

ESTABLISHING A DIGITAL PLANT HEALTH SERVICE IN MALAWI

Locations	Malawi
Dates	01/06/2022 - 30/06/2027

Summary

Pests and diseases contribute to 40% of food loss leading to food insecurity. Synthetic pesticides are the predominant control method but these are associated with negative environmental and health concerns. The extensive use of chemicals has sparked a renewed interest in Integrated Pest Management (IPM) – an effective combination of control methods and the need for new innovative ways to manage pest and disease outbreaks. There are many digital systems that have been developed to identify, monitor, manage, control and predict outbreaks of a large number of pest and disease species. These systems provide useful information to aid decision-making and timing of integrated pest management strategies. By building on the successes of existing systems and data assets, this project aims to establish a digital agricultural plant health service for efficient pest and disease management in Malawi that will benefit over 100,000 farmers.

The problem

The agriculture sector is the biggest industry in Malawi. Over one-third of Malawi's GDP and 90% of its export revenue come from agriculture where tobacco is the largest cash crop followed by tea and raw sugar. Furthermore,

over 80% of the population is engaged in subsistence farming where maize, cassava and sweet potatoes are the main crops, with maize being the most important crop for food security.

Unfortunately, food insecurity is a recurring event in Malawi, mostly due to erratic rainfall, small farm size, limited use of modern inputs and poor access to markets and, most importantly, problems with pests and diseases. Malawi, like most countries that depend on agriculture, combats crop pests and diseases using pesticides. However, the negative effects they have on the environment and people's health are known. Countries are now looking for alternative control methods, with IPM being a favoured option.

While there are existing multiple digital systems available to predict, identify and manage plant pests and diseases, these systems are often aimed at a specific crop or pest. Furthermore, despite the recognized benefits associated with aggregating systems (combining data from multiple sources), these systems remain isolated and unlinked. This leads to farmers being confused about which system to use, good tools hidden or unnoticed by farmers and extension workers and weaker solutions becoming dominant without providing the best-applied service.

Establishing a pest and disease decision support system in Malawi will help farmers to take the best decisions within the concept of IPM to mitigate crop losses due to pests and diseases.

What we are doing

The project's goal is to establish a national digital plant health service in Malawi.

The Malawi Digital Plant Health Service (MaDiPHS) project will build and expand on the successes achieved by existing digital plant health systems such as PlantVillage Nuru (a pest and disease monitoring tool), the Norwegian Institute of Bioeconomy Research's VIPS pest prediction platform, a Farmer Interface Application (developed by the International Institute of Tropical Agriculture) and CABI Plantwise and Pest Risk Information Service (PRISE).

The data assets and outputs of existing systems will contribute to a common International Platform which will feed into a national digital client (a locally-adapted digital system with a user interface that meets the local needs). Malawi will be the pilot country with the newly-established service being a model for other countries and regions to adapt and upscale.

CABI will lead on data organization and management which will focus on enhancing access to data and information resources as part of the MaDiPHS ecosystem. CABI will be responsible for:

- Mapping data ecosystems
- Identifying key data assets
- Data sharing agreements for data contributors
- Data sharing principles for the MaDiPHS project to support the exchange of information, data acquisition and management
- Inventory of knowledge library assets (factsheets, Pest Management Decision Guides, publications)

CABI will also contribute to the International Platform, leading the consultations and co-development of processes required to ensure the system is co-developed locally and sustained.

The project is expected to deliver a digital service for efficient pest and disease management of maize, tomato, cassava, banana and groundnut in Malawi that will benefit over 100,000 farmers. The service will be owned and managed by the Malawian government.

Results so far

	During the inception phase (June – December 2022), a detailed work plan was developed and key stakeholders that have relevant data for use in MaDiPHS were mapped based on target crops, pests and diseases.
Donors	Norway
Partners	The Norwegian Institute of Bioeconomy Research (NIBIO) - Lead Partner, Malawi Ministry of Natural Resources and Climate Change – Department of Climate Change and Meteorological Services (DCCMS), Malawi Ministry of Agriculture – Departments of Agricultural Extension Services (DAES), Agricultural Research Services (DARS) and Crop Development (DCD), Total Land Care (TLC) Malawi, Viamo, Norwegian Meteorological Institute (MET Norway), Lilongwe University of Agriculture and Natural Resources (LUANAR), International Institute of Tropical Agriculture (IITA), Food and Agriculture Organization of the United Nations - Malawi (FAOMW), Penn State University
CABI Project Manager	Henry Mibei





https://www.cabi.org/what-we-do/cabi-projects/