



Methodology for application of field rainfall simulator to revise c-factor database for conditions of the Czech Republic

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The presentation will introduce a methodology of determination of crop and cover management factor (C-factor) for the universal soil loss equation (USLE) using field rainfall simulator. The aim of the project is to determine the C-factor value for the different phenophases of the main crops of the central-european region, while also taking into account the different agrotechnical methods. By using the field rainfall simulator, it is possible to perform the measurements in specific phenophases, which is otherwise difficult to execute due to the variability and fortuity of the natural rainfall. Due to the number of measurements needed, two identical simulators will be used, operated by two independent teams, with coordinated methodology. The methodology will mainly specify the length of simulation, the rainfall intensity, and the sampling technique. The presentation includes a more detailed account of the methods selected. Due to the wide range of variable crops and soils, it is not possible to execute the measurements for all possible combinations. We therefore decided to perform the measurements for previously selected combinations of soils, crops and agrotechnologies that are the most common in the Czech Republic. During the experiments, the volume of the surface runoff and amount of sediment will be measured in their temporal distribution, as well as several other important parameters.

The key values of the 3D matrix of the combinations of the crop, agrotechnique and soil will be determined experimentally. The remaining values will be determined by interpolation or by a model analogy. There are several methods used for C-factor calculation from measured experimental data. Some of these are not suitable to be used considering the type of data gathered. The presentation will discuss the benefits and drawbacks of these methods, as well as the final design of the method used. The problems concerning the selection of a relevant measurement method as well as the final method of simulation and C-factor determination for the gathered data will be discussed in more detail. The presentation was supported by research projects QJ1530181 and SGS14/180/OHK1/3T/11.