Growth and Production Response of Edamame Plants (Glycine max L. Merrill) to the Application of Arbuscular Mycorrhizal Fungi Under Drought Stress

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ABSTRACT

Drought stress can affect the growth and production of edamame plants. The purpose of this study was to determine the response of arbuscular mycorrhizal fungi application and drought stress on the growth and production of edamame plants (Glycine max L. Merrill). This study was conducted from July to October 2024 in the Jember State Polytechnic greenhouse. This study used a Completely Randomized Design (CRD) Factorial with 2 factors, namely arbuscular mycorrhizal fungi treatment and drought stress. The arbuscular mycorrhizal fungi dose treatment consisted of 5 levels, namely 0 grams/plant, 10 grams/plant, 15 grams/plant, 20 grams/plant, and 25 grams/plant. While the drought stress treatment consisted of 2 levels, namely without drought stress and 40% KL drought stress. The observed observation variables were plant height, root length, root volume, number of branches, number of fertile nodes, pod weight in quality, number of pods in quality, total pod weight, number of root nodules and percentage of pods. . Observation data were analyzed using Analysis of Variance (ANOVA) and further tested using the Duncan Multiple Range Test (DMRT) with a level of 5%. Based on the results of the study, it was shown that the treatment without stress showed significantly different results in the observation variable of total pod weight with an average of 29.20 grams. The treatment of arbuscular mycorrhizal fungi application and the interaction between AMF and drought stress showed no significant different results in all observations.

Keywords: drought stress, edamame, field capacity, mycorrhizae