



## **Comparison of soil moisture regime under two different terrain positions in a vineyard**

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The Tokaj Wine Region is one of the oldest and most famous wine regions in Hungary, which is situated in northeastern part of the country. Among agricultural lands vineyards are really sensitive areas to environmental conditions, as viticulture is especially sensitive to climatic changes. The aim of this study is to compare soil moisture transport in two different study sites near the city of Tokaj.

The sites are differing in their terrain positions, the first one locates on a steep slope (about 20%), while the other one is on a terrace. Their distance from each other is about 30 meters, hence they are prone to the same meteorological conditions. Soils developed on loess parent material, their profiles were described from pits, soil samples were collected for determination of basic soil physical and chemical parameters. Soil moisture contents and temperatures were continuously monitored in every hour and precipitation was measured in every ten minutes from 8 June to 8 August, 2017. Soil moisture sensors (TDR) were placed at five soil depths (10-18, 22-30, 37-45, 65-73, 97-105 cm) on the steep slope, while at six depths (12-20, 32-40, 60-68, 80-88, 100-108, 130-138 cm) on the terrace.

Preliminary results show that vertical soil moisture content distribution differs between the two sites. Due to the higher direct sunlight and evaporation the south-facing slope upper soil layer showed the lowest average water content, while in the case of the terrace the deepest layers were the driest during the investigated time period. Comparing the total water content in the upper 100 cm of the profiles, the water content of the terrace exceeded that of the steep slope with approx. 70 mm.

This study presents preliminary assessment of the monitored data, the effect of rain events for wetting front spreading in the profiles. Our further purpose is to apply mathematical models in order to investigate soil water content changes in the soil-plant system. We would like to use these model simulations to analyze the sensitivity of the vineyard due to weather conditions.