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Supplementary Information for

The Persistent Threat of Emerging Plant Disease Pandemics to Global Food Security.

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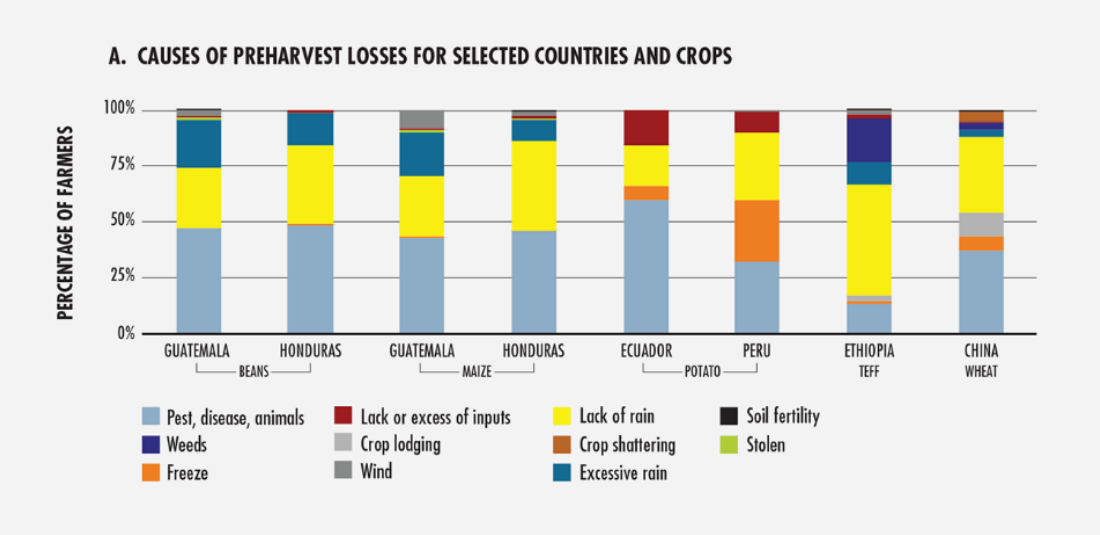

Fig. S1. The nature and causes of losses for five staple crops in, Guatemala, Honduras, Ecuador, Peru, Ethiopia and China. The percentage of farmers experiencing loss due to plant diseases and pests were identified as a major cause of preharvest loss across 5 of 6l countries and sectors examined. Image credit: Food and Agriculture Organization of the United Nations, SI ref. 1. Reproduced with permission.

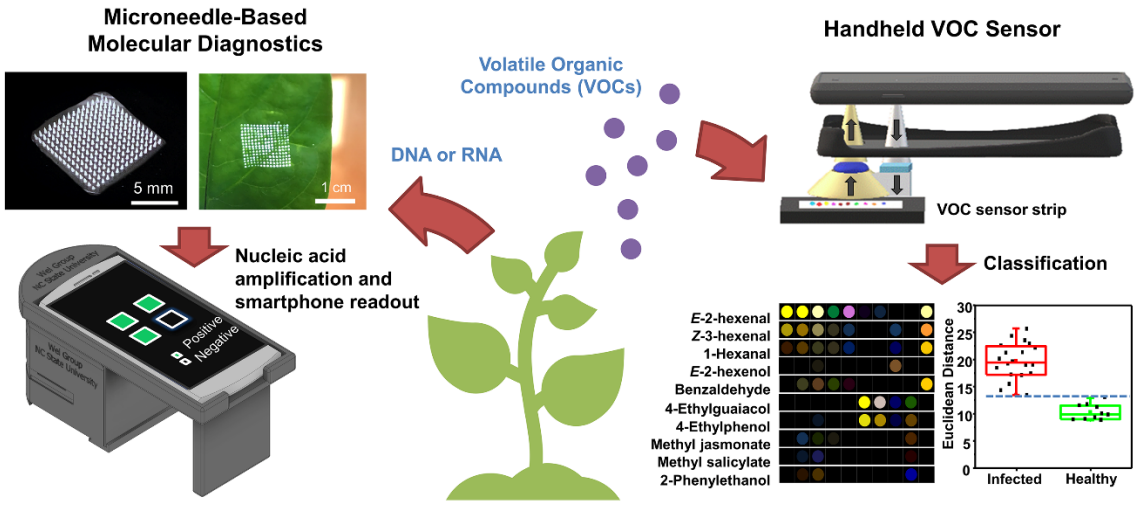

Fig. S2. Overview of two smartphone-based imaging platforms for plant disease detection. Schematic on the left is a molecular diagnostic platform based on microneedle (MN) patch nuclei acid extraction and a smartphone-based LAMP assay. Schematic on the right is a smartphone device for sensor array scanning and image capture of colorimetric volatile organic compound (VOC) sensor. The sensor cartridge containing the chemical sensor array is photographed and differential profiles of 10 representative plant volatiles are detected. Healthy and diseased plants were distinguished using the VOC sensor array. Ref 2

SI References

1. Food and Agriculture Organization of the United Nations, The State of Food and Agriculture 2019. Moving forward on food loss and waste reduction. (Food and Agricultural Organization, Rome Italy, 2019).
2. R. Paul, E. Ostermann, Y. Chen, A. C. Saville, Y. Yang, Z Gu,, A. E. Whitfield, J. B. Ristaino, Q. Wei. Q. 2021. Integrated Microneedle-Smartphone Nucleic Acid Amplification Platform for In-Field Diagnosis of Plant Diseases. Biosensors and Bioelectronics: accepted