Abstract

Declining soil and productivity is a major problem facing smallholder farmers in the central highlands of Kenya. This decline is caused by continuous cultivation of soils without adequate addition of external inputs in form of manure and fertilizers. Use of inorganic fertilisers is low due to high costs that are beyond the reach of majority of smallholder farmers. A multidisciplinary on-farm participatory was therefore initiated in the main maize growing areas of the central highlands of Kenya in 2000 with the main objective of addressing this problem. Results after four cropping seasons indicate that organic residues such as leguminous shrubs (Leucaena trichandra and calliandra calothrysus), herbaceous legumes (Crotalaria ochroleuca and Mucuna pruriens), Tithonia diversifolia, farm yard manure alone or with combination of 30 kg N ha\(^{-1}\) from inorganic sources can be used effectively to improve maize performance in the region. Over the four seasons under study, these organic residues gave an average mean maize grain yield in the range of 3.4 to 4.0 t ha\(^{-1}\) which is more than 1.0 t ha\(^{-1}\) that farmers in the area get from their farms. When the farmers were asked to select technologies that they wanted to test, majority selected tithonia, calliandra, leucaena and farm yard manure. This was attributed to availability of these organic resources at the farm level as tithonia could be cut along the roadsides and more than 80% of the farmers’ own livestock. These results through preliminary, indicate that organic resources being tested in this trial are effective in improving maize yields and farmers are willing to try these on their farms.