



A banana field trial in Central Uganda whose yield performance is being monitored by scientists at the National Agricultural Research Laboratories using digital Earth technology. Photo Credit: Lominda Afedraru

Easing the barriers to satellite imagery in farming

By Lominda Afedraru

SATELLITE imagery is a key tool in agriculture, allowing scientists and farmers to remotely monitor fields and get up-to-date information on crop health, soil conditions and use of resources such as water. Farmers can use the information obtained from satellite images to make decisions needed to improve productivity and address challenges related to climate change.

Many satellite images are freely available.

But in Africa, translating them into meaningful and usable information for decision-making can be a problem even scientists.

Digital Earth Africa platform, launched in 2019, has sought to make data available and ease accessing, processing and organisation of satellite images.

“Once the scientists absorb the gist of the technology, they can give advisory information to farmers especially about the weather forecast because they will be able to tell the challenge of prolonged drought and flooding and advise farmers when to plant,” Joshua Okonya, the programme officer for technology and innovations at Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA).

ASARECA, a non-profit intergovernmental organisation for 15 member states in Eastern and Central Africa (ECA), is promoting the use of satellite imagery to help farmers and communities tackle threats related to climate change.

Digital Earth Africa user engagement manager Joseph Tuyishimire said the information can be stored in form of maps where scientists can analyse plant health, water density, and data on soil fertility including farming in wetlands among others.

Once a scientist logs into the website and identifies a specific notebook of interest, he or she



AI-generated image

can get a map and analyse the vegetation of a specific farm, for example.

If the vegetation is green in a certain period, it suggests there has been enough water source in the areas, meaning such a farm is good for farming. The scientist, through extension service providers, will be in position to pass on advisory information to a farmer on the right time to plant.

Data on plant health

The map may also show if the plants are infested with disease, or they are drying up due to prolonged drought. The farmer will be advised accordingly to take precaution measures.

Here the scientist may be interested in observing the chlorophyll content to notice that the plant is healthy.

In case the map is showing the leaves are green, then it is presumed healthy. In case the leaves are withering, then there is sign of pest and disease infection.

Scientists can use this information to reach out to the farmers to adopt good agronomy practices to correct the situation in order to get high yields.

How the notebook is created

This project is implemented in collaboration with Scientists from Australian Centre for International

Agriculture and Research who have been using the technology to help their farmers in solving climate change-related challenges.

It is the duty of scientists at Digital Earth Africa to create the various notebooks with all the information which is uploaded in the database called sandbox.

There is a code developed for scientists to access a particular dataset which will process the required information.

Experts have to register in order to access the information required. This enables the programmers to know how many people can be accommodated.

The technology requires use of internet, meaning users have to be online in order to access the information.