Identifying crop diseases—there's an app for that

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New research suggests that artificial intelligence (AI) might be able to identify and classify diseases in crop plants allowing more targeted application of treatments for specific fungal infections and other

problems. The idea is discussed by a team from India in the *International Journal of Sustainable Agricultural Management and Informatics*.

Nitin Vamsi Dantu and K. Vimalkumar of the Amrita School of Engineering in Coimbatore, and Shriram Vasudevan of the K. Ramakrishnan College of Technology in Trichy, explain that fungal infections in crop plants commonly cause wilting, rusts, blotches, scabs, moldy coatings, and rotted tissue. Such problems lead to crop failure or inedible produce and massive economic costs to the farmer. An automated way to quickly identify common plant disease and allow targeted treatment to be undertaken could save crops, increase yields, and cut costs.

The team is using deep-learning techniques to develop a system that could be incorporated into a mobile phone app. The app would allow farmers to take a snapshot of a diseased leaf and the app would analyze the image, identify the disease in the crop in the field in real-time. The app can distinguish between healthy potato plant leaves and those afflicted late blight. It can discern strawberry leaf scorch. It can also distinguish between various tomato diseases including bacterial spot, early blight, leaf mold, target spot, mosaic virus, and others.

The tests show the approach to perform better than the state of the art technology, the team says. The system is they say, accurate and functionally very stable.

Such innovations might help save an ailing agricultural industry in certain parts of India as well as reduce the psychological burden on struggling farmers that tragically sees thousands of suicides each year.

  More information: Nitin Vamsi Dantu et al. An innovative artificial intelligence approach for disease classification in plants, *International Journal of Sustainable Agricultural Management and Informatics* (2021).