

TITLE: DEVELOPMENT OF *Panicum maximum* CULTIVARS INOCULATED WITH *Azospirillum brasilense*

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ABSTRACT:

The Nitrogen is the main nutrient related to dry matter production in pastures. Biological fixation improves the use of nutrients and promotes the reduction of production costs. The fixing bacteria *Azospirillum* stands out, which can be associated with the root system of several tropical grasses. Thus, the objective of this study was to evaluate the development of *Panicum maximum* CVs Mombaça, Tanzânia, Massai, Zuri and Tamani growth under different nitrogen sources. The study was conducted on Evangelical College of Goianésia (FACEG) in Goianésia – GO. The planting was done in spaced lines to 0.25 m, and each plots with four square meters. The delineation used was randomized blocks with subdivide parcels in 5 x 3 factorial scheme. Five materials were planted in three distinct conditions: chemical nitrogen fertilizer at a dose of 50 kg N/ha, inoculation of seeds with *Azospirillum brasilense* (Masterfix Gramíneas® – 1,2 l/ha), and plants without inoculation and chemical fertilizers. In all, fifteen different conditions were tested. The variables evaluated at 28 days after sowing were: height, root length, number of leaves, dry weight and dry matter percentage. The data were subjected to analysis of variance, and the SLICE procedure was used in the analysis of simple effects to decompose the significant interactions, followed by the Tukey test for ranking the averages. There was significant interaction between the cultivars and the tested treatments for the variables height and number of leaves ($p < 0.05$). Thus, were assessed the cultivar factors in treatment levels (*Azospirillum*, nitrogen and natural), and treatments within the levels of the cultivars; the Tukey test not took the differences identified by the analysis of variance for plant height and number of leaves. There was no significant difference for the variables root length, dry weight and dry matter. It is possible that the date collect has interfered in the results, since many plants were still with the seed of the seed attached to the root system. Therefore, it is necessary other studies to assess the efficiency of the inoculant *A. brasilense* in the cultivars tested. It is concluded that no factor tested interfered decisively on the development of *P. maximum*.

Keywords: diazotrophic bacteria, BFN, nitrogen, sustainability

Development Agency: Evangelical College of Goianésia (FACEG), SEBRAE-GO