

LAND MANAGEMENT POSSIBILITIES TO REDUCE NUTRIENT LOSSES IN SMALL SCALE FARMING, WITH SPECIAL REFERENCE TO NITROGEN AND PHOSPHORUS DYNAMICS

POSSIBILIDADES DE PREPARO DE SOLO PARA REDUZIR AS PERDAS DE NUTRIENTES A NIVEL DE PEQUENOS PRODUTORES, COM ESPECIAL REFERÊNCIA À DINÂMICA DO NITROGÊNIO E FÓSFORO

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Small scale farming in the Eastern Amazon region is characterized by slash and burn agriculture. In low input agriculture the biomass of the fallow vegetation is the most important nutrient source for the cropping period. However, during burning considerable losses of nutrient take place by volatilization. Therefore, field preparation methods without fire are to be studied in order to reduce nutrient losses. Furthermore, these methods make possible the management of soil organic matter, which influences soil physics, chemistry and biological properties and, consequently, nutrient availability for crop plants. The objective of this study is to compare the nitrogen (N) and phosphorus (P) dynamics, in cropping systems with and without burning. The experiments are conducted in the municipality of Igarapé Açu (NE Pará). Four and ten years-old fallow vegetation, were slashed and 6 different treatments were installed. Prior to planting rice, beans and cassava, the slashed plant material was 1. burned, 2. chopped and left as a mulch layer, and 3. chopped and incorporated in the soil, with and without fertilization (NPK). It is to be studied: above-ground biomass of the fallow vegetation, burn losses, decomposition of plant material, availability of N (total N, NH₄-N, NO₃-N), availability of P (organic and inorganic), microbial N and P, and crop production. Simultaneously, a screening experiment is conducted to evaluate the suitability of different corn, rice, bean and cassava varieties in cropping systems without burning. Preliminary results are presented.

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