

TITLE: RESPONSE OF *Brachiaria brizantha* AND *Brachiaria decumbens* CULTIVARS TO BACTERIA *Azospirillum brasilense*

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ABSTRACT:

The perennial forage grasses more planted in the world belong to the genus *Brachiaria*. This is due to the resistance to drought stress and adaptability to medium and low fertility soils. Most cultivars are extremely responsive to nitrogen, can be partially provided by diazotrophic bacteria. Thus, the objective of this study was to evaluate *Brachiaria brizantha* CV Xaraés and Piatã and *Brachiaria decumbens* CV Basilisk growth under different nitrogen sources. The delineation used was randomized blocks with subdivide parcels in 3 x 3 factorial scheme. Three materials were planted in three distinct conditions: inoculation of seeds with *Azospirillum brasilense* (Masterfix Gramíneas[®] – 1,2 l/ha), nitrogen chemical fertilizer at a dose of 50 kg N/ha, and plants without inoculation and chemical fertilizers. In all, nine distinct conditions were tested. The planting was done in rows spaced to 0.25 m, and each plot had four square meters. The variables evaluated at 28 days after sowing were: height, root length, number of leaves, dry weight of the plants and dry matter in 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 averages separation. There wasn't significant interaction between the cultivars and the treatments tested for none variable evaluated. The different nitrogen sources not interfered in the development of plants. The height of the plants and the number of leafs of CV Piatã were larger than other cultivars ($p < 0.0001$). This trend was also observed in the dry weight of the plants ($p < 0.005$). *B. decumbens* CV. Basilisk showed the highest content of dry matter, exceeding the CVs Xaraés and Piatã ($p < 0.005$). It is possible that the data collect has interfered in the results, once many plants were still with the seed attached to the root system. Therefore, it is necessary more studies to evaluate the efficiency of the inoculant *A. brasilense* in the cultivars tested. It is concluded that the grass with the greatest growth was the CV Piatã, and the CV Basilisk presented the highest percentage of dry matter.

Keywords: inoculants, BFN, nitrogen, sustainability

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