

Pamoja kwenye utafiti kwa maendeleo!

Together for Research and Development



Sustainable soils for African farmers

The challenge

Africa offers great potential for sustainable intensification of agriculture, but a persistent problem has been a lack of information on soil health. Such knowledge could help farmers choose which crops to plant, fertilizer to use and the land management practices to follow. This, in turn, could improve productivity, raise incomes and maintain ecosystem health.

Until recently, recommendations for land management were based on decade-old maps, created from data collected from different sources, each of differing quality and using different methods that did not directly measure the soil properties of interest.



Photo: Petterik Wiggers / IWMI

The approach

The Africa Soil Information Service (AfSIS), hosted by CIAT, has begun developing soil mapping and spectroscopy analytical products. Researchers from the project partners took soil samples from all over Africa, and using digital soil mapping technologies, have released soil property maps at 1-km resolution for the entire continent.

A total of 17,000 samples from more than 60 sites were complemented with fertilizer trials in five countries. This standardized data is now freely available online.

Based on this initiative, the Ethiopian government's Agricultural Transformation Agency invested in their own soil information service, the Ethiopian Soil Information System (EthioSIS), last year.

AfSIS has supported Ethiopian scientists to take soil samples from across the country. Rapid infrared and laser diffraction analytical techniques are enabling digital mapping of nutrient deficiencies using models developed by AfSIS. This is helping the Ethiopian government better target fertilizer and lime recommendations. The research team hope the protocols they have established can set a standard for similar work in other African laboratories.



Photo: ICRAF

Achievements

- Early results indicate widespread and previously unappreciated sulfur deficiency in Ethiopian soils. This will inform fertilizer supply and blending policy for the country.
- Ten African countries and two private companies in Kenya are using the project's soil infrared spectroscopy technology to test soil health.
- Finland has funded a 'Plant Environment Facility' to support soil screening for crop nutritional deficiencies in sub-Saharan Africa.

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