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Importance of Livestock Manure in Crop Production in Tanzania

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Abstract

Soil nitrogen depletion is considered one of the important constraints to improving the productivity of crop production in sub-Saharan Africa. It has been found that farmers cannot afford to apply recommended levels of mineral fertiliser to cropland, leading to nutrient mining. With the increasing importance of livestock in the livelihoods of poor farmers, livestock manure or leguminous forages can offer a potential solution to soil fertility loss in mixed farming-systems. Studies have found positive effects of manure application on crop yield, but the effects depend on the management practices when handling the manure. The objective of this study is to investigate how small-scale farmers in mixed systems in Tanzania manage soil fertility and manure and how their use of manure affects crop productivity. Data for this study is derived from a sample of 994 livestock keepers interviewed in 2017.

Results indicate that only about 23 % of the interviewed farmers applied mineral fertilisers on their farms while about 25 % of the farmers planted legumes with the intention of soil improvement. Although a majority (78 %) of the farmers applied livestock manure to their crops, less than 5 % of the farmers kept the manure enclosed before spreading it on crop-land. Mineral fertiliser is applied on average to only one crop, which is mostly maize, while manure is applied to a wide range of crops, on average two per farm, including vegetables and perennial crops, such as bananas. A comparison of farms using livestock manure versus those that do not, indicates that farms using livestock manure have a statistically significant higher value of crop production per acre than those that do not. This implies that building farmers capacity on effective livestock manure handling and application has the potential to considerably improve crop productivity, especially where soil fertility is threatened and access to mineral fertiliser is constrained.

Keywords: Crops, livestock manure, productivity, soil fertility