New opportunities for soil – plant research at the BOKU campus Tulln





University of Natural Resources and Life Sciences Department of Forest and Soil Sciences



Walter W. Wenzel

Institute of Soil Research Rhizosphere Ecology & Biogeochemistry Group



Institute of Soil Research at BOKU

Biogeochemistry (C, nutrients, pollutants) Soil and rhizosphere processes, microbial processes A University of Natural Resources and Life Sciences

Department of Forest and Soil Sciences



Institute of Soil Research at BOKU

Research groups

- Environmental Ecotoxicology and Isotopic Applications (Martin Gerzabek)
- Soil Microbiology (Sophie Zechmeister-Boltenstern)
- Rhizosphere Ecology and Biogeochemistry (Walter Wenzel)



University & Research Centre Tulln (UFT) From a field to state-of-the-art research centre



March 2010



University of Natural Resources and Life Sciences Department of Forest and Soil Sciences

June 2010

University & Research Centre Tulln (UFT)

New work place of > 250 employees

- BOKU & AIT
- 6 BOKU departments
- Greenhouses, isotopic lab, clean room, technical centre for wood science,...
- Analytical facilities (NMR, ICP-MS, confocal microscopy,...
- Experimental station (45 ha)
- Seminar centre, library



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Campus Technopol Tulln





University & Research Centre Tulln (UFT)



Scientific themes



Phosphorus use efficiency

Phosphorus resource decline (peak P)

World rock phosphate production

vs world population

Increased prices





400

350

300 250 JSS/tonne

200

150



2050

Phosphorus use efficiency

Soil erosion & eutrophication





Phosphorus use efficiency

- Rhizotron experiment
- Diffusive gradients in thin films
- Laser ablation ICP-MS



Phosphorus use efficiency

 Highly resolved mapping of P solubility and fluxes in the rhizosphere showing regions of depletion and efflux



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P C_{DGT} (nmol L⁻¹) 8.7 26.2 43.6 60.0 77.5 94.9 112.4 129.8 147.3 165.7 181.1

5 mm

Teaching soil science

Soils class room





Teaching soil science

Soils class room



 \triangleright

Teaching soil science

Soil monolith collection





Böden Österreichs



Raising soil awareness

Planned activities

- Strong, continued collaboration with the Unit for Agriculture and Forestry (LF6) of the Government of Lower Austria
- BOKU member of ELSA
- Open House at Campus Technopol Tulln (Nov. 18, 2011)
- Long Night of Science (April 2012)
- Children's University (Summer 2012)





Thank you for your attention!