



## **Orchard floor management effect on soil biota community**

Yosef Steinberger (1), Efrat Shakartchy (1), and Gil Eshel (2)

(1) Bar Ilan University, The Mina & Everard Goodman Faculty of Life Sciences, Ramat Gan, 5290002, Israel (yosef.steinberger@biu.ac.il), (2) Soil Erosion Research Station, Ministry Of Agriculture & Rural Development, Rishon-Lezion. P.O.B. 30, Beit-Dagan, 50250, Israel

Soil erosion by water is a major environmental threat to sustainability and productive capacity of agriculture. Previous study had showed that soil erosion harms crops as a result of reduction in the availability of water, and thus brings damage to nutrients, organic matter that may affect soil biota community. The selection of a given practice in agriculture has key impacts on the soil functioning e.g. soil degradation processes, aggregate slaking and dispersion of clay particles, which then migrate and clog soil pores immediately beneath the surface. In order to overcome this essential threat, it is more and more common to mulch the soil in Orchards and Vineyards by plant and plants residue. In previous study showed that inter-cropping reduced the runoff maximum discharge by 60-80%, reduced the cumulative runoff by 70-90%, and decreased soil erosion and runoff by 95%. Moreover, using native vegetation as proxy of cover crops between the rows, we were able to increase both the herbs and arthropods biodiversity, and maintain the development and health of the orchard trees. In the present preliminary study the main objective was to assess the effect of different agricultural management practices (soil cover in orchard) on soil microbial and soil free living nematodes community structure (evaluated as abundance, biomass and functional diversity). Three different treatments were selected covering the orchard floor with: (1) woodchips; (2) annual winter cover crops and (3) control (not cover). Thus, the application of different cover, appears to be a sustainable management practice that enhances organic carbon, microbial biomass and activity and nematode abundances, thereby changing the microbial community and soil free living nematode trophic structure. The present study had elucidated the importance of the interplay between soil cover and abiotic condition on soil microfloral and nematode community which during their activity may have a great effect on nutrient supply improving yield potential.