

DOKTORSKÝ STUDIJNÍ PROGRAM/*DOCTORAL STUDY PROGRAM*

VYPSÁNÍ TÉMATU/*LISTING OF TOPIC*

Studijní program/*Study Program*: **Agricultural Specialization**

Studijní obor/*Branch of Study*: **Exploitation and Protection of Natural Resources**

Katedra/*Department of*: **Soil Science and Soil Protection**

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Forma studia/*Form of Study*: **Full_time**

Typ tématu/*Type of Theme*: **framework**

Téma/Topic: Processing, harmonization and analysis of soil databases and evaluation of the temporal development of soil properties

Hypotézy/Hypotheses:, Data from different sources obtained by different methods can be harmonized using appropriate procedures. On the basis of existing soil databases, the temporal development of soil properties can be analysed, prediction models can be created and, with the help of auxiliary data, the development of soil properties in the future can be predicted.

Anotace/Summary: Various databases of soil properties contain a huge amount of valuable data. However, since they were and are obtained by different methods of sampling and laboratory analysis, these databases need to be harmonized. Thanks to the fact that many surveys are carried out repeatedly (Basal soil monitoring - BMP, Agrochemical soil testing - AZZP, ICP-Forest, Forest soil survey, National forest inventory, LUCAS, etc.), it is possible to evaluate changes in soil properties over time and based on the analysis of these time trends to create time development models and estimate the future development of soils according to different scenarios of land management, land use and climate change. Additional data such as remote sensing, climate data or digital elevation models can also be used for these models. The aim of this dissertation will be: 1) Testing ways of harmonizing soil data from different sources, comparing methods, conversions between the results of different methods, etc. 2) Evaluation of changes in soil properties over time and analysis of the main causes of these changes. 3) Analysis of the relationship of soil properties to auxiliary data (soil spectra, remote sensing data, digital elevation model, etc.) and creation of models for spatial prediction. 4) Prediction of further development of soil properties according to different scenarios using auxiliary data.

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Podpis vedoucího katedry/*Signature of the Head of the Department*: