

Effects of inter-row management intensity on wild bee, plant and soil biota diversity in vineyards

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Vineyards may provide a range of essential ecosystem services, which interact with a diverse community of above- and belowground organisms. Intensive soil management like frequent tilling has resulted in the degradation of habitat quality with consequences on biodiversity and ecosystem services.

This study is part of the European BiodivERsA project “VineDivers – Biodiversity-based ecosystem services in vineyards”. We study the effects of different soil management intensities on above- and below-ground biodiversity (plants, insect pollinators, and soil biota), their interactions and the consequences for ecosystem services. We investigated 16 vineyards in Austria assessing the diversity of (1) wild bees using a semi-quantitative transect method, (2) earthworms by hand sorting, (3) Collembola (springtails) via pitfall trapping and soil coring, (4) plants by relevés and (5) litter decomposition (tea bag method). Management intensity differed in tillage frequency from intermediate intensity resulting in temporary vegetation cover to no tillage in permanent vegetation cover systems. First results show opposed relationships between the biodiversity of selected species groups and management intensity. We will discuss possible explanations and evaluate ecological interactions between wild bee, plant and soil biota diversity.