

Evaluation of Drought Tolerance in Selected Fodder Grass Species for the Dry Zone in Sri Lanka

K.N. Lakshitha¹, M.G. Mohamed Thariq²

^{1,2}Department of Biosystems Technology, Faculty of Technology, South Eastern university of Sri Lanka

¹nilanlakshitha97@gmail.com, ²mgmthariq@seu.ac.lk

Abstract

Attempts to identify potential drought tolerance fodder species are limited in Sri Lanka. This study investigated drought tolerance in CO3, CO4, Super Napier, and *Brachiaria brizantha* under 100%, 40%, and 25% irrigation levels in the dry zone part of Sri Lanka. Fodder grasses were established in plots with three replicates for each grass type inside nine poly tunnels. After continuous irrigation for 21 days, they were cut at 5cm height from the ground level which was followed by continuous irrigation for 11 days as per the protocol. Half the of grasses from each type was transferred to pots from the plots and irrigated continuously for 11 days and followed by the first drought imposed for 15 days till the appearance of wilt then irrigated for 2 days. The second drought was imposed for another 30 days and followed by irrigation for 2 days. The grasses were harvested and DM% was determined separately. The multivariate analysis revealed that the mean DM% between irrigation levels were significant different ($p < 0.05$). Considering the DM% of different fodder types, a significant difference was observed among the tested fodder types ($p < 0.05$) with the highest mean DM% for *Brachiaria brizantha* under 25% irrigation level and plot conditions. The method of cultivations also significantly affected the mean DM % distinguishing between pot and plot cultivation ($p < 0.05$). By considering the drought tolerance and DM% among the four fodder types under plot conditions, it is concluded that *Brachiaria brizantha* was the suitable fodder grass species for dry zone in Sri Lanka and can be recommended for drought-prone regions for sustainable livestock production in Sri Lanka.

Keywords: Drought tolerance, Fodder grass, Dry matter, Irrigation