Living soil profiles in vineyards

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Abstract

Soil health and biodiversity of useful creatures are depending on an huge amount of factors in the vineyard. Therefore, biotic and abiotic factors were surveyed to characterise soil profiles and allow assertions concerning local soil health. Special attention was turned on the comparison between 3 different inter-row soil treatments, where some expectations were satisfied. Apart from different soil composition, vegetation and soil moisture, it was shown, that different soil treatments are beneficial for the biodiversity in Meso- and Macrofauna, no matter in which vineyard they were conducted. Consequently, inter-row soil treatments are advantageous for the soil health in vineyards. In covered treatments, the earthworm population was significant higher than in open treatments. As a result, a permanent greening in inter-row has an obvious positive effect on earthworms as on the mesofauna, because of an high abundanz of acari, colembola and enchytraea in permanent greening.

Key Results

1. high occurance of acari, colembola and enchytraea
2. Higher amount of mesofauna in green covered interrow-treatments
3. Positive influence of inter-row soil treatments to earthworm population

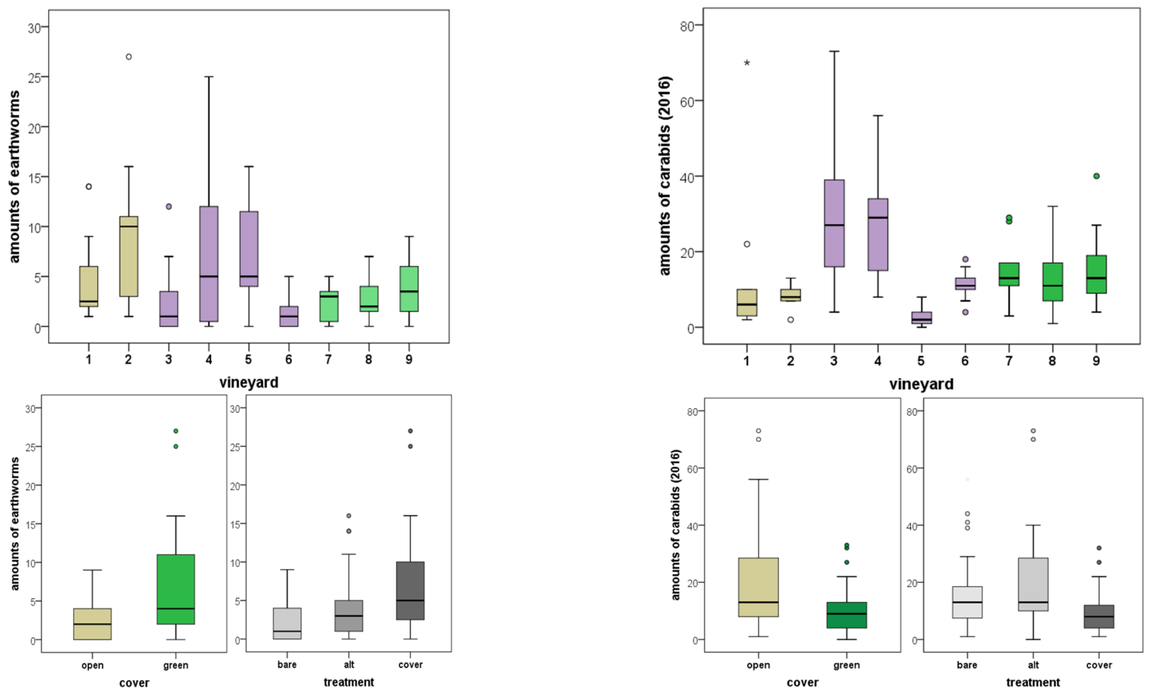

Fig 1.: Earthworm and carabidpopulation in 2 different soil treatments. Bare = no vegetation in interrow, cover = green interrow

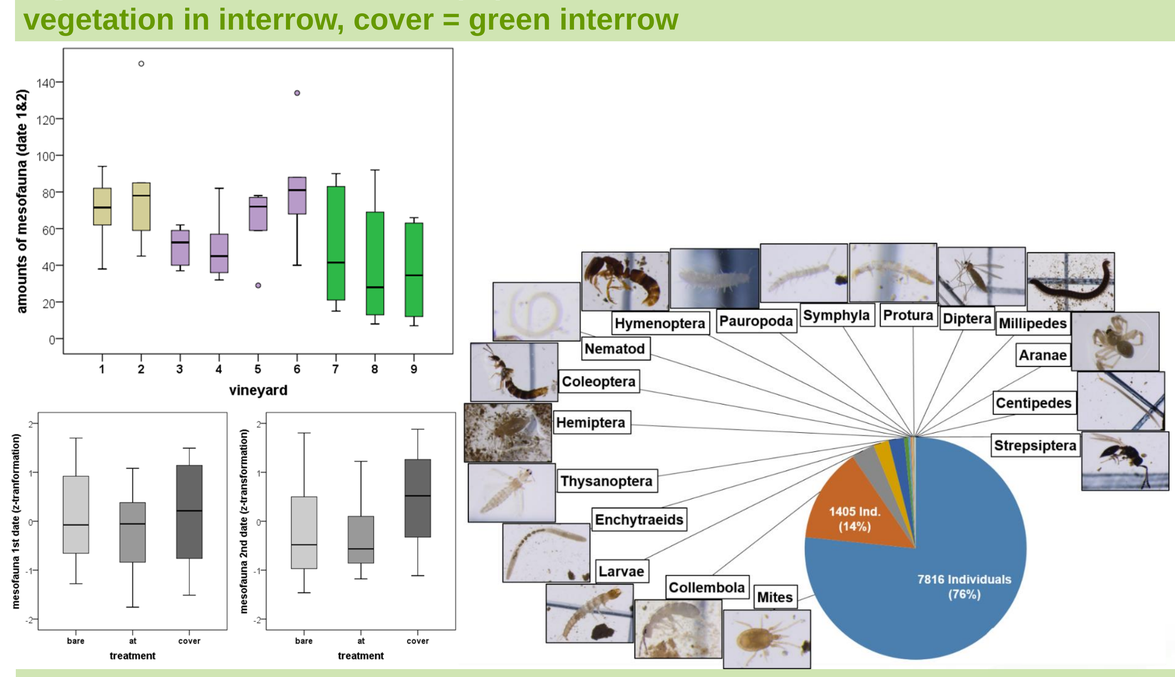

Fig 2.: Overview of collected mesofauna during 2016

Material and Methods

Mesofauna

Collected 3 times during vegetation period 2016 and extracted with Berlese-Tullgren Method

Makrofauna

Collected 3 times during vegetation period 2016. Earthworms were sorted by hand and counted. Ground beetles were collected in pittfal traps and deterined in lab

Fig 3.: Berlese-Tullgren funnel

Fig 4.: Pittfall traps and carabids

Points of Discussion

1. Influence of different inter-row soil treatments to biodiversity
2. meso-, and makrofauna as important part of soil biodiversity
3. Selection of biotic factors defining soil health
4. Occurence of promoting biotic factors in vineyard soil

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