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Pastures and Forage

Effect of organic fertilization of cactus pear on the ecological indices of soil fauna

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The cultivation of cactus pear, as in any other production system, can cause changes in some soil fauna organisms, causing considerable losses to the ecology of the cultivation environment. Therefore, conservation practices such as the use of organic fertilizers such as manure can minimize the impact of the environment on the soil, being able to increase the organic matter content and improve the performance of the biological activity of fauna individuals through its incorporation. In this way, the objective was to evaluate the effect of organic fertilization of cactus pear on the ecological indices of soil fauna. The experiment was conducted at the Caatinga Experimental Field, belonging to Embrapa Semiárido, in Petrolina, Pernambuco. The soil in the experimental area is classified as Argisol with flat relief. Planting was carried out with the clone IPA/20006 Mexican Elephant ear (*Opuntia stricta* Haw.) two doses of fertilizer were evaluated: 0 and 30 Mg.ha⁻¹ year⁻¹ distributed in a randomized block design with four replications. The experimental period comprised thirty months, with twelve months dedicated to establishing the culture and eighteen months for data collection. The capture of soil fauna organisms was carried out eighteen times, once a month using Provid type traps. After identifying the organisms, the number of taxa and the Shannon indices, Margalef Biodiversity and equitability of Pileu. The indices were calculated using the Past software version 4.04. The results obtained were analyzed using PROC GLM from the Statistical Analysis System University Software (SAS) and subjected to analysis of variance and the means were compared using the Tukey test at $\alpha = 0.05$ probability for type I error. An effect ($P=0.850$) of organic fertilization on the number of taxa was observed, with 21.50 and 21.77 being found for fertilization with 0 and 30 Mg ha⁻¹ year⁻¹ respectively. The Shannon index was not influenced by fertilization ($P=0.325$), demonstrating values of 2.13 for unfertilized crops and 2.28 for crops fertilized with 30 Mg.ha⁻¹ year⁻¹. Margalef Biodiversity was also not affected ($P=0.793$) by organic fertilization, demonstrating biodiversity values of 3.48 and 3.53 respectively for fertilization with 0 and 30 Mg ha⁻¹ year⁻¹. Organic fertilization did not change the ecological indices of soil macrofauna in cultivation with pear cactus. However, fertilization with 30 Mg.ha⁻¹ year⁻¹ is recommended in order to maintain the efficiency of nutrient use by the plant.

Keywords: Biodiversity, margalef, soil, *Opuntia stricta* Haw.

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