

Abstract

Field trials were conducted at the field units of the Embu Agricultural Training Center and Kamujine Dispensary in Embu and Meru Counties, Kenya, during 2012 long rain (LR) and short rain (SR) seasons to determine the effects of different maize-soybean intercropping patterns on yields, light interception and leaf area index. The main treatments were four maize –soybean intercropping patterns (convencional-1maize:1soya; MBILI-2maize:2soya; 2maize:4soya; 2maize:6soya) and two sole crops of maize and soybean, respectively. The experimental design was a randomized complete block design with four replications, and plot size of 7.0 m by 4.5 m. The study was carried out in two seasons (long rain 2012 and short rain 2012). The results showed that, the maize-soybean intercropping patterns had significant effect on maize stover and grain yields during both seasons and sites. The MBILI treatment recorded significantly higher stover and grain yields than all other treatments. During the long rain 2012, the soybean yields were reduced by 60 and 81% due to the intercropping with maize, at Embu and Kamujine, respectively; whereas during the 2012 SR, the yields were reduced by 52 and 78% as effect of intercropping with maize at Embu and Kamujine sites, respectively. The intercropping patterns affected significantly ($p < 0.0001$) the photosynthetically active radiation intercepted and the leaf area index at both sites. From the results of this study, the use of MBILI maize-soybean intercropping pattern can be recommended to the farmers of central highlands of Kenya because it gave efficient resources use and higher yields.