

Abstract

Sorghum (*Sorghum bicolor* (L.) Moench) is an under-utilized crop and one of the most important cereal crops in semi-arid tropics. In Kenya, sorghum is grown in the often drought-prone marginal agricultural areas of Eastern, Nyanza and Coast Provinces. Due to its C4 photosynthetic nature, extensive root system, waxy leaves and ability to stop growth in periods of drought the crop is well adapted to low lands that have higher temperatures, prone to drought and flooding. Sorghum, which is closely related to maize in utilization, therefore, could be an alternative staple food crop in arid areas prone to drought. As an indigenous Kenyan crop, sorghum could provide food security and become a suitable alternative in eastern Kenya. Despite its suitability in the semiarid areas, the area under sorghum production is still low and farmers attain low yields in eastern Kenya. Most farmers still opt to grow maize which is frequented by crop failures. The purpose of this study was to gather information on socio-economic factors affecting sorghum production and the sorghum farming system used by the farmers in the region, landraces grown by farmers, source of seed, traits preference, maturity period, cultural practices, pre and post harvest handling, utilization and constraints in sorghum production in lower eastern Kenya region. The study was conducted in Mbeere, Kitui, Makueni and Mutomo districts of eastern Kenya. Parameters studied were expressed as percentages and bar graphs constructed. Analysis of Variance was performed, and Least Significant Differences were used for separation of means at 0.05 level of confidence. Sorghum is grown widely as source of food and seed for planting is obtained from informal systems. Farmers hardly use inputs due to low income. Eastern region is a high agricultural area and productivity could be improved by use of locally available germplasm. The study found out that farmers in eastern Kenya maintain a diversity of sorghum landraces unique in their adaptation, food quality, grain yield, quality of harvested products and biotic stress resistance. Sorghum grain has high levels of iron and zinc, hence may be used to reduce micronutrient malnutrition. However, the production is low due to constraints such as lack of income to purchase fertilizer and chemicals, inadequate quality seed, susceptibility to pests and diseases resulting to low yields.