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

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The spineless cactus (*Nopalea cochenillifera* Salm Dick) is adapted to the Brazilian semi-arid region, because of its high efficiency in water use and forage production. 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 *Nopalea* 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. The analysis of variance revealed significant differences ($P < 0.05$) for number of cladodes per plant, with the highest mean value (37.1 cladodes) when all secondary cladodes were preserved, an intermediate value (22.4 cladodes) while preserving primary cladodes and the lowest (16.8 cladodes) when leaving only the main cladode. There were no significant differences among the intensities of cutting for perimeter, length, area, and cladode area index, with mean values of 51.8 cm, 23.2 cm, 248.0 cm^2 and 0.13, respectively. The width and thickness of cladodes were affected ($P < 0.05$) by cutting intensities showing greater values when preserving primary and secondary cladodes. There were significant differences ($P < 0.05$) for the production of fresh (FM) and dry matter (DM). The preservation of secondary cladodes resulted in greater production of FM (227.7 t ha^{-1} yr^{-1}) and DM (23.0 t ha^{-1} yr^{-1}) compared with preservation of primary cladodes (173.1 t ha^{-1} yr^{-1} FM and 17.7 t ha^{-1} yr^{-1} DM). The lowest production of FM (95.1 t ha^{-1} yr^{-1}) and DM (11.0 t ha^{-1} yr^{-1}) occurred with the highest intensity of cut. 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 for *Nopalea* 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, irrigation, *Nopalea cochenillifera*, semi-arid, spineless cactus

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