Effect of Drought on Shoot, Root and Yield Parameters of Selected Rice Lines

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Rice (*Oryza sativa* L.) is the major food crop in Sri Lanka. That occupy 34 percent (0.77 /million ha) of the total cultivated area in Sri Lanka. Drought is one of the major environmental constraints severely reducing rice yields, making serious threat to global rice production. This study was conducted using eight rice lines including newly improved and exotic rice lines. Drought tolerant rice variety, Bg251 used as the control. The experiment was conducted inside a plant cage using Complete Randomized Design with three replicates for each rice variety and with 96 experimental pots. Seven days old seedlings were established in pots and drought condition were initiated after two weeks of planting. Growth parameters like plant height, chlorophyll content, shoot dry weight and flag leaf length were measured and Drought Tolerant Degree index was estimated. Root parameters were measured using WhinRHIZOpro root scanning machine. Further yield parameters like panicle weight, spikelet no per panicle, Yield and 1000 grain weight were measured. ANOVA process was conducted at 5% significant level for data analysis. Mean comparison was done by using Turkey's comparison. And Pearson 'correlation was performed to investigate the relationship between the parameters. AERON 9-3, IRDTN 7-11 and IRBBN dhana were identified as highly drought tolerant compared with BG 251. AERON 9-3 identified as a cultivar with good yield as well as good Drought Tolerant Degree value. And Drought Tolerant degree index was identified as simple and accurate drought screening method.

Keywords: Drought Tolerant Degree, Drought Tolerance, Panicle weight, Spikelet no per panicle