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## **PHOSPHORUS FRACTIONS IN CHRONOSEQUENCE OF CROPS UNDER NO-TILLAGE SYSTEM IN THE EASTERN AMAZON**

Rubia Carla Ribeiro Dantas<sup>1</sup>; Letícia Cunha da Hungria<sup>1</sup>; Sidney Daniel Araújo da Costa<sup>1</sup>; Edilson Carvalho Brasil<sup>2</sup>; Mario Lopes da Silva Jurnior<sup>1</sup>

Universidade Federal Rural da Amazônia<sup>1</sup>; Embrapa Amazônia Oriental<sup>2</sup>

The no-tillage (NT) system promotes the increase in the availability of P in the the surface layer of the soil, which may result in greater transformation of the inorganic P into organic fractions of P of different availability. The objective of this work was to evaluate the preferential fractions of P accumulation in a chronosequence of NT crops in the Eastern Amazon. The study was conducted in the municipality of Paragominas, southeast of Paraense, in an area under chronosequence of NT crops, using a completely randomized experimental design, in subdivided plots. The plots were constituted by the management systems: NT with 9 (NT), 11 (NTP11), 13 (NT13), 14 (NT) and 15 (NT15) years of adoption, plus one area under conventional tillage (CT) and one with native forest (NF); the subplots corresponded to depths (0-10, 10-20, 20-30 and 30-40 cm). Soil management systems presented differential P accumulation capacity. In areas under NT, the P is accumulated in the surface layer and drastically reduced with depth, while in CT this reduction is less pronounced. Up until to 20 cm depth, there was an increase in the labile P content (fraction available for biomass), in function of the time of adoption of NT, whose average values went equivalent to 51; 65; 75; 71 and 85 mg kg<sup>-1</sup>, respectively, for NT9, NT11, NT13, NT14 and NT15, which were significantly highest than CT and NF. Moderately labile P also showed significant increases with the time of NT adoption, with values ranging from 31 mg kg<sup>-1</sup> in NF to 242 mg kg<sup>-1</sup> in SPD15. Regardless of the management system, the non-labile fraction of P was preferentially accumulated in the soil, not being verified difference between the evaluated systems, which suggests the high adsorption capacity of this soil. In the 0-10 cm layer, the total P (obtained by the sum of the fractions) presented significantly higher levels in NT15 (2882 mg kg<sup>-1</sup>), compared to CT (848 mg kg<sup>-1</sup>). The management systems were not able to change the P fractions in deeper layers of the soil, 30-40 cm, emphasizing that the Brazilian soils, especially the Latosol, are strong drains of P and their mobility is almost null.

**Keywords:** P lability, management systems, phosphorus lability

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<https://www.21wcss.org>  
[21wcss@21wcss.org](mailto:21wcss@21wcss.org)  
[commercial@21wcss.org](mailto:commercial@21wcss.org)