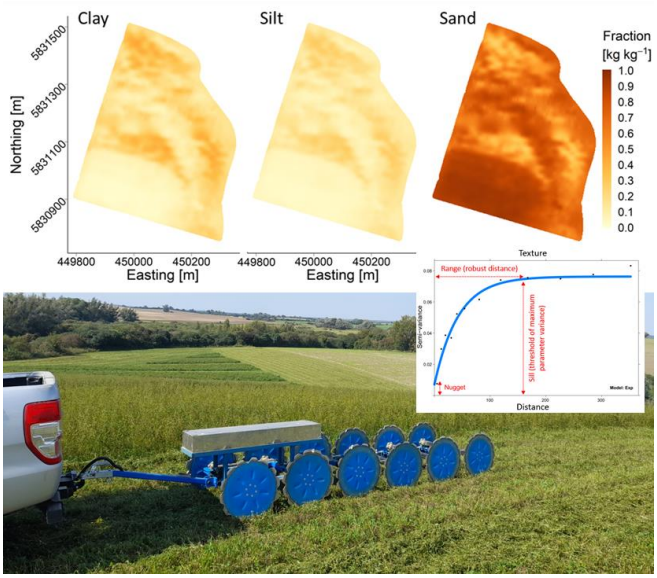
Leibniz Institute of Vegetable and Ornamental Crops (IGZ)

17.05.2022

Offer for a Master thesis

Comparative study on the generation of high-resolution soil maps

Regarding a site-specific fertilizer management, high-resolution soil maps offer significant potential for improvements compared to conventional data. In order to obtain such small-scale soil information and to derive the small-scale demand for lime fertilizer, extensive proximal soil sensor mapping (>3000 ha) and soil sampling campaigns for the liming relevant parameters (n_{SOC} >1300, $n_{Texture}$ >1000, n_{pH} >1100) over the past five years have been carried out in the project "pHBB - Precise Liming in Brandenburg" (http://ph-bb.com). Additionally, a toolbox that simplifies the access to all parts of the procedure was developed. However, the quality of the maps derived (e.g., texture information from resistance and gamma measurements) may differ significantly depending on the method chosen. The proposed thesis aims to test and compare the methods selected for interpolation (e.g., ordinary kriging vs. block kriging) and calibration (e.g., linear vs. non-linear models) of the raw data and evaluate the results in the context of fertilization in crop production.



Tasks

- Data processing & analysis of collected soil data
- Deploying algorithms developed in the pH-BB project
- Producing high-resolution soil maps at field scale

Requirements

- ✓ Major in Soil science, Agriculture, Environmental science or Geo-sciences
- ✓ Experience in analyzing proximal or remote sensing technologies
- ✓ Knowledge of data processing in R and geo-statistics

For further questions, please contact:

Dr. Swen Meyer, s.meyer@uni-rostock.de & Dipl. Geogr. Eric Bönecke, boenecke@igzev.de

Universität Rostock Traditio et Innovatio

pH-BB HORTSYS