

Growth and Yield Responses in Finger Millet-Mung Bean Intercropping under Moisture-Limited Conditions

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Finger millet (FM/ *Eleusine coracana* (L.) Gaertn.) is widely grown in arid and semi-arid regions around the world to ensure future food and nutritional security as well as a potential crop for drought-prone cropping lands. FM can be intercropped with legumes such as green gram (GG/ *Vigna radiata* L. Wilczek) to enhance the productivity in the cropping system. This experiment was conducted to investigate the productivity performance of FM-GG intercropping system under drought stress. In a pot experiment, two crop species were grown as monocropping and intercropping under two moisture levels (well-watered and drought). Soil moisture in well-watered condition was maintained in 80% field capacity whereas drought-stress was imposed with 40% moisture. Plant dry weight, uptake of nitrogen (N), phosphorus (P), and potassium (K) and use efficiency of those nutrients, root length, available soil P in rhizosphere soil were measured. FM produced similar shoot and root dry weight irrespective of the moisture treatment and cropping system. However, intercropping had no yield advantage either in well-watered or moisture-stressed condition. Drought stress significantly ($P < 0.05$) decreased the panicle dry weight of FM. Irrespective of the moisture treatment, FM grown with GG accumulated more N than those cultivated in monocropping system. There was no intercropping advantage for P and K accumulation of FM both in drought and well-watered conditions. From the results, it can be concluded that, FM-GG intercropping provides only N uptake advantage for FM. However, N uptake advantage could not translate into yield advantage of FM either in well-watered or moisture-limited condition.

Keywords: Drought, Finger millet, Green gram, Intercropping, Nutrient uptake

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