

TITLE: THE EFFECTS OF INCREASING DOSAGES OF LIQUID COMPOSTING BIOFERTILIZERS IN ROOT COLONIZATION BY ARBUSCULAR MYCORRHIZAL FUNGI

AUTHORS: LESCANO, L.E.A.M.; BORDIM, T.G.; DE PAULA, F.G.; MATSUMOTO, L.S.

INSTITUTION: UNIVERSIDADE ESTADUAL DO NORTE DO PARANÁ, BANDEIRANTES, PARANÁ (RODOVIA BR-369, KM 54, S/N - VILA MARIA, CP 261 – CEP 86360-000, BANDEIRANTES – PR, BRAZIL)

ABSTRACT: Soil microorganisms are responsible for several ecological processes in agricultural ecosystems, such as decomposition of organic matter, biogeochemical cycles of nutrients, antagonism to phytopathogens and increased nutrient uptake by plants, and thus directly influence the development and Productivity of agricultural crops. In this sense, it is important to observe the responses of soil microbiota to the adopted management practices, in order to avoid possible beneficial or deleterious effects on important soil microorganisms, such as arbuscular mycorrhizal fungi (AMF). The objective of this study was to evaluate the effects of increasing doses of a commercial biological fertilizer on the colonization of corn roots by AMF. The experiment was conducted in the field at the State University of Northern Paraná, Bandeirantes, during the 2016/2017 harvest. The experimental design was completely randomized with four replicates and five treatments: control and four doses of the biofertilizer (50, 75, 150 and 225 L ha⁻¹), providing a total of 20 samples. The biological fertilizer was diluted in water and sprayed onto 20-day old seedlings. After three months of growth, corn roots samples were collected at depths of 0 to 10 cm and processed to determine the percentage of AMF colonization. The data were transformed by arcsene ($x / 100$) and analyzed by variance (ANOVA), with model adjusted by linear regression. The percentages of AMF root colonization in the control and at 50, 75, 150 and 225L ha⁻¹ dosages were, 38.7%; 50.8%; 49.3%; 52.8 and 40.2%, respectively with no significant difference between treatments. Contrary to chemical fertilizers and other agricultural inputs, which may lead to the reduction of mycorrhizal inoculums potential in the soil, application of biological fertilizer up to the dose of 225L ha⁻¹ did not resulted in a reduction in the percentage of colonization of corn roots by MFA, suggesting the absence of deleterious effects of this product on the MFA community under the experimental conditions. Nonetheless, further analysis is suggested on the mycorrhizal colonization, AMF diversity and spore abundance to obtain more precise results on the effects of this biofertilizer in the community of Ground AMF over an extended period of time.

KEYWORDS: Soil Microorganisms, Arbuscular Mycorrhizal, Mycorrhizal Inoculum

