

Abstract

In Africa, cultivation and consumption of cereal crops is widespread. Erratic, unreliable rainfall and frequent droughts have resulted in drastic decline of world cereal yields and agricultural production. Pearl millet [*Pennisetum glaucum* (L .) R. Br.] is a potential crop for the semi - arid Kitui County, but there are few studies on production practices . Most farmers tend to prefer local varieties over hybrids owing to greater risks of crop failure. Development of early maturing elite pearl millet varieties with farmer preferred traits and adapted to drought stress is very significant and relevant for plant breeding. Poor adoption of improved hybrid pearl millet (*Pennisetum glaucum*) in the semi arid zone of South Eastern Kenya has been attributed to the lack of early maturing hybrids with high production potential .The objective of this research was to determine the growth parameters for pearl millet in this zone. This would optimize pearl millet yields, thus increasing the prospect for pearl millet as a cereal crop. This experiment was conducted with six pearl millet varieties raised in a completely randomized design with three replications at South Eastern Kenya University research and demonstration farm. General mean performance of the six pearl millet genotypes revealed significant differences ($p<0.05$) for days to emergence, days to anthesis, days to 50% flowering and days to 50% maturity. It also showed that millet varieties were superior in plant characters such as days to emergence, days to anthesis, days to 50% flowering and days to 50% maturity. The early maturing group included Pvs - pm 1005 (66.1 days to 50% maturity) and Pvs - pm 1006(74.22 days) while the local landrace (K imbee re) took the longest time (80.33 days) to mature over the three cropping seasons . These preliminary results have clearly shown the superiority of Pvs - pm 1005 and Pvs - Pm 1006 compared to the widely grown but very old local farmer variety Kimbeere. This trial is a confirmation that current hybrids offer farmers more advantage over their traditional landraces even when under well managed rainfed arid zone environments