Abstract

Cereals are important crops grown and consumed globally, regionally and locally. However, world cereal yields and agriculture production have declined due t o frequent droughts, erratic and unreliable rainfall especially in sub-Saharan Africa. Pearl millet (Pennisetum glaucum (L) R. Br) accounts for almost half of the global production of the millet species. The limited adoption of improved hybrid pearl millet (Pennisetum glaucum) in the semi arid zone of South E astern Kenya has been attributed to the lack of hybrids with sufficient adaptation to this Zone. Therefore, identifying high yielding pearl millet varieties with farmer preffered traits and adapted to drought stress is very significant and relevant for plant breeding. The objective of the study was to determine the stability and adaptability of pearl millet genotypes with a view to evaluating and identifying the high yielding pearl millet varietie s for the ASALs. This study compared five pearl millet hybrids and one traditional landraces over three cropping seasons. The results indicated that genotype Pvs - Pm 1005 recorded significantly ($P<0.05$) for grain yield compared to other five genotypes. Kimbeere recor ded low above ground biomass yield compared to all other pearl millet varieties (15.5, 10.6 and 10.3t/ha in season 1, 2 and 3 respectively.1000 grain weight was significantly ($p<0.05$) different across all t he six pearl millet genotypes. Kimbeere (local variety) recorded significantly lower weight of 100 0 grain weight across all the three seasons. Across all the seasons the average grain yield ranged from 1049.1 kg ha - 1 to 1694.3 kg ha - 1 . The mean grain yield of the local variety was lower to that o f the hybrids which also provided significantly higher biomass and stover yield. In overall, the hybrids out yielded the landraces for grain productivity. These results confirm that even under well managed, but rainfed, arid zone environments, current hybrids offer farmers more advantage over their traditional landrace.