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An Investigation into Factors that Limit Soil Fertility Management Practices in Nindye Agro-ecosystem

This work is presented as a direct outcome of the study on factors limiting improvement of soil fertility in Nnindye Parish Mpigi district. The general objective of the study was to explain why available soil improvement technologies are not contributing to solving the problems of declining soil fertility despite the availability of scientifically proven methods elsewhere. The area has had a number of organisations working towards the development of agriculture. Development projects have continued to sensitise communities on the usefulness of local resources and good agronomic practices in the improvement of soil fertility but with no change in the soil status. Mailo land is a predominant land tenure system in the study area that was predicted to be a hindrance to investing in improving land productivity. This formed the basis for the research to find out the kind of crop enterprises managed under different tenure systems, practiced methods of soil fertility improvement as well as what prevents these methods from achieving good soil fertility. The research took a survey approach using mainly qualitative and quantitative research approaches in which farmers were targeted as the study population. Land tenure types do not determine soil fertility improvement practices except in situations where use was for a specified period of time as the case for rented land where agro forestry and soil bunds cannot be used due to temporary ownership. Farmer practices for soil fertility management ranged from use of natural fallows, recycling of garden wastes, compost, crop rotation, farmyard manure, chemicals, integrated nutrient management and use of soil band. These practices were associated with factors that include land fallowing practices, labour, education, and number of animals kept especially cattle, number of enterprises owned and how farmers judged the level of decline of soil fertility. Factors such as short fallow periods, labour problems, inadequacy of manures, high costs of fertilizers both organic and inorganic and excessive removal of material from gardens prevent applicability of available methods for achieving better soil fertility. Soil management methods that are largely depending on use of other resources are inappropriate for the area. Important recommendations including introduction of improved fallows, development of suitable crop rotations and cropping patterns were suggested.

Key words: Fertility, Soil, Management, Agro-ecosystem