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Productive performance of silage sorghum cultivated in the North and South regions of Maranhão

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Sorghum has multiple uses as a source of proteins and minerals, and it exhibits a broad genetic and phenotypic diversity. The plant is used for producing animal protein, either as fresh feed or conserved as silage. This study aimed to evaluate the agronomic performance of sorghum genotypes for silage, grown in two different environments in Maranhão. The experiments were conducted in two experimental areas of the Universidade Estadual do Maranhão, located in the municipalities of São Luís and Balsas, Maranhão, Brazil. The climate in both regions is equatorial (Aw), hot and humid, with an average annual rainfall of 2,100 mm in São Luís and 1,175 mm in Balsas. The experimental design was a randomized block design with three replications and nine treatments, corresponding to the combination of three sorghum genotypes (BRS 658 – Silage, AGRI 001E – Silage, and AGRI 002E – Biomass) and two cultivation environments (São Luís and Balsas) from February to May 2022. The experimental area was 1,944 m², and the plots consisted of two planting rows, each 5.0 m long with a spacing of 0.7 m. ANOVA and Scott-Knott mean grouping test ($P<0.05$) were conducted using GENES software. Fresh matter (FM) and dry matter (DM) production of the different genotypes were evaluated. The BRS 658 genotype was the earliest maturing in all environments, performing better in São Luís, producing 58.7 t FM ha^{-1} and 16.03 t DM ha^{-1}. Sorghum yields in São Luís exceeded those in Balsas. In São Luís, the best performance was observed for the AGRI 002E genotype, with a production of 82.6 t FM ha^{-1} and 41.8 t DM ha^{-1}. AGRI 001E and BRS 658 did not differ significantly from each other, with average yields of 62.75 t FM ha^{-1} and 15.59 t DM ha^{-1}, respectively. In São Luís environment, no significant differences were observed among the genotypes for fresh matter production, with an average production of 20.6 t FM ha^{-1} among the genotypes. For dry matter production in São Luís, the AGRI 002E genotype stood out, producing 15.5 t DM ha^{-1}, while the other genotypes had an average productivity of around 7.2 t DM ha^{-1}. The sorghum genotypes BRS 658, AGRI 001E, and AGRI 002E in the São Luís environment achieved the best green and dry matter productive performances compared to the Balsas environment. The AGRI 002E genotype demonstrated superior productivity in São Luís compared to Balsas.

Keywords: forage, production, silage

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