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Ecology, Conservation and Management of Mediterranean Climate Ecosystems

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Organic agriculture and soil quality

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Organic agriculture, avoiding the use of synthetic fertilizers and pesticides, has attracted considerable attention the last decade. Its value is not only limited for the production of organic crops but also for the enhancement of soil quality. Numerous physical, chemical and biological indicators define soil quality. The latter are more sensitive to environmental changes and provide signals of degradation or restoration of soils. Among biological indicators nematodes offer a great potential for assessing the impacts of land use. In four Asparagus fields, managed since 5, 3.5, 2 and 1.5 years organically, the soil quality was assessed and compared to a conventional Asparagus field and hedgerows. The studied areas were differentiated mainly due to their biological indicators. The organic fields had intermediate characteristics between the conventional field and the hedgerows. Carbon mineralization rate, Microbial Biomass and bacterial feeding nematode numbers increased with duration of organic management, while hyphal feeding and plant parasitic nematode numbers decreased. This is indicative of the decrease of mineral fertilizers in the soil and the increase of the biological activity.