Nutrient Expert

In Ethiopia regional fertilizer recommendations are being widely used. Yet inherent soil fertility status as well as soil fertility management practice varies from village to village and from farmer to farmer. Nutrient Expert is a decision-support tool (program), developed by the International Plant Nutrition Institute, that can help farmers and extension providers improve fertilizer recommendations, increasing fertilizer use efficiency, productivity and profitability.

What values does the tool have?

- The tool is a free application that anyone can download and use.
- The tool incorporates information on the available fertilizer blends in Ethiopia.
- The tool can give fertilizer recommendations for individual fields or for larger but similar areas, depending on the users requirement.
- The tool uses information on current farmer practices, relevant inputs and field history and local conditions to make site specific recommendations.
- The tool provides advice on improved crop management practices (such as planting density, timing of fertilizer application, weeding) that help farmers maximize net return on their investment in fertilizer.
- Compared to soil test based fertilizer recommendations, Nutrient Expert is simple, cheap and easy to use.

What is the evidence that Nutrient Expert can improve nutrient management?

Nutrient omission trials were conducted on 88 farmers' fields in Jimma, Bako and CRV areas during 2015 to produce a version of Nutrient Expert suitable for Ethiopia. Nutrient Expert for Ethiopia was validated on 52 trials in six maize belt districts of Oromia during 2016. These trials compared Nutrient Expert recommendations, a soil-test based recommendation and the regional recommendation. The trials show that:

- NE recommended lower amount of phosphorus and potassium fertilizer, yet maize yields were comparable to soil test based and regional recommendations (see Fig. 1left)
- Using the available blends in Ethiopia, this meant a decrease in the use of NPK fertilizer, resulting in an investment saving of about 80US$ per ha (Fig.1 right)

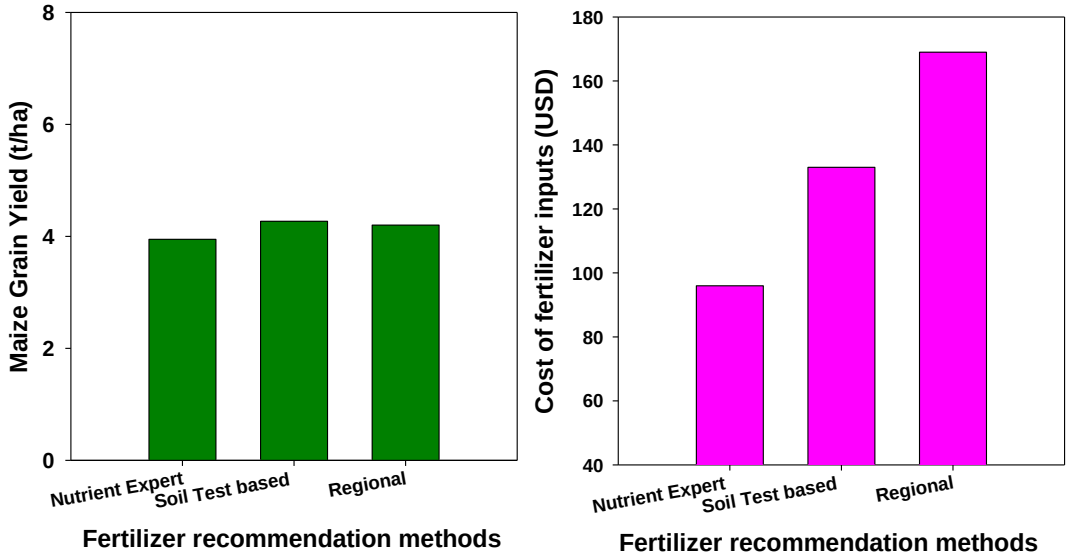

Fig.1: Maize grain yield and cost of fertilizer input for different fertilizer recommendation methods

Choosing the right maize variety to grow
Maize Variety Selector

Choosing maize varieties that are well adapted, i.e. whose duration and harvest time are well matched to the length of the growing season, and have characteristics or traits desired by farmers and consumers, is very important. Maize growing farmers and extension providers do not always have access to the information needed on currently released varieties to choose or advise farmers what variety to grow. Information on varieties provided on seed packets is often limited and seed suppliers may not be well informed about differences between varieties.

Maize Variety Selector (MVS)

- The Maize Variety Selector (MVS) is a mobile phone application or tool that provides predictions of harvest date based on user defined planting date as well as the characteristics of the variety.
- The tool can predict crop development for 20 commonly grown maize varieties in Ethiopia.
- The tool uses geo-referenced map functionality to determine the location of the field or farm so that appropriate advice is generated for that location.
- The tool can be used in several different modes, allowing the user to choose varieties based on preferred planting date, preferred harvesting date, or particular variety characteristics.
- The tool can also help farmers on the timing of key events, such as weeding and fertilizer application, to improve yields.

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The Maize variety Selector currently has different user-interfaces depending on whether the user is a farmer, agro-dealer or extension worker. The design of the phone application can be changed to suit Ethiopian users needs and MoANR staff can help improve this.