



Spatial Distribution of Soil Fauna In Long Term No Tillage

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The soil is a complex system constituted by living beings, organic and mineral particles, whose components define their physical, chemical and biological properties. Soil fauna plays an important role in soil and may reflect and interfere in its functionality. These organisms' populations may be influenced by management practices, fertilization, liming and porosity, among others. Such changes may reduce the composition and distribution of soil fauna community. Thus, this study aimed to determine the spatial variability of soil fauna in consolidated no-tillage system. The experimental area is located at Instituto Agronômico in Campinas (São Paulo, Brazil). The sampling was conducted in a Rhodic Eutrudox, under no tillage system and 302 points distributed in a 3.2 hectare area in a regular grid of 10.00 m x 10.00 m were sampled. The soil fauna was sampled with "Pitfall Traps" method and traps remained in the area for seven days. Data were analyzed using descriptive statistics to determine the main statistical moments (mean variance, coefficient of variation, standard deviation, skewness and kurtosis). Geostatistical tools were used to determine the spatial variability of the attributes using the experimental semivariogram. For the biodiversity analysis, Shannon and Pielou indexes and richness were calculated for each sample. Geostatistics has proven to be a great tool for mapping the spatial variability of groups from the soil epigeal fauna. The family Formicidae proved to be the most abundant and dominant in the study area. The parameters of descriptive statistics showed that all attributes studied showed lognormal frequency distribution for groups from the epigeal soil fauna. The exponential model was the most suited for the obtained data, for both groups of epigeal soil fauna (Acari, Araneae, Coleoptera, Formicidae and Coleoptera larva), and the other biodiversity indexes. The sampling scheme (10.00 m x 10.00 m) was not sufficient to detect the spatial variability for all groups of soil epigeal fauna found in this study.