," said Mr. Charles Sondashi, the National Coordinator during a Plantwise steering committee meeting.

To date, 34 plant clinics have been established in Central, Lusaka, Southern, Eastern and Western provinces respectively. This year, ZARI, DoA, and SHA staff were trained as master trainers. These trainers later facilitated the training of 34 plant doctors. Training in monitoring plant clinic performance followed in May 2014.

To ensure long-term sustainability of plant doctor trainings, and explore how to involve academic institutions in training plant doctors, discussions with the University of Zambia have now been initiated.

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Newly trained plant doctors

Plant clinics launched in Mozambique

Five plant clinics were launched in Moamba and Maputo districts of Mozambique in May 2014, after an initial training for plant doctors was conducted in 2013. The three clinics launched in Moamba are located in irrigation schemes started by the Government of Mozambique, but which are now under the management of local famers.

The launch came at an opportune time because pests and disease attacks have been on the increase within the irrigation schemes which allow all year cropping.

The Director General of Agricultural Extension Services at the Ministry of Agriculture (MINAG) in Mozambique, Mr. Mohamed Rafik Vala presided over the launch with donor representatives from IFAD gracing the event. Since then an additional five plant clinics have been established in Vanduzi and Manica districts.

The Mozambique nationwide TV station, TVM and the national radio station- Radio Mozambique (RM) covered the event. Additionally, six daily newspapers including, Noticias, Economia, Zambeze, Vertical, Expresso and Wamphula all published articles on the clinics after the launch.

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The Director of Agriculture in Manica province talking to a reporter

Work intensifies on plant health problems in Rwanda

Plantwise in Rwanda is waging war on pests. Emergent crop diseases such as the maize lethal necrosis have been identified in plant clinics, and advice has been given through plant health rallies, a mass extension tool, and 7,292 farmers have been reached so far. Additionally, the number of plant clinics located in 29 districts operating in the country has risen to 62.

Plant doctors can now use pest management decision guides and fact sheets as reference materials when advising farmers. Further capacity building has been carried out to enhance in-country field diagnosis, plant clinic operations, giving good recommendations, extension messaging, monitoring plant clinic performance and training of trainers. The overall ripple effect has seen the increased demand and popularity of plant clinics in the country.

The Rwanda Agriculture Board (RAB) under the Ministry of Agriculture and Animal Resources (MINAGRI) currently coordinates and implements Plantwise in partnership with the Ministry of Local Government, Directorate of Agriculture and Livestock Inspection and Certification, the College of Agriculture and Animal Resources of the University of Rwanda, and the National Agriculture Export Board.

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Farmer receives recommendation to control blossom end rot disease of tomatoes

Field activities begin in Burkina

Following last year's Plantwise stakeholders meeting, CABI conducted a baseline study and began field activities under the National Plant Protection Organisation (NPPO).

Plantwise has trained 46 participants drawn from the Ministry of Agriculture on how to become a plant doctor. They have been involved in sensitising the public on the existence and relevance of plant clinics through field visits, press releases, radio programmes and banners in different languages. 19 clinics are fully operational in various regions of the country.

"I sincerely thank CABI for considering our country among those where the Plantwise initiative is being piloted. To me, this initiative will eventually promote international trade in Burkina Faso…" says Dr Mamadou Coulibaly, Advisor to the Secretary General of the Ministry of Agriculture and Food Security.

Plantwise is partnering with NGOs and organisations such as Self-Help Africa, Wim, WeltHungerHilfe, GRAD Consulting Group, AMVS, Universities and Research Institutes in addition to the Ministry of Agriculture and Food Security. It recently trained Professor Irenée Somda of the Polytechnic University of Bobo-Dioulasso in Plant Pathology Techniques (a CABI training course). He will provide more diagnosis services to the whole plant health system in the country.

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Plant clinic in Boudry

Farmers see value of plant clinics in Ethiopia

In 2013, 4 districts of Oromia region in Ethiopia launched plant clinics. The Ministry of Agriculture and Regional Bureaus of Agriculture decided to expand operations of plant clinics to selected districts of Amhara and Tigray regional states based on the encouraging achievements after the launch in Central Ethiopia. Consequently, awareness creation, engagement with relevant stakeholders, training and other background work has been carried out.

8 new plant clinics have already been launched in the last quarter of the year. The government echoed the importance of such community based initiatives in reaching out to smallholders and effectively responding to their needs to solve plant health problems in a timely manner.

Farmers at plant clinic in Ethiopia

A farmer who brought his sick plant sample to a clinic in Woliso district says, *"We are excited and pleased to have such advisory services for our crop health like that of human beings or livestock. To us, crops are equally or even more important."*

Head of a district agricultural office in Central Ethiopia similarly says, *"This initiative would enable us to address problems of pests and diseases on the rise to boost productivity and production."*

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African Indigenous Vegetables find a place on plant clinic tables

At the recently concluded *Nane Nane* show held in August 2014 in Tanzania, Mr. Edward Mboya, a contracted African Indigenous Vegetable seed farmer, visited a plant clinic to seek advice on how to control weeds in his vegetable crops.

This followed earlier discussions he and other farmers trained by the Good Seed Initiative (GSI) held at the Tanzania Official Seed Certification Institute (TOSCI) to discuss systems and processes necessary for maintaining seed purity before sale.

He expressed his gratitude for the affordable, locally available and environmentally friendly management solutions recommended by Shelia Yusuph, the plant doctor at the Nane Nane show plant clinic and promised to share the knowledge with other farmers trained by GSI on seed production.

Mr. Mboya was later referred to his local Tengeru market, where plant clinics are held twice every month.

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Shelia Yusuph at the Nane Nane show, attending to Edward Mboya

Tackling *Tuta absoluta*

Plantwise co-sponsored a national stakeholders symposium that raised awareness on and discussed management of a recently reported tomato pest – Tomato Leaf Miner (*Tuta absoluta*). The symposium, which was hosted by Kenya Agricultural and Livestock Research Organization (KALRO), formerly Kenya Agricultural Research Institute (KARI), pulled together stakeholders within the Kenyan Plant Health System. The participants, made up of farmers, agricultural extension agents and other stakeholders, debated regulatory requirements and awareness strategies needed to execute timely control measures for emerging pests and diseases as soon as they are detected. A case in point is *Tuta absoluta* that was first reported in Isiolo in 2014. Further observations have since been made in Nairobi, Meru, Kirinyaga, Nakuru, Kakamega, Lamu, Loitokitok and Marsabit.


Tuta absoluta

The Kenya Plant Health Inspectorate Service (KEPHIS), the Plant Protection Services Division (PPSD) under the Ministry of Agriculture Livestock and Fisheries (MoAL&F) in conjunction with Plantwise, mFarmer and the Kenya Broadcasting Cooperation (KBC) consequently aired a feature on *Tuta absoluta* on KBC's Mali Shambani programme to create awareness over the pest outbreak. Farmers were able to call in and obtain pest management advice from experts. A Pest Management Decision Guide as well as photosheets on the pest, have been developed as a reference for extension staff and to facilitate awareness campaigns. Plant health rallies held in Bungoma and West Pokot Counties sensitised farmers on the symptoms and control measures for both the Tomato Leaf Miner and Lethal Maize Necrosis Disease. While flagging the plant health rally in West Pokot Sub County, Mr Arumonyang, the County Secretary, reiterated the county government's support in establishing new plant clinics.

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Makerere University promotes plant health

Plantwise and Makerere University continue to train university students to operate plant clinics. Qualified plant doctors supervise the trainings, which are structured as practical learning processes. The Wakiso plant clinic that falls under one of the District Local Governments (DLGs), facilitates the trainings.

The Plantwise collaboration with Makerere University was demonstrated when the institution participated in a CABI workshop held at the 4th RUFORUM Biennial Conference in July 2014. Makerere University showcased how it is training plant doctors in Uganda.

Dr Hebert Talwana, a lecturer at Makerere University said, *"We need to increase the role played by universities in strengthening a country's Plant Health System. The plant doctor trainings at Makerere University are being aligned to the university curriculum to enable ownership and sustainability in the long run."*

Concurrently, a number of DLGs have included plant clinic operational funds in their 2014/2015 budgets. To date, 145 plant clinics are operating in 70 DLGs. They are run by DLGs with help from partners such as Self Help Africa (SHA), Ruwenzori Information Centres Network (RIC-NET), Soroti Catholic Diocese Integrated Development Organization (SOCADIDO), and Community Rural Development Foundation (CRDF).

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Makerere University plant doctor trainees

Clinics evaluated in Kenya

The American Institute for Research is conducting a study to evaluate the effectiveness of plant clinics in disseminating plant health information to farmers to reduce their losses to crop pests and diseases. The study will help in assessing the plant health system change and will identify the impact of the plant clinics at the farm level. The resulting recommendations will be useful in improving plant clinic operations in the future. To date, plant clinics that will be involved in the study have been mapped out and a household census has been completed. The data gathered will provide a baseline report, which will be used for comparison when repeat surveys are undertaken later.

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CABI Africa has moved

CABI Africa has left the ICRAF campus and relocated to newly refurbished offices in Muthaiga.

"Due to our strategic plans, it was important to find a new head office that fits with our vision as CABI. We are passionate about people and so I am delighted with this relocation. It allows us the flexibility to expand – and is a great working environment," says Morris Akiri, the Regional Director.
"CABI Africa is changing and growing fast and we needed a place to help us better serve our partners," adds Lilian Kiarie, the Administration and Facilities Manager.

Please see the back page for our new address and phone number.

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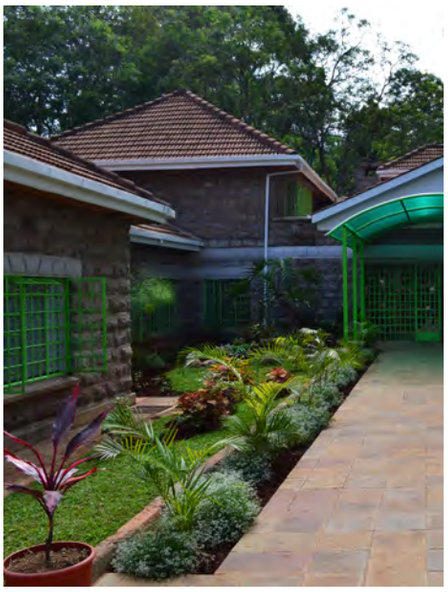

Hands across the Atlantic

A strong need has been identified to support Kenya and Ghana in establishing the capacity to conserve and utilise their microbial diversity as a model for other African countries. Drawing from the Brazilian experience in establishing microbial Biological Resource Centres (mBRCs), during a 'Hands across the Atlantic' workshop in Ghana, participants felt the need for raising awareness and developing capacity to maximize sustainable exploitation of microbial resources.

The African College at Leeds University and Worldwide Universities Network (WUN), organised and funded the workshop, which identified hurdles and found solutions for putting Africa's microbial diversity to use. It also produced an action plan for project proposal development and future activities.

The workshop, attended by over 25 participants, was hosted by Victor Clottey and chaired by George Oduor, both from CABI.
A partnership across the Atlantic to facilitate the development of proposals in microbial utilization and a publishable version of the workshop report to demonstrate routes from microbe to product is expected.

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Biological control of Invasive Alien Plants in East Africa

Pest prickly pear (*Opuntia stricta*) an Invasive Alien Plant, has invaded thousands of hectares in Laikipia, Kenya, causing a reduction in available forage for livestock and wildlife, and impacts on the health of goats, sheep and cattle.

The communities need ways of managing the weed and in biological control of weeds, they have a safe and cost-effective option. With funding from CABI and Ol Jogi, in partnership with national agencies in Kenya, a cochineal insect, *Dactylopius opuntiae* ("stricta" biotype) for the control of prickly pear was introduced. An Environmental Impact Assessment (EIA) by the National Environment Management Authority (NEMA) has confirmed that the agent is host specific. Early indications are that *D. opuntiae* has established, with plants dying back.

In Tanzania, the Ministry of Agriculture, Food Security and Cooperatives, the Ministry of Foreign Affairs of the Netherlands, the Grumeti Fund and CABI, initiated a project to introduce host specific and damaging agents for famine and devil weed control. A leaf-feeding beetle, *Zygogramma bicolorata*, and a gall-fly, *Cecidochares connexa*, control famine and devil weed, respectively. Both agents have been released and monitoring activities are underway to confirm establishment.

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Communication for Maize Lethal Necrosis control

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) is supporting a new project to tackle Maize Lethal Necrosis (MLN) disease. Under the leadership of University of Nairobi, National Agricultural Research Systems (NARS), CIMMYT, CABI and the seed industry will collaborate to reduce high maize yield losses currently ranging from 50 to 90%.

The project which runs from October 2014 to September 2016 aims to increase food and nutrition security and household incomes for 200,000 households dependent on maize in Burundi, Ethiopia, Kenya, Rwanda, Tanzania, South Sudan and Uganda.
The strategy will include generating and scaling up of technologies, innovations and management practices (TIMPs) for MLN management. CABI's role is to lead knowledge sharing and communication and will include producing various MLN communication materials for over 200,000 key stakeholders including farmers, researchers, policy makers and the private sector. The products will be disseminated through plant clinics, plant health rallies, scientific forums, and websites among others.

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Indigenous vegetable seed innovation platforms

Tanzanian seed companies have contracted farmers in Arusha, Dodoma and Morogoro regions to plant over 20 hectares of African Indigenous Vegetable (AIV) seed. This has been made possible through collaboration between seed companies, farmer groups, Tanzania Official Seed Certification Institute (TOSCI), food processors, media, extension service providers, NGOs, vegetable traders and researchers using Innovation Platforms (IP).

Mr S. Mboya, a contract grower with Kibo Seeds Company, stated that, *"We received seeds at the right time during the current season…more follow-up by field officers from the seed companies is needed throughout the cropping season to ensure that emerging challenges with pests and disease problems are tackled in a timely manner."*

Stakeholders involved in the AIV seed and vegetable value chain identified key challenges and came up with appropriate solutions. The capacity of Quality Declared Seed (QDS) farmers was strengthened to produce quality seed. Awareness was raised to consumers on vegetable benefits through food fairs, cooking competitions, road shows/rallies and media campaigns. Seeds of various vegetables were distributed to schools in Arusha to educate children on vegetable production and nutritional benefits.

Project products were showcased at the 14th African Seed Trade Association (AFSTA) Annual Congress 2014 held in Tunis, Tunisia that offered a solid framework for exchange between major players of the African private seed sector.

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From left: Mr Peter Nasari (Seed Inspector, TOSCI Arusha) with Mr Damus Marandu (HORTI-Tengeru) inspecting a seed crop of African eggplant in Mrs Helena Kundya (Kibo Seed Co. contract seed grower) farm in Maweni village, Arusha, Tanzania

Profits with seed drying beads

Seed stored and dried properly maintains good quality and can increase profitability. Aflatoxin and insect build up is also prevented through drying and packing in waterproof containers.

Tests carried out using drying bead technology with maize, legumes (green grams, groundnuts and soybean) and vegetables (onion, tomato, spider plant, African eggplant, amaranthus and African nightshade) confirm that better germination is achieved with bead-dried seeds rather than ordinary drying and storage. Drying beads maintained the viability of amaranthus, green gram and groundnut seeds at a high level for 21 months. Despite seed dormancy, viability of bead-dried maize and spider plant seeds was 68% at 21 months. Green gram seeds stored in porous bags were heavily damaged by bruchids, compared to the bead-dried seeds.

Tomato seeds stored in porous bags (left) and dried using zeolite beads and stored in airtight container for 18 months (right)

These findings came from experiments conducted by CABI with partners under the Horticulture Collaborative Research Support Program (HortCRSP) in farmers' fields in Bondo, Western Kenya and Maweni Arusha and Horticulture Tenegru in Tanzania.

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http://www.dryingbeads.org/

Uganda set to produce quality export flowers

Uganda is set to realise a significant increase in quality flower exports to the European market due to the enhanced capacity of flower farmers to control *Spodoptera littoralis*, a quarantine pest in the EU.

Flower interceptions in the EU due to the presence of quarantine pests accounted for about 17% of exports, resulting in an estimated average annual loss of US$ 4.3 million.

The project for Strengthening the Phytosanitary Capacity of the Floriculture Sector in Uganda (funded by the Standards and Trade Development Facility) aims to strengthen phytosanitary capacity in Uganda and increase market access of Uganda's flowers.

Through a collaborative initiative between the Department of Crop Protection (DCP) and the Uganda Flower Exporters Association (UFEA), flower farms have agreed on measures to ensure traceability and improve the control of *Spodoptera*. These measures include drafting of 14 Standard Operating Procedures (SOPS), including field inspection of plants for planting and cut flowers, export inspection and certification and handling non-compliance notifications. Enhanced capacity of DCP staff to support flower farms in conducting pest surveillance and export certification has been improved. Inspection facilities have also been upgraded.

For more information, please contact: **Florence Chege:** f.chege@cabi.org

Thinking globally, linking locally

The International Plant Protection Convention (IPPC) aims to secure common and effective action to prevent the introduction and spread of plant pests at the global level. But it is plant health stakeholders in individual countries whose actions collectively contribute to that purpose. Likewise, efforts to reduce the risks from using pesticides require implementation by various actors.

Plantwise also encourages such stakeholders to share information on pests and their control, so CABI, IPPC and FAO have held joint workshops to explore how linking plant health actors locally can contribute to global objectives. The first was in Nairobi, with participants from Kenya, Rwanda, Tanzania and Uganda, and the second was in Accra with participants from Ghana, Sierra Leone, Zambia and Malawi.

"Addressing national plant health issues and meeting reporting obligations is actually for everyone in development to address; everybody has a role to play," says David Nowell, Information Exchange Officer of IPPC.

The FAO Regional Office and CABI worked closely to ensure good coverage of the workshops.
"CABI is doing very good work in the field, especially with the CABI-led plant clinic approach," said Mr Bukar Tijani, the FAO Assistant Director General and Regional Representative for Africa. *"This approach has a huge potential and can yield miracles if properly managed; and I personally believe that CABI, FAO and other partners should find ways to sustain it."*

CABI plans to take this advice, and organise more such workshops.

For more information, please contact **Washington Otieno:** w.otieno@cabi.org

CABI recognized for sustained leadership in communications

In 2014, CABI completed development and launch of the COMPROII communications strategy that is now published on the project website at *www.compro2.org*. Our progress on key milestones of the project has been well received.

Additional funding to support the implementation of the communications strategy has been approved, based on the increasing appreciation of the role that CABI has played in operationalizing this objective.

The COMPROII project has benefited from strategy leverage of communications expertise from the Africa Soil Health Consortium Project. This saw new partnerships emerging with Ethiopian Institute of Agricultural Research and Notore chemicals Nigeria. The two partnerships brought us new insights on working with public sector national research stakeholders and the private sector in identifying information dissemination priorities of the two sectors.

For more information, please contact **James Watiti:** j.watiti@cabi.org

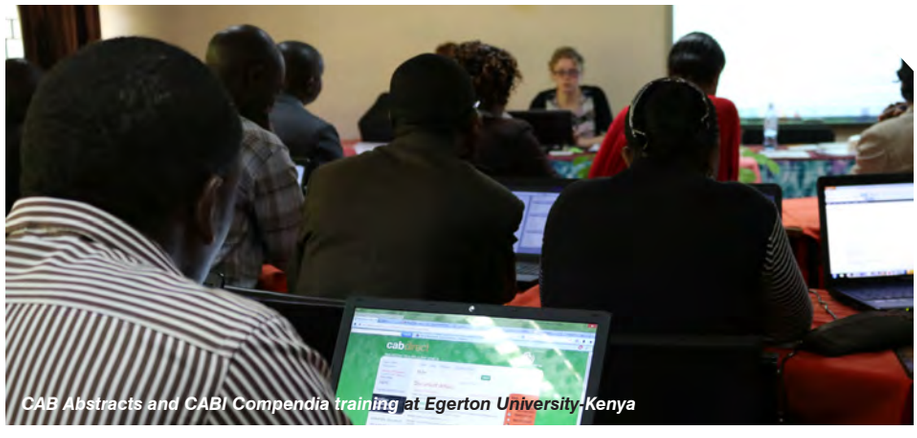
Using agricultural research information in African universities

The CABI-RUFORUM co-operation is building the capacity of 32 African universities. CABI is equipping students, lecturers and researchers in East, Central and Southern Africa with the skills to make the best use of literature in the CAB Abstracts database and CABI Compendia.

Trainings have been conducted in 10 universities in Botswana, Ethiopia, Kenya, Malawi, Namibia, Swaziland and Tanzania through the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) program.

Mable Mercy Mulanya, a student from the University of Nairobi says, *"I have been able to access abstracts and full text articles from CABI's databases for my research. I recommend that you continue providing access to students."*

A workshop held at the 4th RUFORUM biennial conference in July 2014 in Mozambique, explored opportunities to involve universities in the CABI-led Plantwise programme. This entailed the inclusion of plant doctor training in the university curriculums to enhance the role universities play in strengthening their plant health systems. University representatives welcomed the idea of training students and extension staff on how to operate plant clinics.



CAB Abstracts and CABI Compendia training at Egerton University-Kenya

Furthermore, they highlighted the fact that universities could provide a quality assurance system to ensure training standards are met and maintained through certification.

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Addressing angular leaf spot disease

The citrus industry in Ghana faces various challenges. Most small-scale farmers lack the financial capacity to solve problems facing the industry. Stakeholders, including CABI, gathered in May 2014 at Mankranso in the Ashanti Region for a two-day workshop organised by the Forum for Agricultural Research in Africa (FARA) on the constraints in citrus production and marketing.

CABI shared its experience on the plant clinic approach to fighting pest problems such as the citrus angular leaf spot disease with the other participants. The information was very much appreciated by participants, who showed high interest in collaborating with CABI.

After the workshop, CABI set up a plant clinic in Mankraso and developed fact sheets on the citrus angular leaf spot for use in Ghana. Plant health rallies on the disease were organised in major affected areas across the country.

CABI also sits on a committee created by the workshop participants with the mandate of sensitising policy makers and other partners towards improving the citrus industry. Members of this citrus innovation platform include representatives of farmers, Ministry of Agriculture, Parliament, the private sector, NGOs, District Assemblies and the media.

For more information, please contact **Francis Dabire:** f.dabire@cabi.org

Angular leaf spot disease on orange tree

Welcome! New team members

Wallace Ngene
ICT Manager

Winnie Nunda
Invasive Species Assistant

Naftal Nyariki
Finance Manager

Abdillahi Alawy
Global Director, M&E

Harrison Rware
M & E Specialist

Francis Dabire
Communications Specialist, West Africa

Christine Alokit
Communication & Extension Scientist

Rosemond Segbefia
Office Manager, West Africa Centre

Birgitta Oppong-Mensah
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