

## Abstract

Soil erosion, continuous cultivation, reduced land productivity, population pressure on land, low income, inappropriate and inadequate use of farm inputs such as fertilizers are some of the interrelated problems experienced by smallholder farmers in central Kenya highlands. These problems have been manifested in increased food insecurity in the area over the years. In an effort to address these problems research on soil nutrient replenishment technologies has been widely carried out in the area. Positive results (soil fertility improvement) have been reported from the use of tithonia, calliandra, leucaena, mucuna and crotalaria biomass. These technologies have been introduced to farmers in this area through participatory demonstration trial and on-farm trials to ensure that farmers benefit from knowledge generated through research. By the end 2003 short rains, two hundred and six (206) trained farmers had tested the soil nutrient replenishment technologies. A research was conducted to establish the criteria used by trained farmers of varying age and gender in their decision to adopt soil nutrient replenishment technologies. The study found out that farmers had adopted and adapted the soil replenishment technologies that were initially introduced to them. Use of calliandra and leucaena as incorporation materials had increased by 11% from the testing stage while 16% of the farmers preferred using the two tree species as fodder supplements. Preference of using calliandra had increased from 7% at the testing stage to 17%. Increased crop yield and other farmers' experiences on improved soil fertility significantly influenced the farmers' overall rating of the soil nutrient replenishment technologies.