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“Filling gaps and removing traps
for sustainable resource management”

Enhancing Livelihoods through Integrated Soil Fertility Management in the Highlands of Ethiopia

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Abstract

Many studies have shown that land degradation and declining productivity are serious problems in the Ethiopian Highlands, the major cause being a decline in soil fertility resulting from topsoil erosion, soil nutrient and organic matter depletion and often increased soil acidity. At the same time Ethiopia is being adversely affected by climate change weather patterns.

Integrated Soil Fertility Management (ISFM) aims to improve soil fertility and productivity of small-scale farmers by promoting locally adopted combinations of various ISFM technologies. These include the use of improved seed, organic fertiliser (improved compost, manure, vermi-compost) in combination with inorganic fertiliser, legumes with bio-fertiliser, line seeding, and lime application on acidic soils. Crop cuts show that ISFM technologies increase crop yields substantially, but farmers are also interested to know if their investment is also financially viable. Therefore, a cost benefit analysis has been undertaken to evaluate the financial effect of ISFM under small scale farm conditions. These have been based on farmer-led demonstrations during the 2016 cropping season, comparing ISFM and farmer practice for four major crops - maize, faba bean, teff and wheat in Amhara, Oromia and Tigray regions. Gross margins, returns to labour and benefit-cost ratios were calculated to compare the benefits with an increase of costs of purchased inputs (seed, fertiliser and lime) and an increase in labour (compost production, line seeding and applying inputs). Results show that benefits considerably exceed the costs, hence it can be financially attractive for small scale farmers to invest in soil fertility enhancing technologies. At the same time, many of the components of ISFM can also be described as “Climate Smart”, meaning a win-win situation for both the environment and improving livelihoods. Nevertheless, the availability of inputs, finance and labour as well as knowledge about ISFM remain critical to scaling up and long-term sustainability.

Keywords: Climate smart agriculture, cost benefit analyses, integrated soil fertility management, ISFM, livelihood security