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AI app predicts climate change stress for farmers

A new artificial intelligence (AI) tool available for free in a smartphone app can predict near-term crop productivity for farmers in Africa.

The app may help farmers in Africa protect their staple crops – such as maize, cassava and beans – in the face of climate warming, according to Penn State researchers, **reports Science Daily**.

The new AI tool will work with the existing AI assistant developed by Penn State, called PlantVillage Nuru, that is being used across Africa to diagnose crop diseases.

App twice as good as human experts

The researchers have tested the performance of their machine-learning models with locally sourced smartphones in the typical high light and temperature settings of an African farm. In these tests, the app was shown to be twice as good as human experts at making accurate diagnoses, and it increased the ability of farmers to discover problems on their own farms.

Now PlantVillage Nuru can draw in data from the United Nations' WaPOR (Water Productivity through Open access of Remotely sensed derived data) portal, a database that integrates 10 years' worth of satellite-derived data from NASA and computes relevant metrics for crop productivity given the available water.

Weather forecast data

PlantVillage Nuru also incorporates weather forecast data, a soil dataset for Africa, and the United Nations Crop Calendar, which is a series of algorithms on adaptive measures that can be taken under certain conditions.

The PlantVillage AI tool incorporates tens of thousands of data points across Africa with hundreds more being collected every day. All of these data are

freely available to the global community, who can work collectively to improve the AI.

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Drought tolerance of crops

Specifically, the AI assistant has the opportunity to integrate diverse data streams to provide information about drought tolerance of crops and which crops are suitable in which areas, for example.

In addition, the app offers advice that could help farmers learn about crop varieties that are climate-resilient, affordable irrigation methods, and flood mitigation and soil conservation strategies, among other best practices.

Although the tool is smartphone based, it can be accessed through a webpage to inform diverse stakeholders. In Kenya, the PlantVillage AI tool informs messages that are then sent out to SMS phones across the country.

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https://www.futurefarming.com/Tools-data/Articles/2019/10/AI-app-predicts-climate-change-stress-for-farmers-481881E/