Effect of different cutting intensities on morphological characteristics and production of fresh and dry matter of irrigated *Opuntia ficus indica* forage cactus

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The cactus pear (*Opuntia ficus indica* Mill.) belongs to the *Cactaceae* family and is largely grown in the Brazilian semi-arid Northeast, mainly due to its efficient use of water for production of forage. On the other hand, in some regions of Rio Grande do Norte State, because of drought and high temperatures, mainly nocturnal, usually plants wilt. The use of drip irrigation with a minimum use of water may be an option for cactus pear cultivation in these regions. The research aimed to evaluate the effect of different cutting intensities on the morphological characteristics and production of fresh and dry matter of irrigated *Opuntia* forage cactus after 12 months of regrowth. The experiment was conducted at EMPARN Experimental Station, Pedro Avelino, RN, Brazil (Lat. 5º 31' and Long. 36º 23') using a completely randomized design with 12 replications. Three levels of cutting intensities were applied: leaving only the main cladode (mother), all primary, and all secondary cladodes. The planting was done using high densities with 2.0 x 0.10 m spacing (50,000 plants ha^{-1}) in deep calcareous sandy soil. At planting was used in all treatments organic manure 40 t ha^{-1} and 500 kg ha^{-1} super phosphate. The applied water was saline (C3S1) using five liters per meter every week in a drip irrigation system with single rows. Data were submitted to analysis of variance, and the means subjected to the t test at 5% probability. Significant effects were observed ($P < 0.05$) for the number of cladodes per plant, length, width, perimeter, and area of cladodes (AC), cladodes area index (CAI), production of fresh matter (FM) and production of dry matter (DM) as a function of cutting intensity. Higher number of cladodes per plant (17.2, 12.2, and 7.4) and greater length, width, perimeter, AC, and CAI, were observed when the secondary cladodes were preserved, with an intermediate performance for primary cladodes and the worst when preserving only the main cladode. There were no significant differences among the intensities of cutting for thickness with a mean value of 15.8 mm. The highest yields of FM and DM were obtained when preserving the secondary cladodes (180.7 t ha^{-1} yr^{-1} FM and 19.6 t ha^{-1} yr^{-1} DM), followed by the primary cladodes preservation (128.2 t ha^{-1} yr^{-1} FM and 14.8 t ha^{-1} yr^{-1} DM) and the lowest productivity (75.1 t ha^{-1} yr^{-1} FM and 8.6 t ha^{-1} yr^{-1} DM) leaving only the main cladode. Better performance associated with the higher preservation management can be explained by greater photosynthetic and reserve areas, and number of buds. The intensity of cut of *Opuntia* spineless cactus with the preservation of all secondary cladodes resulted in higher number of cladodes per plant and higher yields of FM and DM at 12 months of regrowth and should be recommended as a management practice.

Keywords: cactus pear, forage management, irrigation, semi-arid, spineless cactus

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