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## **AMMONIUM AND NITRATE IN YELLOW LATOSOL IN CHRONOSEQUENCE OF CROPS UNDER NO-TILLAGE IN THE EASTERN AMAZON**

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The time of use of the soil conservation management systems can to influence ammonium ( $\text{N-NH}_4^+$ ) and nitrate ( $\text{N-NO}_3^-$ ) dynamics, during the process of nitrogen (N) organic mineralization in the soil. In the Amazon, especially in the state of Pará, there are few studies that evaluate impacts caused by changes of soil management and system adoption time on the dynamics N inorganic forms ( $\text{N-NH}_4^+$  e  $\text{N-NO}_3^-$ ) in soil. The objective was to evaluate the influence of no-tillage (NT) on the  $\text{N-NH}_4^+$  and  $\text{N-NO}_3^-$  dynamics in a Yellow Latosol (Oxisol) in the Eastern Amazon. The study was carried out in the Paragominas city, southeast of the state of Pará, where soil samples were collected at depths of 0-5, 5-10 and 10-20 cm during the rainy period of the region. The experimental design was completely randomized, in subdivided plots, with four replications. The treatments consisted of a chronosequence of crops under no-tillage with four (NT4), six (NT6) and ten years (NT10) of adoption, besides an area under conventional tillage (CT) and another with native forest (NF). The  $\text{N-NO}_3^-$  and  $\text{N-NH}_4^+$  contents were determined by extraction with  $\text{KCl } 1,0 \text{ mol.L}^{-1}$  solution and further reading through the spectrophotometer. According to the results, the  $\text{N-NO}_3^-$  contents obtained in the 0-5 and 5-10 cm layers were, respectively, 21,2 and 15,4  $\text{mg kg}^{-1}$  in NT4; 23,0 and 17,0  $\text{mg kg}^{-1}$  in NT6 and 24,1 and 18,7  $\text{mg kg}^{-1}$  in NT10, demonstrating that throughout the time of adoption the NT promoted increases in  $\text{N-NO}_3^-$  contents at these depths. Regardless of the time of adoption, the NT promoted  $\text{N-NO}_3^-$  stratification, while the CT promoted a more homogeneous distribution between the depths. In all depths, the highest  $\text{N-NH}_4^+$  contents were obtained in NT6 (14,8  $\text{mg kg}^{-1}$ ) and CT (15,3  $\text{mg kg}^{-1}$ ), which did not differ among themselves, but were highest than NT4 (10,0  $\text{mg kg}^{-1}$ ) and NT10 (10,4  $\text{mg kg}^{-1}$ ), which did not differ between them either. Evaluating the individualized layers was found that in the 0-5 cm layer, the  $\text{N-NH}_4^+$  content of the NT6 (21,4  $\text{mg kg}^{-1}$ ) was higher than CT (15,2  $\text{mg kg}^{-1}$ ). The NT was efficient in increasing the  $\text{N-NO}_3^-$  contents in the soil, during the time of adoption, indicating its capacity to maintain the N in the system.

**Keywords:** N inorganics forms; N ammoniacal; system adoption time

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