

EVALUATION OF NUTRIENT MANAGEMENT STRATEGIES AT FARM LEVEL IN ETHIOPIA FOR IMPROVED FOOD PRODUCTION

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Soil fertility is a key driver for food production in Africa and despite major efforts to overcome this issue through large scale fertilizer supply programmes, the adoption by farmers is still low. In Ethiopia the majority (65%) of the farmers do not use fertilizer at all and the remainder apply only at very low rates. There are several reasons for the poor adoption by farmers which include: 1. Apparent low value to cost ratios of fertilizers because of high costs and low fertilizer recovery in crops due to low organic matter contents, acidity, erosion, erratic rainfalls, etc. 2. Ill performing supply chains and lack of timely delivery of fertilizer. To understand current farm management strategies and its implication for soil fertility and food production detailed surveys were performed on 18 farms distributed over 2 sites (Holetta and Melkassa) in Ethiopia. Nutrient management strategies were classified according to its ratios between the three main driving mechanisms: 1) crop – market interactions, 2) crop – livestock interaction and 3) livestock-market interactions. Also value to cost ratios (VCR) were calculated for maize, teff and potato. Our results showed negative nitrogen balances for all farms, but large differences were observed between the two sites and between crops. The VCRs were high, indicating large profits of fertilizer application. Nutrient management strategies were dominated by market-crop interactions, but differed in main directions of flows. Nutrient management strategies were positively related to net farm income, indicating that with improved nutrient management strategies farm profitability can be increased, even without additional inputs. In this presentation a methodology to evaluate different nutrient management strategies is presented together with quantitative information on nutrient balances, flows, VCRs and yield response curves for 18 farms in Ethiopia. Consequences of diverse nutrient management strategies for sustainable food production in developing countries are discussed.