

Abstract

Objectives: The use of low yielding cultivars has been a major cause of poor sorghum production in the semi arid areas of Kenya. A study was conducted to determine the agronomic and morphological suitability of improved sorghum lines for adaptability to dry highlands of Kenya.

Methodology and Results: An experiment was set up as RCBD with 3 replicates at two sites (Nakuru and Baringo Counties) in the Rift valley Province of Kenya in March/April 2008 and 2009 to determine the plant height, flowering date, grain yield, 100-seed weight and agronomic score of 28 sorghum genotypes. Of the 28 genotypes evaluated, five lines gave significantly higher grain yield than the local check, Ikinyaruka. Mean grain yield was higher at the cooler, wetter Lanet site ($3587.5 \text{ Kg ha}^{-1}$) compared to the drier site, Koibatek ($2298.5 \text{ Kg ha}^{-1}$). At Koibatek, grain yield was higher in 2008 ($2298.8 \text{ Kg ha}^{-1}$) against 715.4 Kg ha^{-1} for 2009. The genotypes were classified into extra early flowering and maturation (BJ 28 and IESV90015 with mean days to flowering of about 80 days; medium maturity (100-107 days to 50% flowering) and late (Koibatek local with 161 days to flower and IS 11909 with 111 days to flower).

Conclusion and application of findings: The late maturity genotypes showed potential for forage by virtue of high biomass through multiple tillering and drought recovery. The IESV series experienced less grain yield reduction compared to other lines under reduced rainfall.