



Soil cultivation in vineyards alters interactions between soil biota and soil physical and hydrological properties

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Several ecosystem services provided by viticultural landscapes result from interactions between soil organisms and soil parameters. However, to what extent different soil cultivation intensities in vineyards compromise soil organisms and their interactions between soil physical and hydrological properties is not well understood. In this study we examined (i) to what extent different soil management intensities affect the activity and diversity of soil biota (earthworms, Collembola, litter decomposition), and (ii) how soil physical and hydrological properties influence these interactions, or vice versa. Investigating 16 vineyards in Austria, earthworms were assessed by hand sorting, Collembola via pitfall trapping and soil coring, litter decomposition by using the tea bag method. Additionally, soil physical (water infiltration, aggregate stability, porosity, bulk density, soil texture) and chemical (pH, soil carbon content, cation exchange capacity, potassium, phosphorus) parameters were assessed. Results showed complex ecological interactions between soil biota and various soil characteristics altered by management intensity. These investigations are part of the transdisciplinary BiodivERsA project VineDivers and will ultimately lead into management recommendations for various stakeholders.