



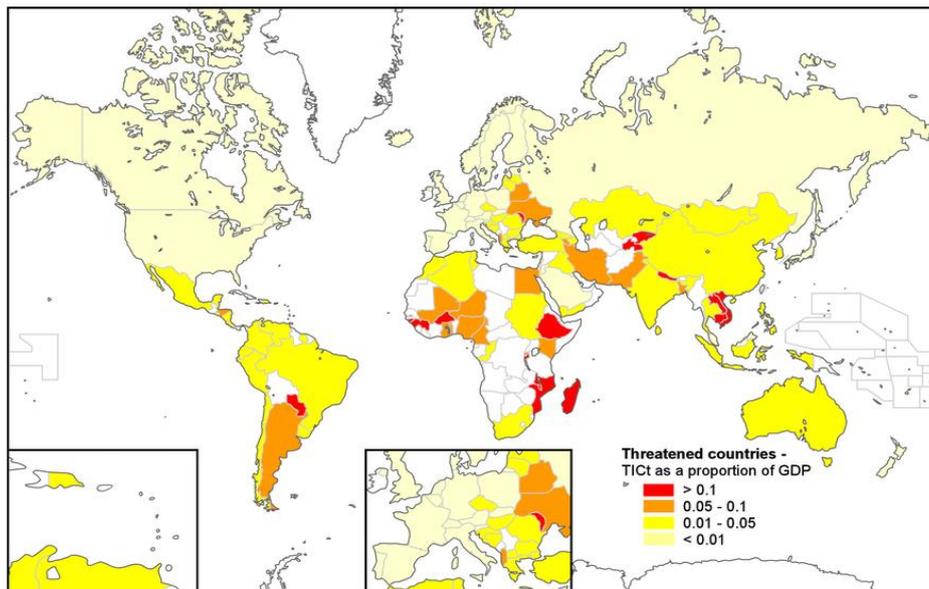
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Building a Regional Collective Response to Invasive Pests and Transboundary Crop-Livestock Diseases: “Response to past and current threats, intensity, costs and required capacity

Background

Invasive species destroy livelihoods, pose serious threats to food and nutrition security, threaten the economic prosperity of entire countries and regions, and increase biodiversity loss. The increasing frequency of invasions of invasive species in Africa suggests that many countries lack adequate capacity to detect and implement management measures.

There are over 1,000 species of invasive pests and transboundary crop-livestock diseases in Africa according to a study by International Centre of Insect Physiology and Ecology (ICIPE). Only five of these are estimated by the Centre for Agriculture and Bioscience International (CABI) in a research published in the open-access journal *Global Food Security*, to cost the continent over 1.1 billion USD every year. Globally invasive pests are causing over 540 billion in economic losses annually. The most vulnerable countries to invasive pests and crop-livestock diseases are developing nations with sub Saharan Africa in particular being the most vulnerable and affected over the past 30 years.



. Most vulnerable countries to invasive pests and diseases

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These epidemic pests and diseases are highly contagious and easily transmissible with the potential for very rapid spread, causing serious socio-economic and public health consequences.

Cases over the years

Invasive pests and diseases know no boundaries, spreading rapidly across the region affecting non-suspecting farmers who rely solely on their farms for food, nutrition, livelihood and economic growth. Over the past 10 years for example, Fall Army Worm (FAW) has devastated food production across the continent. By 2018 over 12 African countries were losing up to 17.7 million tonnes of maize due to FAW.

FAW is a pest that feeds in large numbers on leaves and stems of more than 80 plant species, causing major damage to maize, rice, sorghum, sugarcane but also other vegetable crops and cotton. Noting the severity of this pest, regional and national bodies including the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) in collaboration with the United Nations' Food and Agriculture Organization (FAO) partnered with governments to create awareness amongst smallholder farmers about this devastating disease.

This partnership between ASARECA and FAO worked to develop effective and rational sub-regional management of FAW. It revealed that majority of smallholder farmers and farmer organizations lacked sufficient knowledge and technical capacity for early detection and management of FAW. Together ASARECA and FAO worked to strengthen linkages and exchange of information amongst affected parties including smallholder farmers, research institutions, governments and policy makers. One major outcome of this collaboration was the development and implementation of an action strategy that is currently adopted across 12 Eastern and Central African countries including Ethiopia, Kenya, Rwanda, Tanzania and Uganda.

ASARECA's approach to the development of agriculture in the region involves working directly with national governments through their national agricultural research institutes (NARIs) to generate, share and promote upscaling of research and innovation through sustainable and dynamic cross-sector partnerships.

Partnerships are key in the fight against invasive pests and transboundary crop-livestock diseases. In 2008, there was an increase in the prevalence of epilepsy and cases of porcine cysticercosis in humans in Eastern and Southern Africa caused by a zoonotic tapeworm found in pigs. This deadly disease caused losses in pig production and posed serious threats to human health.

By working together with Burundi, DR Congo, Ethiopia, Eritrea, Kenya, Tanzania and Uganda ASARECA facilitated and coordinated interventions that enabled the collection and use of data to develop national action plans for surveillance, prevention and control of this deadly disease. These partnerships also enabled the building of capacity of scientists in the region, equipping them with skills and knowledge necessary to combat future threats.

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The most vulnerable group to these continued threats posed by invasive species of transboundary crop-livestock pests and diseases are smallholder farmers who solely rely on their farms for their livelihoods. In Africa over 200 million smallholder farmers are responsible for over 60 percent of food production in the region. Staple foods in the region are majorly under attack. For instance, between 2005 -2019, Banana Xanthomonas Wilt Disease (BXW) spread throughout Uganda, DRC, Tanzania and Kenya, causing up to 100 percent yield losses. This disease that ripened and rotted bananas before they were mature threatened the economic stability of smallholder farmers by deteriorating the market value of bananas.

As scientists discovered the cause of this disease that spread very rapidly to be in the planting materials used, a regional approach was urgently required. Farmers across the region often share planting material, that manage to travel across borders due to favourable trade environments. ASARECA coordinated a project that enabled over 6,000 clean banana planting materials to be produced in Tanzania. In DR Congo, two macro-propagation units with a capacity of producing over 8,000 clean banana planting materials were established. Within the first six months of intervention, the proportion of farmers who controlled the disease increased from less than 5% to over 60%. Within 15 months, banana production recovered, shooting up to over 80% in some areas.



Banana Wilt Disease

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CBSD Infected Cassava

Another staple cash and food crop that has been under attack by transboundary diseases is Cassava. Cassava is rich in nutrients and is a high yielding crop, locally available and used by many households in numerous recipes in the region. However, to date, cassava production is largely affected by CBSD, a disease that causes losses of up to 100%. CBSD causes cassava to turn brown and bitter making them unpalatable while greatly reducing their market value. ASARECA in 2012 convened

researchers to study the spread of the disease with the aim of generating information to control its spread.

Science has once again proven to be an effective, sustainable solution to challenges facing agriculture. Through biotechnology and innovations, and enabled by partnerships including with world leaders in biotech like The International Service for the Acquisition of Agri-biotech Applications (ISAAA) and Virus Resistant Cassava for Africa (VIRCA), CBSD resistant cassava has been introduced to various markets and are in the process of adoption in various countries.

Locust invasion in 2020

The recent desert locust invasion in East Africa, the worst reported in 70 years, further exposed major gaps in the ability of most countries to respond to epidemics. COVID-19 impacts including lockdowns and restriction of movement during the locust invasion slowed down the response in combating these ferocious pests. The desert locusts ravaged over 700,000 hectares of arable and pastoral land risking food crops and pasture for over 200 million farmers. Gaps including in technical, human and financial capacity, inadequate foresight data, and in policy interventions are amongst the key challenges that continue to face the response interventions in controlling locusts.

New Banana disease

Currently farmers in western Uganda and northern Rwanda have reported a strange disease that is turning bananas black and recording losses of up to 80 percent. This disease that scientists are now calling the new banana disease is caused by rust thrips insects that eat the leaves and stalks of bananas exposing them to bacteria and fungi infection that is threatening banana production.

Needed efforts to combating invasive species

Africa is in urgent need of coordinated regional efforts to strengthen its capacity for confronting invasive pests and diseases. Some of the key areas of focus include capacity building of

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dedicated pests and diseases institutions, specialists and scientists to develop climate smart and responsive plans to combat these challenges.

The rapid and easily transmissible nature of transboundary pests and diseases calls for a responsive, regional collaborative approach in resource mobilization and control measures. Evidently these pests and diseases require context specific resources like aerial equipment for locust spraying, advanced laboratory equipment to understand evolving species; all of which have financial implications. Therefore, a collaborative resource mobilization strategy is urgently needed in place to ensure that countries are able to respond to these challenges when need be.

Timely information, data and knowledge is also crucial in responding to challenges posed by invasive pests and diseases. A free to all and accessible centralized knowledge and information hub, regularly updated with up to date, factual and reliable information is needed for the various sector players to be able to respond effectively to these invasive species. Policy frameworks should further be well informed to enable safe movement of crops and livestock across borders.

In conclusion, it is prudent to invest in agricultural research and foresight data to enable Africa to respond effectively and timely to invasive pests and diseases.

This is our twentieth issue in a series of articles we are releasing as part of our RUFORUM Thought Pieces on the Corona Pandemic. It is based on the authors opening remarks and some of the emerging issues during the fifth RUFORUM Webinar on 29th July 2020 focusing on “Building a Regional Collective Response to Invasive pests and transboundary crop-livestock diseases”. You can get more information about RUFORUM at www.ruforum.org. You may also share your thought piece about the Pandemic with us by writing to e.adipala@ruforum.org and copying m.agen@ruforum.org

About the Author

Prof. Muhinda is the Executive Secretary of the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), with over 19 years’ experience in agricultural development, research, technology transfer and academia. Prof. Muhinda has worked with National Governments, Regional and Continental bodies, and Research and Development Organizations.

Prof. Muhinda sits on the Board of Directors of Forum for Agricultural Research in Africa, and is a member of the Steering Committee of the Pan African Bean Research Alliance (PABRA).

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