

Session C

Biodiversity of arthropods in viticulture – Influence of management and landscape

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Arthropod biodiversity has strongly declined in many agricultural landscapes in the past decades, which is, among other reasons, attributed to intensified agriculture. However, it is not known whether such negative trends are also occurring in viticulture, where the conditions for species may have recently improved in the context of integrated plant protection with no further use of insecticides and the establishment of greening in the inter-rows of vineyards. The occurrence of species in viticulture can be influenced both by management practices within the vineyard and by the landscape in the surrounding area. Besides the use of either conventional or organic pesticides, the frequency of spraying can have an impact on arthropods. The cultivation of fungus-resistant grapevine varieties (FRG), for example, requires fewer applications of pesticides compared to classical varieties and can thus be beneficial for biodiversity. Greening of inter-rows as well as semi-natural habitat structures in the surrounding area can also promote biodiversity by providing feeding and nesting resources for various species.

In this project, we are investigating how local management, the cultivation of FRG varieties, and the surrounding landscape affect the biodiversity of arthropods in vineyards. Using e.g. Malaise traps, we assess biodiversity in eight landscapes in the wine-growing region Palatinate in southwest Germany, which form a gradient in the proportion of semi-natural habitats within a radius of 1,000 meters of the vineyards. In each landscape, we sampled two conventionally and two organically managed plots, planted with either a classical or a FRG variety. Species are determined using morphological and molecular methods (metabarcoding). The results will provide information on the importance of local management and landscape structure for the occurrence of species and form as part of the “National Monitoring of Biodiversity in Agricultural Landscapes” (MonViA) the basis for a long-term monitoring of arthropods in viticulture.