Master's thesis: Developing an inventory of IPM-related data in Germany

MSc Thesis | Integrated Pest Management | Research Data Management | FAIRagro

Institute for Crop and Soil Science (PB) - Braunschweig Bundesallee or Kleinmachnow site

The project

Data are playing an increasingly central role in the targeted further development of integrated pest management. Although there are numerous data sources in Germany on pests, diseases, infestation levels, plant protection measures, decision support systems and yield effects, it is often not systematically known which data exist, where they are stored, how they are documented and under which conditions they can be used.

In FAIRagro Use Case 3, we are working to make data on pests and diseases easier to find, access, interoperate with and reuse. The aim is to create a solid data basis for research, advisory services and model-based decisions in integrated pest management.

In this master's thesis, you will create a structured inventory of IPM-related data available in Germany. In doing so, you will make an important contribution to the better use of existing data resources and to the further development of sustainable plant protection strategies.

Research activities and methods

The activities of the master's thesis include, among others:

- Systematic search for relevant IPM-related data sources in Germany, e.g. on pests, diseases, infestation surveys, plant protection measures, decision support systems, trial data and yield effects
- Development of a catalogue of criteria to describe and assess the identified data sources
- Recording of key metadata, e.g. data type, spatial and temporal coverage, crop species, pests and diseases, data holders, access conditions, formats and documentation quality
- Interviews or targeted enquiries with relevant stakeholders from research, advisory services, administration and practice
- Analysis of data gaps, barriers to data use and potentials for FAIR data in integrated pest management
- Creation of a clear, reusable inventory and a corresponding review article

Your own ideas for structuring, visualising or assessing the inventory are explicitly welcome.

Qualifications and interests

We are looking for motivated master's students with the following profile:

- Enrolled in a master's programme in agricultural sciences, plant sciences, geoecology, environmental sciences, data science, bioinformatics, information science or a related field
- Interest in integrated pest management, sustainable agriculture and research data management
- Enjoyment of structured research, analytical thinking and preparing complex information
- Willingness to familiarise yourself with data standards, metadata, FAIR principles and agricultural data sources

- Basic knowledge of data management, spreadsheets, R, Python, databases or GIS is an advantage, but not a prerequisite
- Very good German language skills; good English language skills are helpful
- An independent, careful and reliable way of working
- Motivation to contribute through your own work to sustainable plant protection and open science

What we offer

We offer a research-oriented master's thesis at the interface of plant protection, data management and digital agricultural research. You will work on a topical research question with high relevance for science, advisory services and practice.

You will gain insight into the FAIRagro network and ongoing activities to improve the research data infrastructure in the agricultural sciences. The thesis offers you the opportunity to establish contacts with different stakeholder groups and to deepen your skills in data research, metadata description, research data management and scientific synthesis.

We offer a friendly, interdisciplinary working environment, close supervision and room for your own ideas. The results of the thesis can feed directly into the further development of FAIRagro Use Case 3.

Further information

For further details on the project description and application, please contact:
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If you are interested, please send a short statement of motivation, a CV and, if available, a current transcript of records.