

# Smart phone apps series to help maximize lands productivity, protect resources

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RS researchers and their cooperators have developed easy-to-use mobile phone apps to help even non-scientists in Kenya (shown here) and around the world collect and share soil, land-cover and climate data. Credit: A. Beh, New Mexico State University.

What do "cloud computing" and "terra firma" have in common? A suite of mobile phone applications ("apps") that, once all are released, will connect agricultural producers around the world and provide them with shared knowledge on ways to maximize the land's productivity while protecting its resources for future generations.

The first two apps, dubbed "LandInfo" and "LandCover," were released this month and will allow anyone using the [mobile phone](#) technology to collect and share soil and land-cover information as well as gain access to global climate data, said Jeff Herrick, a U.S. Department of

Agriculture (USDA) scientist. He and cooperators developed the apps as part of a five-year, multi-organization project called the "Land Potential Knowledge System" (LandPKS).

"The LandPKS is a global network of open-source databases and computer simulation models that anyone with a mobile phone and a wireless or cellular data connection will be able to access," explained Herrick, with USDA's Agricultural Research Service (ARS) in Las Cruces, New Mexico.

LandInfo and LandCover are currently available on Android and can be downloaded from the Google Play Store. Availability on other platforms, including iPhones, is planned by the end of the year.

LandInfo's primary objective is to make collecting soil data easier for non-soil scientists; however, the app does provide some useful feedback, including how much water the soil can store for plants to use, average monthly temperature and precipitation, and the length of the growing season based on the user's location.

LandCover simplifies collecting data for land-cover inventories and monitoring. In fact, a yard or meter stick with five notches is all that's needed to document tree, grass, bare ground and crop-residue cover. The app automatically generates basic indicators of these cover types on the phone. Once a connection is established, the app sends the data to servers, where it will be stored and accessible to users worldwide.

A future app (LandPotential) will use the LandInfo information together with Internet cloud-based models and additional knowledge bases to help users identify and select management systems that increase production while reducing soil erosion.

The mobile phone apps exploit the latest in digital soil mapping, GPS-

enabled camera functions and other cloud-computing technology and require no special training thanks to picture-matching, drop-down menus, video explanations, and multiple-choice questions.

New Mexico State University, USDA's Natural Resources Conservation Service (NRCS), ISRIC-World Soil Information in the Netherlands, the African Technology Policy Studies Network (ATPS), World Agroforestry Center, Regional Center for Mapping of Resources for Development (RCMRD) in Kenya, and the U.S. Agency for International Development are among organizations that contributed to the apps' development, testing and release.

In addition to land managers, these apps also should prove useful to extension service agents, farm consultants, policymakers, and soil inventory and monitoring specialists. Once the entire suite has been released, the apps will allow users to network with one another and exchange information about their experiences, challenges and successes.

Herrick said this shared knowledge will become especially important as agricultural producers seek to meet the food, fiber, fuel and feed needs of a growing world population projected to exceed 9 billion individuals by 2050. Visit the [LandPotential.org](http://LandPotential.org) website for more information and to sign up for updates on the availability of new apps.

Provided by Agricultural Research Service

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