

Presented at Inter Drought-V Hyderabad International Convention Center (HICC), Hyderabad, India, 21-25 February, 2017

## **Adaptability of pearl millet (*Pennisetum glaucum* (L.)R.Br)varieties in the semi- arid Kitui County of Kenya**

Thomas E. Akuja, Benard M Mweu, Mary W. Mburu and Titus I. Kanui

School of Agriculture and Veterinary Sciences, South Eastern Kenya University, P.O. Box 170-

90200, Kitui, Kenya Corresponding Author:

Correspondence: akuja05@gmail.com

### **Abstract**

Selection of drought adapted ecotypes having efficient use of water is the most important goal in breeding programs for drought stress environments. Cereal crops are mainly cultivated as rainfed crops, where grain yield is often limited by terminal drought stress. Therefore, identification of traits associated with water utilization of crops is important to increase crop productivity under terminal drought stress. The effects of water shortage (during panicle initiation, flowering and grain filling) on harvest index and plant height of pearl millet (*Pennisetum glaucum* (L.) R. Br.), were studied on-farm along during three seasons with close to average annual rainfall. In this study, six ecotypes of pearl millet [*Pennisetum glaucum* (L.) R. Br.] were evaluated under rainfed conditions to study their responses to drought and to identify the traits that are associated with drought adaptation. Data collection was done on the net plot i.e. three inner rows of each plot on plant height and harvest index. 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 (Kimbeere) took the longest time (80.33 days) to mature over the three cropping seasons. The data recorded showed significant ( $p < 0.05$ ) differences in millet harvest index among the six pearl millet genotypes. Pvs-Pm 1006 recorded significantly ( $p < 0.05$ ) higher harvest index compared to other 5 genotypes of pearl millet variety, followed by Pvs-Pm 1002 while it was Kimbeere which was the lowest. Based on the present study conducted with six diverse genotypes of pearl millet it can be concluded that during the present investigation, the hybrids showed better adaptability on yield components and harvest index to arid environment than the local farmer variety.

**Key words:** Pearl millet, Yield components, Harvest Index, Semi-Arid, Kenya

