



# The R2M Plant Health Toolbox: Rapid risk assessment to support mitigation of invasive pathogens and pests

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- The R2M Plant Health Toolbox provides apps for rapid risk assessment and mitigation planning for crop pathogens and pests at the national or regional level ([garrettlab.com/r2m](http://garrettlab.com/r2m)).
- These open-source tools help countries develop and implement their strategies for invasive pathogen/pest management.
- R2M is being advanced with partners in NARES and CGIAR in countries including Cameroon, Colombia, Costa Rica, Ecuador, Ethiopia, Kenya, Nepal, Pakistan, Peru, Thailand, Uganda, Vietnam.
- R2M tools help to answer the following questions.

## How to access epidemiological parameter estimates needed for planning if they are not available in published materials?

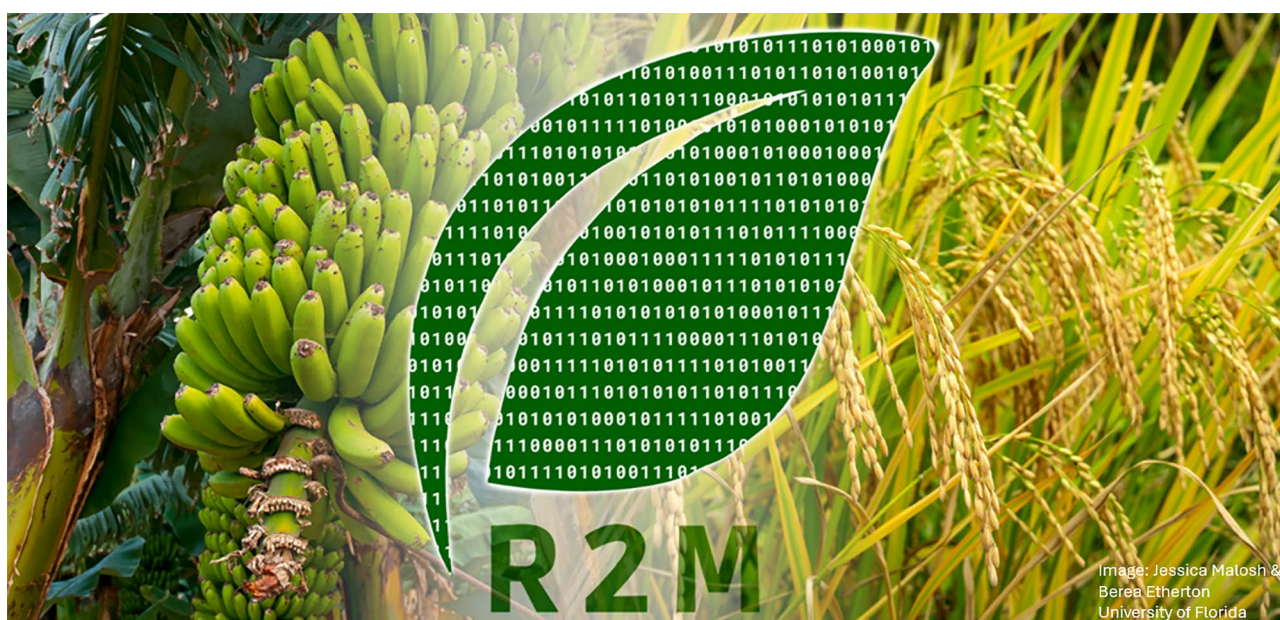
- An **expert knowledge elicitation app** makes it easier to collect and analyze expert knowledge related to diseases and pests (MetaQuestion web app, Fontan et al. 2025; Robledo et al. 2025).
- Expert knowledge elicitation is a method for formalizing questions to a team of experts to get the best possible information from them – as compared to just chatting with a friendly expert.
- Organizers can use this app to facilitate expert knowledge elicitation workshops, accessing current understanding of risk and management priorities.

## What are key intervention locations and the structures of potential invasion networks?

- A **tool for habitat connectivity analysis** maps locations that are candidate priorities for surveillance and management of pathogens and pests (geohabnet R package, Plex Sulá et al. 2026).
- Maps of host availability and/or environmental conduciveness to a pathogen or pest can be analyzed using the geohabnet package to find these key locations.

## What are the best regional strategies and tactics, based on likely outcomes?

- Impact network analysis (INA) provides **scenario analysis to evaluate regional management options** (INA R package, Garrett 2021; Etherton et al. 2023).
- For example, how well do potential approaches for containing an invasion work, based on our current understanding of the system?
- How do the likely costs and benefits of regional policies compare?
- The results of scenario analyses can inform policymaking and highlight data collection priorities.
- Details about the tools and examples of applications are available through the QR code at [garrettlab.com/r2m](http://garrettlab.com/r2m).



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Expert knowledge elicitation for understanding potato health risk in Ethiopia, using an earlier version of the PlantQuest catalog, now available in the MetaQuestion app. Results in Mouafo-Tchinda et al. (2026).



Photo: Romaric Mouafo-Tchinda  
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