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Aboveground Vegetation and Soil Fauna Activity - Land Use effects on Soil Biodiversity

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Soil fauna, particularly its microarthropod content, is key to soil functioning. However, the interactions of agricultural practices and the functioning of its soil biodiversity are not fully understood. We evaluated how vegetation cover affects microarthropod diversity in three Mediterranean agroecosystems - almond and olive orchards and a vineyard in Israel. Soil samples were collected from vegetated and non-vegetated areas and analyzed using the Soil Biological Quality method (QBS-ar). Higher QBS-ar, higher microarthropod richness, and distinct assemblage composition were measured in vegetated soils compared to soils without vegetation. Acari, Collembola, Diplura, Coleoptera, Chilopoda, and Symphyla were identified by indicator value analysis as biological indicators of vegetation cover. These findings highlight the positive impact of vegetation cover on soil biodiversity in agroecosystems, which is likely to support ecosystem services. Such research can aid Mediterranean farmers, land managers, and policymakers develop sustainable soil management practices that balance biodiversity conservation with agricultural productivity. Developing soil fauna bioindicators and indexes can be essential to monitoring soil status. Such monitoring tools can support establishing solid scientific knowledge to inform practitioners and policymakers on how to implement sustainable management solutions.