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**Short grass actual evapotranspiration and its
dependence on soil water status**

Diploma Thesis

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Summary

A weighable Smart-Field Lysimeter (30 cm diameter, 30 cm depth) located in the experimental field of the Czech University of Life Science in Suchbát, Prague, was used to measure directly the daily actual evapotranspiration (ET_a) of a short grass surface, neither artificially irrigated nor fertilized, during a period of two years, 26 April, 2013 to May 1, 2015. The primary data recorded by the lysimeter contain periods of rain or snowfall and also some the noise and gaps. In this project, only daily actual evapotranspiration sums from midnight to midnight were calculated and only for rainless days.

Secondly, using daily meteorological data from the weather station at the experimental site, the reference crop evapotranspiration (ET_o) was calculated with the FAO 56 Penman-Monteith method. At last, the calculated actual evapotranspiration from the lysimeter has been contrasted with the reference evapotranspiration and their ratio was related to the soil water content at 5 cm.

The actual evapotranspiration measured with the lysimeter has a seasonal behaviour similar to that of the reference crop evapotranspiration. However, the ratio or the difference of the two does not have a pronounced seasonal behaviour. It is recommended that for continuity of this study, the original Penman-Monteith equation should be applied to estimate the impact of the bulk surface resistance and LAI on ET.

Key words: lysimeter, soil water content, actual evapotranspiration, reference crop evapotranspiration, FAO56 Penman-Monteith equation.