

Abstract

Recurrent droughts have resulted to increased maize crop failures and food insecurity especially in semi-arid regions of Kenya. To cope, farmers are advised to adopt drought tolerant maize varieties and maize-legume intercropping as a diversification strategy. As such, a study was conducted in Machakos, Mwea and Waruhiu to determine the performance of maize varieties currently grown in the semi-arid regions and their compatibility with a commonly grown bean variety, KB 1. Sixteen maize varieties were grown either as sole crops or intercropped with KB 1. The experiments were laid out in a RCBD with split plot arrangement and replicated thrice. Maize variety and intercrop system were assigned to the main and sub-plots, respectively. Data collected included plant height, nodulation, shoot biomass, stand count, lodging, days to 50% flowering and maturity, yield and yield components. Land equivalent ratio (LER) and monetary advantage (MA) indices were calculated to evaluate productivity of intercropping. Results indicated that varieties KCB, Katumani, DHO 1, DHO 2, DK 8031 and Duma 43 are suitable for these regions. Except DK 8031 and Duma 43 which seemed to tolerate drought, the other varieties escaped drought by maturing early. Further, these varieties were found to be compatible with beans in an intercrop system. However, beans yield was significantly affected by the maize component in the intercrop system and declines of 52% to 59% were observed. According to LER and MA indices, intercropping was superior to sole cropping. To increase food production, these drought escaping and tolerant varieties and maize-bean intercropping should be considered.