GLOBAL BURDEN OF CROP LOSS

Locations	Worldwide
Dates	01/04/2019 - 31/10/2026

Summary

Efforts to reach Sustainable Development Goals in food security, nutrition and livelihoods are being hindered by crop loss. Up to 40% of crop yields are lost to pests and disease but the data available to prove and show trends is limited. The Global Burden of Crop Loss project will collect, validate, analyse and disseminate data on the extent and causes of crop loss, with the aim of gathering sufficient and reliable data that can act as evidence to enable prioritisation of research and policy in plant health, improving our ability to predict the impact of emerging diseases.

The problem

Keeping up with the growing demand for food, in the context of climate change and increasingly varying growing conditions, is one of the defining challenges of our time. We will need to produce far more food while limiting the environmental impact to ensure enough food is available for all of us for generations to come.

Worldwide, an estimated 20-40% of crop yield is lost to pests and diseases. Losses of staple cereal (rice, wheat, maize) and tuber crops (potatoes and sweet potatoes) directly impact food security and nutrition, while losses in key commodity crops such as banana and coffee have major impacts on both household livelihoods and national economies. Furthermore, the threat of plant pests and diseases is increased by climate fluctuations, hindering progress in several of the UN's Sustainable Development Goals.

Reducing crop loss will need to be a major component of this, and significant efforts are needed for improved management of pests, including pathogens and weeds.

What we are doing	Despite these clear problems and impacts, data on the scale, scope, and trends of the problem are sparse and outdated.
	This initiative will capture and measure the global impacts of crop pests and disease, putting a much-needed spotlight on crop health and ensuring that money and goodwill are directed towards the real, evidence-based, causes of crop loss. With accurate and relevant information, decision-makers can allocate resources and systematically develop investment in, and capacity of, plant health systems. Overall, this project has the potential to transform global agriculture and serve as a cornerstone for agricultural policy decision-making.
	The Knowledge and Data team at CABI, the universities of York and Exeter and Luma Consulting were awarded a Bill and Melinda Gates Foundation, Grand Challenges, Call to Action grant. This seed funding, covering 18 months ending 31 October 2020, enabled the team to determine the feasibility of delivering the vision for the Global Burden of Crop Loss. The team outlined the existing data landscape, collaborative networks, and proposed analytical methods to deliver the Global Burden of Crop Loss initiative.
	At present, we are continuing activities to define the need for the initiative through extensive user interviews and to evaluate relevant methods, datasets, and. We are currently running some in-depth analysis on global crop production datasets to assess their suitability as a key data layer in the analytical pipeline
Results so far	Multisectoral stakeholder engagement has confirmed the need for a data-driven system to produce national and regional level, time-series economic metrics on the extent of crop loss. Preliminary data investigations have led us to conclude that sufficient data exists to test the theoretical framework. These outputs have resulted in the decision to move the initiative forward, starting with maize (a crop with good data availability), in a pilot phase starting in 2021. The project aims to publish a first full round of multiple crop Global Burden of Crop Loss estimates by 2026.
	Through a governance consultancy, we have developed a scalable governance structure and are in the process of establishing a steering committee. Similarly, we are in the process of establishing a 'Methods Work Group' which will be composed of key experts that cross-walk various technical capabilities required to deliver the Global Burden of Crop Loss. Activities to date have allowed us to outline a theoretical framework to inform the development of the analytical pipeline by the Methods Working Group.
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