

A Short Report

SoilCares Lab Initiative in Bungoma County, Kenya

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Increasing smallholder crop production to feed growing populations is an urgent challenge which requires affordable soil testing methods, fertilizer recommendations, and accessible fertilizers with the required nutrients. However, soil analysis for small-scale farmers in Kenya has been difficult and mostly non-existent, primarily due to inaccessibility, high costs and lack of awareness on the need to conduct soil analysis. The launch of the SoilCares mobile laboratories in 2013 is one approach that has brought significant awareness to smallholder farmers of the need for soil analysis, as well as making soil analysis more accessible. SoilCares offers affordable soil testing - using infrared spectroscopy and slightly modified Quantitative Evaluation of the Fertility of Tropical Soils (QUEFTS) - to provide fertilizer recommendations to smallholders.

In 2014, SoilCares soil testing results from 2,107 samples from Uasin Gishu and Busia counties in Kenya, using archetype analysis and QUEFTS, showed that eight soil archetypes could be distinguished, of which four were dominant. Additionally, four fertilizer-blend archetypes were distinguishable for all counties which complied reasonably well with the NPK fertilization necessary at planting to produce 5 tonnes/ha maize. These blends are 12:25:0, 6:22:14, 0:40:0, and 13:33:0 (N-P₂O₅-K₂O). The median relative difference between the advised and optimally needed nitrogen (N), phosphorus (P₂O₅) and potash (K₂O) application rates at planting were 36, -10 and 0%, respectively. This exciting soil analysis and mapping method will help the fertilizer industry, traders and policymakers to make important decisions about production and availability of crop or region-specific NPK blends.

At the beginning of 2015, Bungoma County local government in western Kenya took the initiative to purchase three SoilCares mobile labs to provide affordable soil testing services to farmers in the region and promote balanced fertilization. IPI has partnered with the local government to support the promotion of soil testing to small-scale farmers by subsidizing the cost of analysis to the

first 500 farmers by 40%. IPI is also running fertilizer trial plots on individual farmer's fields within the county whereby field days will be held to demonstrate to farmers the need for balanced fertilization. In addition, the IPI team will offer technical advice to the county and facilitate a monitoring and evaluation process to determine the effectiveness of the soil testing technique and factors influencing the adoption of soil analysis by farmers.

See also the new IPI video "Increasing Crop Yields through Advanced Soil Testing and Fertilizer Recommendation for Small Scale Farmers in Kenya" on the [IPI website](#).



Bungoma county extension service personnel preparing soil samples for analysis. Photo by Lilian Wanjiru Mbuthia.

This report also appears on the IPI website at:

[Regional activities/Eastern Africa](#)

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