



II INTERNATIONAL WORKSHOP ON **SOIL BIODIVERSITY**

Centro de Ciências Agrárias, UFPI, Teresina - PI
15 a 17 de abril de 2024

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BIOLOGICAL ATTRIBUTES OF THE SOIL AS A FUNCTION OF THE APPLICATION OF AGROMINERALS AS A SOURCE OF POTASSIUM IN CORN INTERCROPPED WITH BRACHIARIA IN THE MUNICIPALITY OF BREJO, MARANHÃO, BRAZIL

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The effects of agrominerals on the biological attributes of the soil are not clearly understood, thus limiting their efficient use in agriculture. The aim of this work was to evaluate different doses of agrominerals as sources of potassium on the biological attributes of the soil in a consortium of corn and brachiaria. The experiment was conducted in the 2022/23 harvest at Fazenda Barbosa, Brejo, Maranhão. The first-year area was planted with corn (NK555 VIP3 Syngenta), intercropped with *Urochloa brizantha* cv. Marandu. The soil was classified as Argissolo Amarelo distrocoeso. The experimental design was randomized blocks in a 4x2+2 factorial scheme: (i) four sources of K: Agromineral A (12% K₂O), B (8% K₂O), C (1.6% K₂O) and potassium chloride (KCl) (60% K₂O); (ii) two doses of K₂O: 120 and 240 kg ha⁻¹, plus two additional treatments: farm standard (KCl=80 kg ha⁻¹ of K₂O) and control (no K₂O). All the plots received similar soil correction, fertilization and cultivation. Soil samples were collected at a depth of 0-10 cm and the carbon (CBM) and nitrogen (NBM) of the microbial biomass, basal respiration (RBM) and metabolic quotient (qCO₂) were determined. There was an interaction effect between potassium sources and doses, as well as the additional treatments for CBM. Agromineral C at a dose of 120 kg ha⁻¹ showed the highest concentration of CBM (114.05 g kg⁻¹), the same as KCl. The additional treatments were lower than all the others. At a dose of 240 kg ha⁻¹, KCL had the highest concentration of CBM compared to the 120 kg ha⁻¹ dose. The KCl source with 60% K₂O resulted in the highest RBM (31.49 mg CO₂ g⁻¹ day⁻¹), equal to agrominerals C and A. There was no effect for NBM and qCO₂. It can be concluded that K₂O sources alter the soil's biological parameters.

Keywords: microbial biomass; Potassium fertilization; *Zea mays* L.

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