Česká zemědělská univerzita v Praze
Fakulta agrobiologie, potravinových a přírodních zdrojů

DOKTORSKÝ STUDIJNÍ PROGRAM

NÁVRH TÉMATU/PROPOSAL OF THEME

Studijní program/*Study Program*: **Zemědělská specializace**
Studijní obor/*Branch of Study*: **Exploitation and Protection of Natural Resources**
Katedra/*Department of*: **Soil Science and Soil Protection**
Školitel (včetně titulů), email/*Supervisor*, email: prof. Ing. Radka Kodešová, CSc., e-mail: kodesova@af.czu.cz
Konzultant (včetně titulů)/*Co-supervisor*: Ing. Miroslav Fér, Ph.D., Ing. Aleš Klement, Ph.D.
Forma studia/*Form of Study*: **Full_time**
Typ tématu/*Type of Theme:* **Framework**

Téma/*Theme:* Influence of land use on water and temperature regimes of soils

Hypotéza/*Hypothesis*: Soil quality, and regime of soil-water and temperature can be positively or negatively affected by land use, farming practices or soil surface treatment. The impact of land use on soil quality and soil regimes, including the spread of possible contamination associated with a given land use, can be reliably simulated using mathematical models.

Anotace/Annotation: Different land uses significantly affect the soil water and temperature regimes, which subsequently affect other processes in the soil (transport of substances, plant growth, microbial activity, etc.). To evaluate and optimize soil conditions, it is necessary to know a number of parameters that are different for different soil conditions. Therefore, the regime of soil-water and temperature in selected soils with different uses will be experimentally evaluated in the field. The use of soils will differ, for example, in their processing, the cultivation of different crops, the application of different mulching materials etc. Measured soil moisture and temperatures as well as monitored climatic data will be evaluated statistically. Furthermore, the hydraulic and thermal properties of soils and possibly materials used for soil surface treatment will be measured in the laboratory on intact soil samples. The structure of soils and materials will also be examined on the undisturbed soil samples using the X-ray computed tomography. The observed soil-water and temperature regimes will be simulated using the HYDRUS programs in order to obtain optimized parameters characterizing individual treatments and soil types.

Zdroj financování/Source of: NutRisk Centre reg.č.: CZ.02.1.01/0.0/0.0/16_019/0000845

Datum/*Date:* 6.11.2020

Podpis/*Signature:*