

Abstract

Soil erosion, 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 and affecting smallholder farmers in Kirege location of Meru South District. These problems have culminated in increased food insecurity in the area over the years. In an effort to address these problems, soil nutrient replenishment technologies have been introduced in the area through collaborative research. Positive results have been reported from the use of tithonia, calliandra, leucaena, mucuna and crotalaria biomass. Some farmers have adopted the introduced soil nutrient replenishment technologies; others have tested and opted out over the years while others have never attempted using the technologies. The main objective of this research was to establish the criteria used by farmers in their decision to reject, abandon or adopt the above-mentioned soil nutrient replenishment technologies. Data were collected using key informant interviews, structured interview schedules and focus group discussions. The sample comprised of 74 respondents, 45% male and 55% female. Of those interviewed, 61% were between the age of 31-50 years. The research generated both qualitative and quantitative data. Means, percentages, spearman rank correlation and ANOVA were utilized for analysis. Results show that leucaena tree biomass was used as incorporation materials by 7% of the respondents as compared to 16% who used it as fodder supplement. Preference for calliandra had increased from 7% at the testing stage to 18%. There was a clear gender effect on the criteria used by farmers' in taking up soil nutrient replenishment technologies. Marketing, fodder value, fuel value, labour requirement and land availability were found to differ significantly ($P < 0.05$) in their rating between male and female farmers. The need to closely monitor the adoption and adaptation of soil nutrient replenishment technologies was noted, as the success in the acceptability of the soil nutrient replenishment technologies is dependent on socio-economic constraints of the target group. This is demonstrated using tithonia which was seen to have lost popularity among farmers dropping from 29% at the testing stage to 22% at the adoption stage; however, another 18% of the farmers were utilizing it as mulch or cattle bedding for quality manure without incorporating it directly into the soil as was first introduced.