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Workfield: Forage farming

Morpho-productive performance of *Manihot* sp. in the northeastern semi-arid region under different water regimes with brackish water

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Manihot sp. is a natural hybrid of *Manihot esculenta* with *Manihot glaziovii*. The aerial part biomass serves as one of the alternatives for food and animal production, in addition to presenting nutritional value and palatability, being supplied in the form of hay or silage for a longer period of use, to avoid problems of intoxication with cyanogenic glycosides. Furthermore, due to its tuberous roots, it increases its capacity to store starch and water, making it more tolerant in dry periods. Thus, the objective of the present work is to evaluate the morpho-productive performance of Pornunça (*Manihot* sp.) under different water regimes with brackish water in a semi-arid environment. The study was conducted at the International Reference Center for Agrometeorological Studies of Palma and Other Forage Plants, located at the Federal Rural University of Pernambuco - Academic Unit of Serra Talhada (UFRPE/UAST), in the municipality of Serra Talhada, PE, Brazil. The culture used in the experiment was Pornunça, in a randomized block experimental design, with four replications, with four irrigation levels being applied: 25, 50, 75, and 100% of the reference evapotranspiration – ET_0. The total area was 48 m2 (3.0 m × 16.0 m). The ET_0 estimate was carried out using the Penman-Monteith FAO-56 method, with meteorological variables collected using an automatic meteorological station, located in the experimental area, belonging to the National Institute of Meteorology. Irrigation management was carried out three times a week using a drip irrigation system, with the drippers spaced 0.2 m apart and a flow rate of 1.35 L h^{-1}. The water used for irrigation comes from an artesian well with a depth of 48 m and a flow rate of 12 m^3 h^{-1} and has an average electrical conductivity of 1.62 dS m^{-1} and pH = 6.84, being classified as C3S1 (water from high salinity). At the end of the cycle, biometric analysis was carried out on representative plants from each experimental plot, obtaining the height (AP, m) and average width of the plant (LP, m), stem thickness (EC, mm), and number of branches (NR, units). The aerial part biomass was collected and weighed on a semi-analytical balance to obtain the fresh mass (MF, Mg ha^{-1}) and taken to a forced ventilation oven at 65ºC until the dry mass (DM, Mg ha^{-1}) was obtained. There was a significant effect ($p \leq 0.05$) of the blades. The 25% blade presented the highest morphological and productive indices, presenting AP of 1.59 m, LP of 1.68 m, EC of 16 mm, NR of 12 units, and MF of 41 Mg ha^{-1}, corresponding to an increase of 61.14%, 153.72%, 79.54%, and 178.61% and 540.90%, respectively, in relation to the 100% irrigation depth from ET0. Based on the results, it is concluded that *Manihot* sp. It performs better when irrigated with smaller amounts of brackish water, in addition to being an alternative food source for livestock.

Keywords: Pornunça, forage production, lower quality water, water management, sustainability, agricultural resilience.

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