

**TITLE : DEVELOPMENT OF COWPEA (*Vigna unguiculata*) INOCULATED WITH ARBUSCULAR MYCORRHIZAL FUNGI**

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**ABSTRACT :**

The arbuscular mycorrhizal fungi (AMF) have the capacity to make symbiotic associations with the roots of plants, increasing the absorption of water and nutrients. This study aimed to evaluate the development of cowpea inoculated with AMF. The experiment was carried out in pots under greenhouse conditions in a completely randomized design in a 2x2x2 factorial, with two lines of cowpea (L1-Embrapa BRS Tumucumaque and L2- Trepapau), two doses of phosphorus fertilization (recommended and reduced 1/2 ) and two types of AMF inoculation native to Cerrado Maranhão (with and without-AMS) and four replicates, totaling 32 experimental units . The inoculations were performed with the spores obtained by wet extraction and then were inoculated into the soil with the aid of a pipette, the respective treatments. The following parameters were evaluated: height, biomass, root biomass (RB) and number of root nodules (RN). For height, was a significant effect only the factor AMS, where treatments inoculated with AMF showed more plant height, with averages of 100.81 cm and 71.12 for treatments without AMF, this result can be explained by the positive effect of AMS, such as increased acquisition efficiency of nutrients and water, and consequently greater development and production of plants. For plant biomass, we observed an effect of the factors: lineage (L) and AMF + P, where for lineage effect, L1 presented higher mean plant biomass, with 10.79 g / plant and 9.65 g / plant for L2. For the AMF+P factor, the treatment with AMF+1/2P was the one with the highest means AMF 11.17 g/plant and the treatment without AMF+P complete the lowest mean plant biomass, 9.6 g/plant. AMF is best developed in a low availability environment of P, this explains why the treatment with reduced dose of P with inoculation of AMF presented better result. The parameters RB and NR did not show statistical difference between them. In view of the results, it is concluded that the AMF improves the development of cowpea in environments with low availability of P, which demonstrates the potential of the use of this technique in reducing the consumption of agricultural inputs and a more sustainable agriculture.

**Keywords:** Phosphorus; productivity; sustainability.

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