PRISE: A PEST RISK INFORMATION SERVICE

Locations	Ghana, Kenya, Malawi, Zambia
Dates	01/12/2016 - 31/03/2022

Summary

Pests can decimate crops and are estimated to cause around a 40% loss. These insects, mites and plant pathogens can impact on food security and impede supply chains and international trade. A Pest Risk Information SErvice (PRISE) aims to solve this problem by using data to help farmers manage pests in sub-Saharan Africa.

The problem

Pest outbreaks are devastating. Especially to those who rely on the crops they can grow for their food and livelihoods. Pests don't respect political boundaries and their movements are increasingly unpredictable due to climate change. They are a huge problem around the world and hamper the pursuit of Sustainable Development Goals 1 and 2.

Despite a general consensus on the threats from pests and diseases to global production, monitoring and evaluation of the damage caused is very poorly understood.

What we are doing

Innovation can provide new solutions. This project will help to improve the livelihoods of smallholder farmers by reducing crop losses caused by pests across four sub-Saharan African countries.

To forecast the risk of pest outbreaks, we will use a novel combination of earth observation technology, real-time field observations, and plant-pest lifecycle to deliver a science-based Pest Risk Information SErvice (PRISE) for sub-Saharan Africa. Expansive, novel crowd-sourcing reports will also be established to strengthen and validate the system.

Ministries of Agriculture and their extension experts in Zambia, Ghana, Kenya and Malawi will be actively engaged and involved in this pest forecasting system, which collects and combines disparate datasets, manipulates data using computational and modelling expertise, and assimilates well-established international development networks.

In-country data collected from the field will be fed into the model, and also used to ground-truth results, which will allow the team to continually improve it. Risk messages and mitigation measures will be communicated to users and we will monitor and evaluate the service to assess its impact.

Risk forecasts will be integrated into existing plant health systems, using networks in current programmes and projects, to trigger appropriate action to deliver large scale alerts, advice and inputs to farmers.

Capacity development and involvement of each country's private and public sector organizations, will also enable business plans to be developed for long-term sustainability.

Results so far	PRISE has delivered pest alerts in Kenya, Ghana, Zambia and Malawi.
	During the 2019/2020 short rains season in Kenya, PRISE model outputs were integrated in the MoA-INFO SMS service. At the end of this season, **59% of farmers who received the service changed their practices based on PRISE recommendations for fall armyworm**, with the most common outcomes being a reduced population of the pest and an increase in maize harvest. In the 2020/2021 short rains season, 87% of maize farmers surveyed believed the time recommended to take action by PRISE was correct.
	In partnership with iCow in 2021, the development of a maize SMS service, which integrated PRISE model outputs, saw participating farmers report an **increase in maize yields by 109% and a reduction in pest damage by 70%.**
	This is whilst still in our R&D phase. Imagine what we can do next!
Donors	Co-finance from Plantwise, CABI and Assimila Ltd, UK Space Agency
Partners	Zambia Agriculture Research Institute (ZARI), Zambia - International partner, Ministry of Agriculture, Livestock and Fisheries, Kenya - International partner, Kenya Agricultural & Livestock Research Organization (KALRO), Kenya - International partner, Plant Protection & Regulatory Services Directorate (PPRSD), Ghana - International partner, Centre for Environmental Data Analysis - Project consortium, Assimila - Project consortium
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