ZOOTECNIA BRASIL
Centro de Convenções da PUC-GO | Goiânia-GO
27 a 30 de agosto de 2018

55ª REUNIÃO ANUAL DA SOCIEDADE BRASILEIRA DE ZOOTECNIA

ZOOTEC 28º CONGRESSO BRASILEIRO DE ZOOTECNIA

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

ACCUMULATION OF MACRONUTRIENTS IN CACTUS PEAR CLADODES UNDER DIFFERENT FERTILIZED WITH COMBINATIONS OF NITROGEN AND PHOSPHORUS IN THE BRAZILIAN SEMIARID

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The knowledge of nutritional requirement of cactus pear from the quantification of nutrient extraction is essential, since its output from the soil system during successive production cycles may reflect in a decrease of crop productivity in the absence of a balanced replenishment of nutrients exported with the harvest. The present study evaluated the accumulation of nutrients in cactus pear (*Opuntia ficus-indica*) cv. Gigante, fertilized with combinations of nitrogen (10, 70, 100, 130, and 190 kg ha^{-1} $year^{-1}$ N) and phosphorus (10, 70, 100, 130, and 190 kg ha^{-1} $year^{-1}$ P_2O_5) under annual and biennial harvests, in Tejuçuoca, using a split-plot randomized block design with four replications. The experiment was conducted in Tejuçuoca, Ceará, Brazil. Samples were subjected to chemical analysis to determine the content of N, P, K, Ca, Mg, and S. The accumulated (total biomass) macronutrients (N, P, K, Ca, Mg, and S) in the cactus pear biomass were determined by multiplying the respective nutrient contents in the cladode tissues by the production of the crop expressed in kg ha^{-1} $year^{-1}$. When evaluated, the accumulation of N, P, K, Ca, Mg, and S in cactus pear under annual and biennial harvest frequencies in Tejuçuoca showed an effect of N and P combinations, fitting to a multiple regression model. There was a higher accumulation of N under the biennial harvest in most combinations of N and P. P accumulation was higher under the biennial harvest for five combinations of N and P in relation to the annual harvest. There was a greater K accumulation under the biennial crop in six combinations of N and P. Ca accumulation was higher under the annual harvest for six combinations of N and P levels.There was a superiority in the Mg accumulation under the biennial harvest in almost all combinations of N and P. Higher accumulation of S were observed under the biennial harvest for most of the combinations of N and P. Under annual and biennial harvests, the orders of accumulation of macronutrients were, respectively: K (146.5) > Ca (204.6) > N (128.1) > Mg (75.8) > S (50.3) > P (3.7) and K (397.2) > N (191.3) > S (241.2) > Ca (167.8) > Mg (131.0) > P (14.1). The maintenance fertilization in cactus pear should be planned according to productive potential, fertilization and harvest managements, based on nutritional requirement and considering the nutrient recovery efficiency.

Keywords: fertilization, harvest frequency, nutritional demand, *Opuntia ficus-indica*