

The effect of application of charcoal residues combined with source of phosphorus and nitrogen in a banana plantation in a yellow Oxisol in the Central Amazon - Brazil

Rodrigo Santana Macedo (1), Wenceslau Gerales Teixeira (2) Murilo Arruda (2)

Christopher Steiner (3) and Adonis Moreira (4)

(1) Student of Master Degree, University of Amazonas, Manaus, Brazil; (2) Researcher Brazilian Agricultural Research Corporation – Embrapa Amazônia Ocidental, Manaus, Brazil (3) Research Scientist The University of Georgia - USA

Agricultural production in the tropics is frequently limited by low soil fertility. Many tropical soils are relatively poor in soil organic matter (SOM), as well as frequently have low cation exchange capacity (CEC), low pH, low calcium (Ca), and phosphorus (P) contents. The existence of an anthropogenic enriched dark soil horizons (Amazonian Dark Earth (ADE) shows that infertile soils may be transformed to permanent fertile and productive soils. The ADE's fertility is most likely linked to an anthropogenic accumulation of P, Ca (from bone apatite) and black carbon that retain those added nutrients. The objective of this study was evaluate the effect of levels of charcoal residues applied combined with a source of mineral phosphorus and nitrogen in the production and nutrition of banana plants in an yellow Oxisol in the Central Amazon. The experiment is being carried at Experimental Research Station of Embrapa in Manaus - Brazil. The experimental design is a confounded factorial with three factors (charcoal, phosphorus and nitrogen) in three levels, each treatment is composed with six plants. The charcoal and fertilizer are applied annually. The parameters measured are nutrient in the banana leaves and soil chemical and physical parameters to monitor the banana nutrition and soil fertility. The harvest and weight of banana bunches are done weekly. The results show significant differences in the soil fertility paramaters evalutead.