



# GLOBAL BURDEN OF CROP LOSS

**Locations** Worldwide

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**Dates** 01/04/2019 - 31/10/2026

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**Summary**

Crop health is increasingly threatened by climate change, pests and insufficient response of agricultural practices to these threats. An estimated 40% of crop yields are lost to pests but the data available to prove and show trends is limited. The Global Burden of Crop Loss will produce trusted metrics on the burden of crop loss across geographies and crops. Rigorous evidence about the impact to society of crop losses across our food systems will be generated. This will enable decision makers and investors to understand the impact of crop loss on food security and on the economy and take appropriate action.

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**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.

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**What we are doing**

Despite these clear problems and impacts, data on the scale, scope, and trends of the problem are sparse and outdated.

The Global Burden of Crop Loss (GBCL) is an initiative aiming to support plant health by providing actionable estimates of crop losses to inform decision making locally, nationally and globally.

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.

Activities to define the need for the initiative through extensive user interviews are being carried out, as well as an evaluation of relevant methods and datasets. In-depth analysis on global crop production datasets to assess their suitability as a key data layer in the analytical pipeline is also being done.

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## Results so far

Following the 18-month scoping stage, it was concluded that there is a clear demand for accurate, timely and spatially explicit information on the burden and causes of crop loss that the data and methodology needed to develop such metrics exist; and that the research community is willing and capable of undertaking this task. On this basis, the initiative moved forward and started with a pilot on wheat (a crop with good data availability). The project team has been gathering datasets, building partnerships and developing a scalable governance system that will support participation by a broad range of partners.

An outline theoretical framework has been developed and initial work on global wheat data has started. The 'Technical Work Group,' composed of key experts that will develop the methods and analytical pipeline, has also convened. The first round of wheat estimates is planned to be delivered in 2022. Estimates for other crops will follow.

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<b>Donors</b>	Foreign, Commonwealth & Development Office (FCDO), Bill and Melinda Gates Foundation (2019-2020)
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<b>CABI Project Manager</b>	Cambria Finegold

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