The Selhausen Minirhizotron Facilities:

A Unique Set-Up to Investigate Subsoil Processes within the Soil-Plant Continuum

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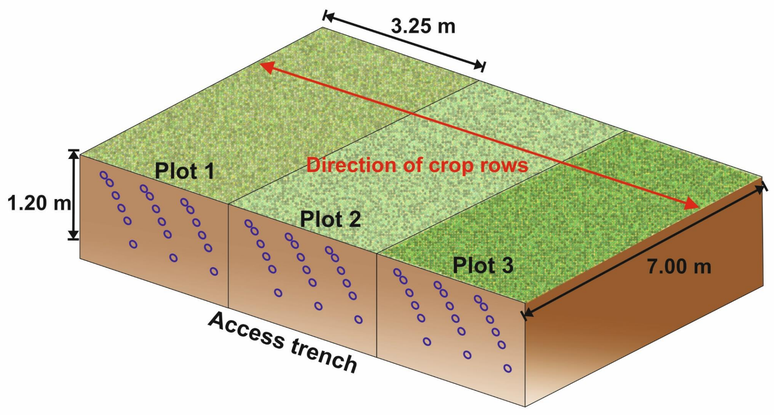
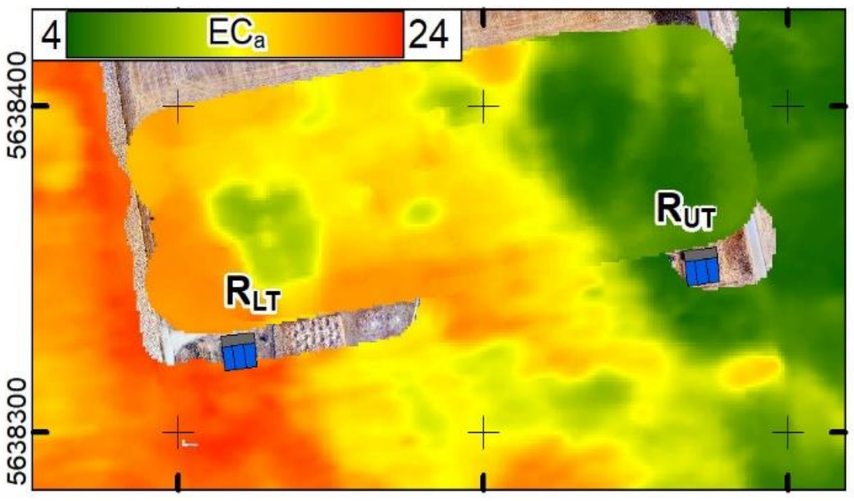
Field set-up

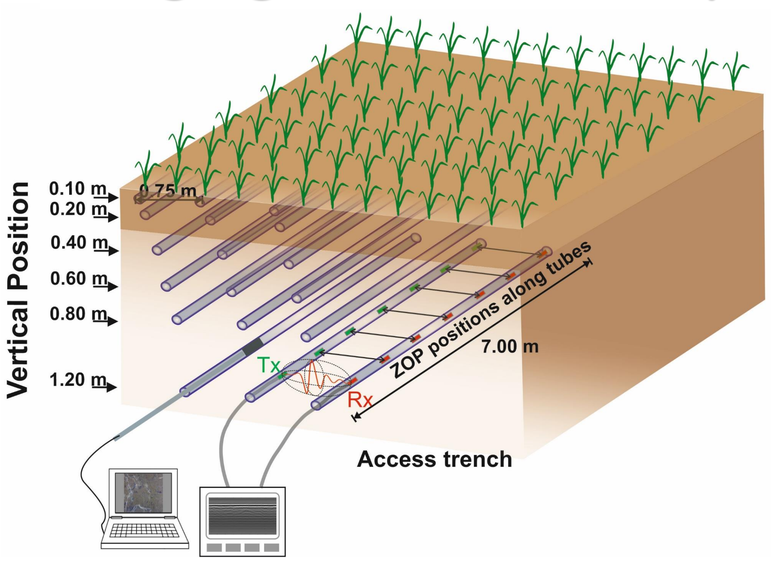


Insight view

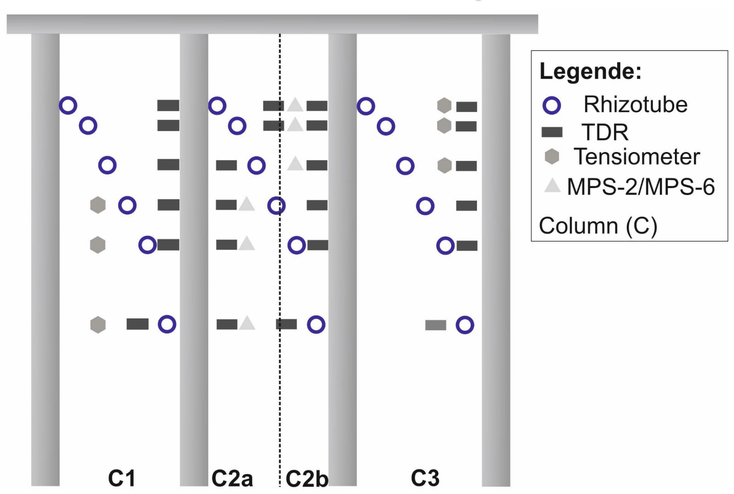
Electrical conductivity map

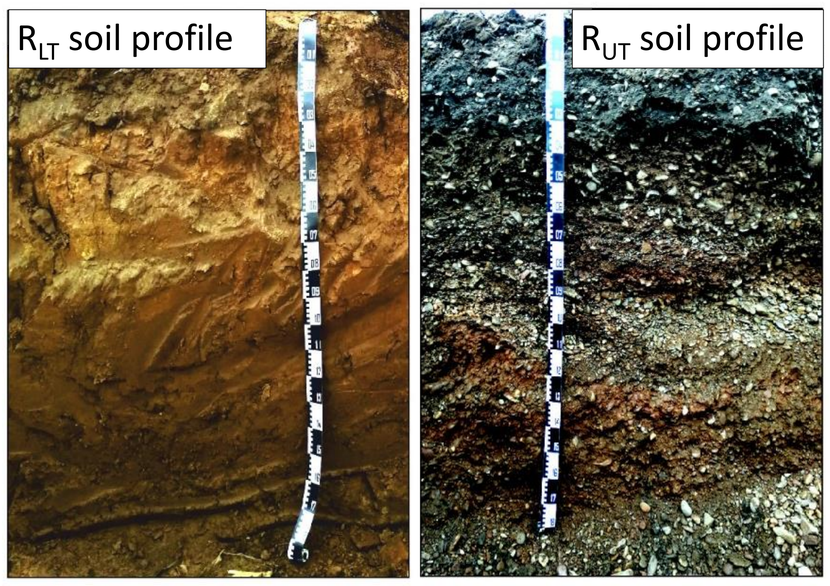


Imaging and GPR set-up



Soil sensor set-up





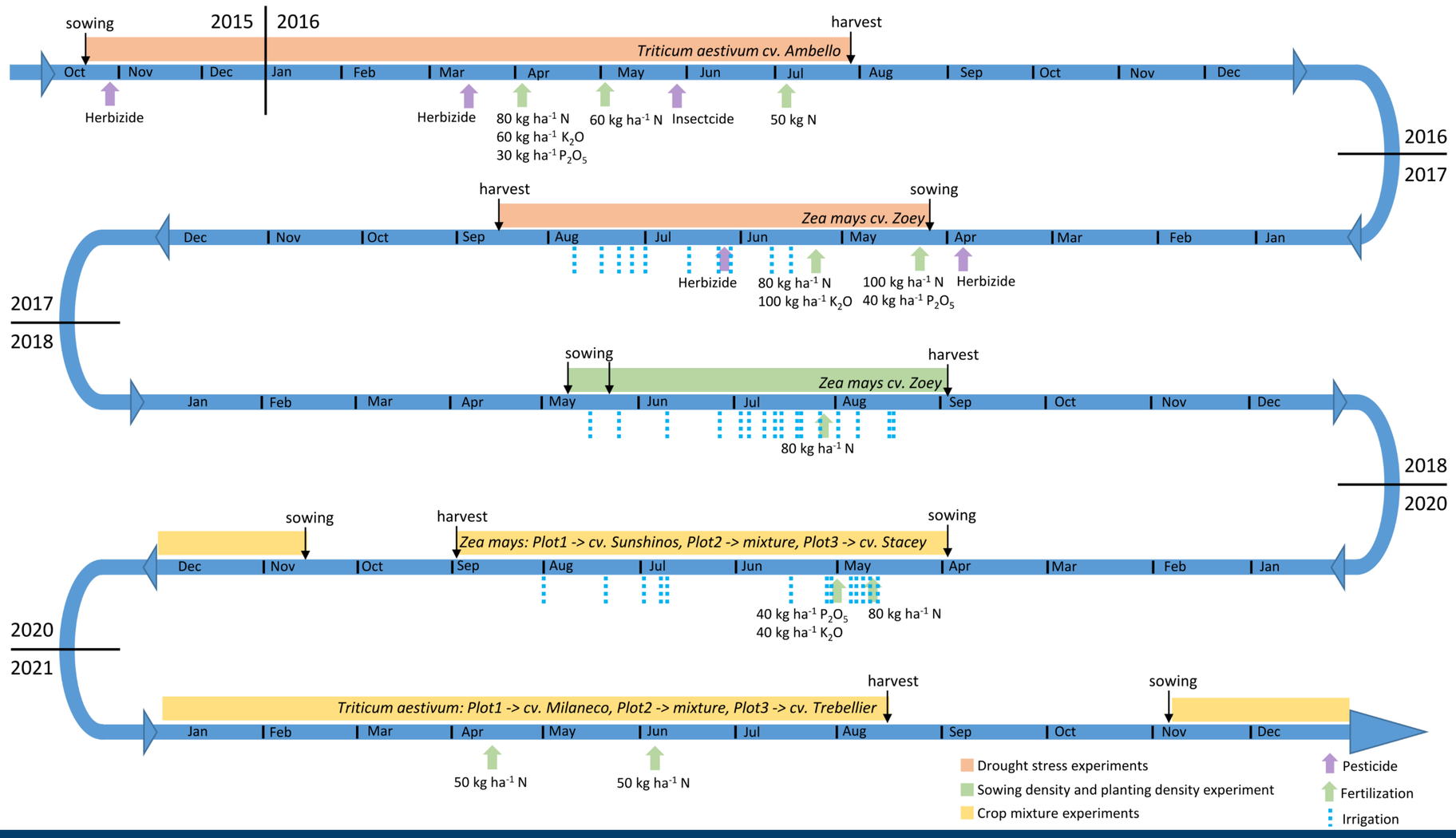
Root Image Processing

- Image acquisition in the minirhizotron facilities with in-house camera system
- Training of a Convolutional Neural Network (CNN) with RootPainter
- Automated batch segmentation of images with the previously trained CNN
- Automated feature extraction with RhizoVision Explorer
- Feature analysis: Total root length, root diameter, surface area, …

GPR Data Processing

- Signal processing: Dewow filter, Time-zero correction, First break estimation for each ZOP position
- Calculation of travel times
- Calculation of EM velocity
- Calculation of horizontal permittivity planes
- Calculation of soil water content from permittivity (Topp or CRIM)

Experiment timeline until 2021



The article
"Multi-year belowground data of minirhizotron facilities in Selhausen"
with all data open access will soon be available at
Sci. Data

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