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Fertiliser Recommendation Guidelines Based on Soil Tests: Solutions to Farmer Problems or a Tower of Babel?

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Abstract

Soil testing has been promoted for many years as the basis for making sound lime and fertiliser use decisions. However misunderstandings still exists on what can and cannot be gained from soil testing. A testament to these misunderstandings is the number of small holder farmers especially in developing countries who do not have access to good historical soil test information. With increasing fertiliser prices, the importance of soil testing for accurate and cost effective fertiliser recommendations has become more important than ever. Thus it is imperative that conclusions drawn based on soil test regardless of which methods are used for the analysis should reflect as much as possible the accurate nutrient requirement for improving crop production if farmers have to benefit. This paper reports on varying recommendations made on same soil samples by six different laboratories in Western Kenya. Twenty soil samples collected from five counties in Kenya were sent to six different laboratories for analysis and providing recommendations on appropriate fertiliser use for each sample based on the soil test results. The different laboratories used different methods of analysis including wet chemistry and near infrared spectroscopy. Variations attributed to the methods of analysis was not the main focus in this study but rather the interpretations derived from the results as the basis of formulating fertiliser recommendation guides. There were highly significant differences on the type and rates of fertiliser and lime recommendations emanating from the six laboratories for the same soil samples. Cost benefit analyses assuming a double maize grain yield increase reveal huge losses farmers would incur up to the tune of 100 USD per hectare while following recommendations from the different laboratories on the same farm. It is clear from this study that the way different government and commercial laboratories interpret how much fertiliser or lime to apply for a given soil test level may still be debatable. This inevitably may lead not only to farmer confusion and mistrust on the recommendations made for fertiliser use based on soil tests but to unwarranted financial loss while at the same time posing serious environmental challenges if not controlled.

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