Genetic Variability of Sorghum [*Sorghum bicolor* (L) Moench] Inbreed Lines for Transpiration Efficiency

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Introduction

- Sorghum has higher water use efficiency than other crops for those water stressed environment.
- The current climate change, however, is affecting the productivity of sorghum.
- Understanding the genetic potential of a genotype for high transpiration efficiency is crucial as it determines the yield potential of the crop.
- This implies growing high water use efficient sorghum genotypes are required to grow under drought stress areas.

Objective

- To evaluate variability among sorghum genotypes for transpiration efficiency and evaluate their association.

MATERIALS AND METHODS

- Totally 99 sorghum genotypes including two checks were evaluated for their performance in transpiration efficiency to develop adaptable and high yielding sorghum varieties for arid and semi-arid areas.
- The experiment was conducted in a greenhouse facility by using 16-L buckets (figure 1).
- The experiment was laid out in a Randomized Complete Block Design with two replications.
- Data were collected on plant traits described in Figure 2. Correlation analysis was made to determine the association among the traits.

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<th>TDB</th>
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<th>SDB</th>
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Figure 2. Correlation of traits with transpiration efficiency

Conclusion

- The presence of genetic variability among current sorghum genotypes ensures the possibility to achieve crop improvement goals through selection and hybridization for those drought stress areas.

Recommendation

- Transpiration efficiency should be one of the selection criterion in breeding programs.