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Microclimate measurements in grape vineyards from Beregovo to Zagreb in Pannonian Basin

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Micrometeorological measurements of different complexity are producing basic information for agricultural and vineyard research and practice. With the participation of Department of Meteorology of ELTE three viticultural and production site knowledge projects started in the last year. In this presentation the main goals of the projects, their measuring concepts, and some preliminary results are presented.

The wine culture is revived in Transcarpathian (Ukraine) in the last 5-10 years. Traditions of the Munkács-nagyszőlősi (Mukachevo-Vinohradiv) wine region have been highly appreciated again. New plantations and family wineries have been formed. Temperature and relative humidity measurements have started in a grape plantation near Beregszász (Beregovo) in 2017 for surveying the microclimatic data of the fertile slopes. These data will be compared with that of the official weather stations at Beregszász. Besides, the wine region's history, microclimate and production area will be also presented.

Another measuring program is related to a Croatian-Hungarian bilateral scientific collaboration (2017–2019). In the frame of this project, microclimate of the cordon cultivation grape rows (temperature, moisture, wind and UV radiation), radiation budget components and wind, the temperature and moisture gradients above the plantations have been measured. Soil temperature and moisture profiles were also detected. With the use of Bowen ratio and gradient methods the energy budget components were also determined. Viticultural aspects of the projects and results of the first year measurements will be also presented.

The third measuring program (2018–2021) started in Villány (cc. 15 km from Hungarian-Croatian border) in the frame of Diverfarming (728003) EU2020 program in which field measurements are performed at 21 case study area from Finland to Spain to develop innovative farming and agribusiness strategies. The goal of the project work package 5.4 is double: i) to reveal the microclimatic character of the production area (Villány) and ii) to provide greenhouse gas emission measurements (CO_2, N_2O) for the analysis and comparison of the effect of the various cultivation methods.

Common features of all three programs are i) development of most up-to-date measuring system for the solution of the given scientific question, ii) quantification of local effects and iii) the use of energetic approach to the development and interpretation of the measurements.