In-Field Soil Conservation Practices and Crop Productivity in Marginalized Farming Areas of Zimbabwe

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Abstract

There are high rates of soil erosion and low crop productivity in the communal farming areas of Zimbabwe. The communal areas are marginalized as they are characterised by high erosion, inherently infertile soils that are low in organic carbon, low and erratic rainfall leading to very low crop yield per unit; hence, farmers are food insecure. Soil has a direct influence on the growth and productivity of crops; hence, soil conservation is important for food production. However, the high rates of soil erosion in the marginalized areas of Zimbabwe are reducing the soil quality and crop yield. The soil conservation practices are therefore vital for sustainable crop production and food security in these areas. Soil conservation improves crop productivity by enhancing soil fertility and water holding capacity. Nevertheless, farmers in the marginalized areas of Zimbabwe use inappropriate agronomic and soil management practices accelerating the rates of in-field soil loss. In-field soil conservation can modify the soil properties, e.g. increasing the soil organic matter and soil microbial activity and reducing the soil erosivity. Effective soil conservation strategies can reduce the velocity of surface runoff and confers soil resistance to erosion. Various methods of in-field soil conservation can redress the declining soil fertility, soil erosion problem, and land degradation and increase crop productivity in marginalized cropping areas. Agronomic practices such as minimum tillage, crop rotation and mulching can effectively minimize the rates of soil erosion in crop lands, contributing to sustainable crop production in the marginalized areas, thereby achieving food security among the rural poor. This chapter therefore provides a synthesised review of in-field soil conservation strategies that can be applied in the marginalized cropping areas of Zimbabwe. The main thrust is to improve crop production in such areas aiming at achieving sustainable food security among the farmers.