**Evolution soil microbial biodiversity under green cover crops management**

Sandra Tienda, Belén Delgado-Martin, Ana Lia Gayán, José Antonio Gutiérrez-Barranquero, Javier Peris, Eva Arrebola, Francisco M. Cazorla and Víctor Carrión

[1]University of Malaga, Malaga (Spain)

[2]Syngenta Crop Protection, Basel (Switzerland)

Keywords: fruit trees, sustainable agriculture, soil health, microbial markers.

This research has been carried out within the international LIVINGRO® project (Syngenta), and is based on the application of ecological best management practices such as the multifunctional inter-row cover crop in different cropping systems, with the objective to optimize environmental sustainability and reducing the negative impact of intensive conventional agriculture. The study was carried out on selected several plots of stone fruit in different locations in Spain. Soil samples were collected during three years and the effect the inter-row vegetation cover crop can have on microbial biodiversity was studied. The alpha- and beta-diversity analysis was performed at the Prokaryotic (mainly bacteria) and Eukaryotic (fungi) level, and putative microbial indicators of specific vegetation cover management soil were proposed. The results indicate that the evolution of alpha diversity values decreases at the bacterial level and increases at the fungal level over time, while no differences were observed between the ecological and control treatments. The beta diversity results show that in general there is compositional differentiation of populations by sampling time, both at the prokaryotic and eukaryotic levels. And we observed that in each sampling the vegetation cover has an effect on the composition of the bacterial and fungal populations, enriching specific microbial groups that could potentially have a beneficial role for soil and plants.