

Abstract

Declining crop productivity is a major problem facing smallholder farmers in Central highlands of Kenya. This decline is caused by continuous cultivation of soils without adequate addition of external inputs in form of manures and fertilizers. This low soil fertility has an enormous contribution to one of the greatest challenges facing Kenya currently; the inadequate food production for the rapidly growing population. A multidisciplinary farmers participatory trial was established in the main maize growing areas of Meru South District, Kenya in 2000 with the main objective of offering small-scale resource poor farmers feasible soil nutrient replenishment technologies for improving soil fertility. Results indicate that, the average maize grain yield across the treatments ranged from 1.1 to 4.0 Mg ha⁻¹ during the five seasons. On average tithonia with half recommended rate of inorganic fertilizer recorded the highest maize yield followed by sole tithonia while crotalaria and absolute control recorded the lowest yields. The improved maize grain yields in the 2000/2001 short rains, 2001 long rains, 2001/2002 short rains and 2002 long rains seasons from the 2000 long rains season demonstrate the positive impact of these technologies in the area