



CAS
Centre of
Agricultural
Sciences

University of Natural Resources
and Life Sciences, Vienna

Concept and Goals of the BOKU Centre for Agricultural Sciences (CAS)

University of Natural Resources and Life Sciences, Vienna

<http://www.boku.ac.at/wissenschaftliche-initiativen/zentrum-fuer-agrarwissenschaften/>



CAS Goals

- to connect BOKU departments, institutes, initiatives, sites and external stakeholders related to agricultural sciences
 - to give agricultural sciences a "voice"
 - to support and develop agricultural teaching at BOKU
 - to foster agricultural research at BOKU
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	Department für Materialwissenschaften und Prozesstechnik (Department of Material Sciences and Process Engineering)
	Department für Biotechnologie (Department of Biotechnology)
	Department Wasser-Atmosphäre-Umwelt (WAU) (Department of Water, Atmosphere and Environment)
	Department für Nanobiotechnologie (DNBT) (Department of Nanobiotechnology)
	Department für Chemie (Department of Chemistry)
	Department für Integrative Biologie und Biodiversitätsforschung (Department of Integrative Biology and Biodiversity Research)
	Department für Lebensmittelwissenschaften und Lebensmitteltechnologie (Department of Food Sciences and Technology)
	Department für Raum, Landschaft und Infrastruktur (Department of Landscape, Spatial and Infrastructural Sciences)
	Department für Wirtschafts- und Sozialwissenschaften (Department of Economics and Social Sciences)
	Department für Nachhaltige Agrarsysteme (Department of Sustainable Agricultural Systems)
	Department für Bautechnik und Naturgefahren (Department of Civil Engineering and Natural Hazards)
	Department für Wald- und Bodenwissenschaften (Department of Forest- and Soil Services)
	Department für Angewandte Pflanzenwissenschaften und Pflanzenbiotechnologie (Department of Applied Plant Sciences and Plant Biotechnology)
	Interuniversitäres Department für Agrarbiotechnologie, IFA-Tulln (Department of Agrobiotechnology / IFA Tulln)
	Department für Angewandte Genetik und Zellbiologie (DAGZ) (Department of Applied Genetics and Cell Biology)

BOKU Departments

Agricultural-related sites of BOKU



CAS Organisation

- Steering Group** → takes decisions on CAS initiatives
- Advisory board** → supports CAS, in particular with a critical BOKU external view
- Management team** → organises and executes CAS initiatives jointly with steering group members

lead by Jochen Kantelhardt,
Herbert Weingartmann and Lena Schaller

CAS Steering Group

Students

Department of Economics and Social Sciences
Department of Crop Sciences
Department of Sustainable Agricultural Systems

**‘Classical
Agriculture‘**

Department of Forest- and Soil Sciences

Natural Sciences

Department of Agrobiotechnology
Department of Biotechnology
Department of Applied Genetics and Cell Biology

(Bio-)Technology

Vienna Institute of BioTechnology
Bio- Resources & Technologies Tulln

**Crosscutting
Initiatives**

CAS Advisory Board

Austrian Chamber of Agriculture
Austrian Federal Ministry of Agriculture, Forestry, Environment
Provincial Government of Lower Austria

**Government
and Chambers**

Austrian Council for Research and Technology Development
Austrian Agency for Health and Food Safety Ltd.
EcoSocial Forum Austria
FFC GmbH (represented by Franz Fischler)

**Science-oriented
organisations**

BIOMIN - Animal Nutrition & Feed Additives
PÖTTINGER - Farming technologies
REWE Group

**Upstream and
downstream companies**

College of Agriculture at St. Florian
Association of BOKU agriculture graduates

**Colleges and
graduate associations**

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CAS annual scientific conference „Herbsttagung“



CAS – Herbsttagung 2015

Boden und Landwirtschaft - Ökonomie, Ökologie und soziale Ansprüche

Freitag, 20.11.2015, 9:30 bis ca. 16:00

- **Universität für Bodenkultur Wien**
Peter Jordanstraße 82, 1190 Wien, Exnerhaus - EH05
Buslinien 10A/37A/40A, Haltestelle Dänenstraße

Programm

- 09:30 Uhr
Begrüßung und Eröffnung
Univ. Prof. Dr. Jochen Kantelhardt
Leiter des BOKU-CAS
„Boden an der Bodenkultur“
Univ. Prof. Dr. Martin Gerzabek
Rektor der Universität für Bodenkultur
- 10:00 Uhr
„Highlights aus der Bodenforschung“
Univ. Prof. Dr. phil. Sophie Zechmeister-Boltenstern
Institut für Bodenforschung, BOKU
- 10:30 Uhr
„Biofuels' Unbalanced Equations: Theoretical Demand, Misleading Statistics, and Measured Soil Capabilities“
Dr. Kate Showers
*Centre for World Environmental History, University of Sussex
and Five Colleges, Amherst, Massachusetts, USA*

11:15 – 11:45 Uhr - Kaffeepause

- 11:45 Uhr
„Yield and diet gaps: Potentials and limitations of enhancing soil use efficiency“
Univ. Prof. Dipl.-Ing. Dr. nat. techn. Walter Wenzel
Bio-Resources & Technologies Tulln, BOKU
- 12:15 Uhr
„The Impact of agricultural policy on land sales and rental prices“
Univ. Prof. Mag. Dr. Klaus Salhofer
Institut für Nachhaltige Wirtschaftsentwicklung, BOKU
- 12:45 Uhr
Abschlussdiskussion und Schlusswort
Univ. Prof. Dr. Jochen Kantelhardt

13:00 – 14:00 Uhr - Mittagsbuffet mit Spezialitäten aus dem Lafnitztal

- 14:00 bis 16:00 Uhr
„Vom Feld ins Labor“
Führung durch die Labore des Instituts für Bodenforschung

*Alle Interessierten sind herzlich willkommen!
Wir freuen uns auf Ihre Teilnahme!*

Bitte um Anmeldung bis 13.11.2015 unter
<http://www.boku.ac.at/cas-herbsttagung.html>
oder per email: cas_anmeldungen@boku.ac.at

Voice-giving initiatives

- Organisation of an annual scientific conference
 - Organisation of a semester touchdown for students
 - Organisation of lecture series (partly in co-operation with partners)
 - Implementation of a CAS newsletter
 - ...
-

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BOKU bachelor programs

Forestry

Wood and Fibre Technology

Environment and Bio Resources Management

Environmental Engineering

Food Sciences and Biotechnology

Agricultural Sciences

Landscape Architecture and Planning

Equine Sciences

Further information: www.boku4you.at :

www.boku4you.at

BOKU master programs (German)



Universität für Bodenkultur Wien
University of Natural Resources
and Life Sciences, Vienna

Agricultural and Food Economics (H 457)

Alpine Natural Dangers/Watershed Regulation (477)

Biotechnology (H 418)

Crop Sciences (455)

Environment and Bio Resources Management (H 427)

Environmental Engineering (H 431)

Food Science and Technology (H 417)

Forest Science (H 425)

Landscape Architecture and Planning (H 419)

Livestock Sciences (456)

Organic Agricultural Systems and Agroecology (H500)

Phytomedizin (H 422)

Wildlife Ecology and Wildlife Management (H 423)

Wood Technology and Management (H 426)

Further information : www.boku4you.at

BOKU master programs - international



Universität für Bodenkultur Wien
University of Natural Resources
and Life Sciences, Vienna

Animal Breeding and Genetics

Applied Limnology – Wetland Management

Environmental Sciences – Soil, Water and Biodiversity

European Forestry

Horticultural Sciences

Material and thermal utilization of renewable raw materials (in German)

Mountain Forestry

Natural Resources Management and Ecological Engineering

Organic Agricultural Systems and Agroecology

Safety in the Food Chain

Sustainability in Agriculture, Food Production and Food Technology in the Danube Region

Viticulture, Oenology and Wine Economy (in German)

Water Management and Environmental Engineering

CAS Teaching

930.105 - Einführung in die Agrarwissenschaften; STEOP-LVA

992.101 - Introduction to Academic Agricultural English

931.143 - Energie aus Rohstoffen der Land- und Forstwirtschaft

Teaching initiatives

- Organisation of CAS lectures
 - Implementation of a network of farms providing internships for BOKU students
 - Supporting the development of an agricultural BSc program considering the needs of students already being employed
 - ...
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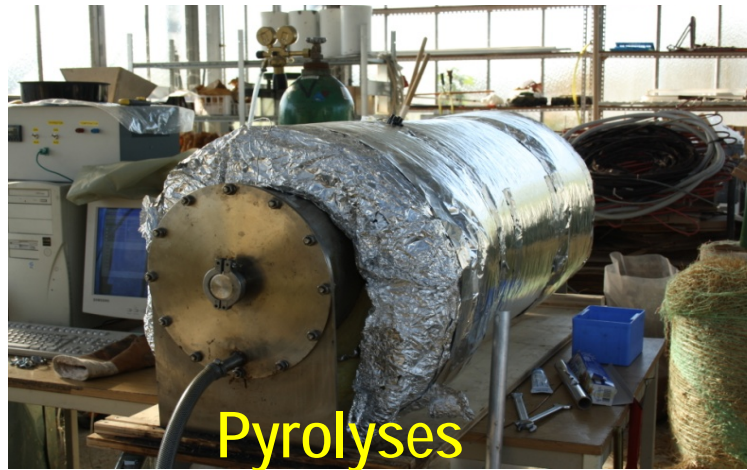
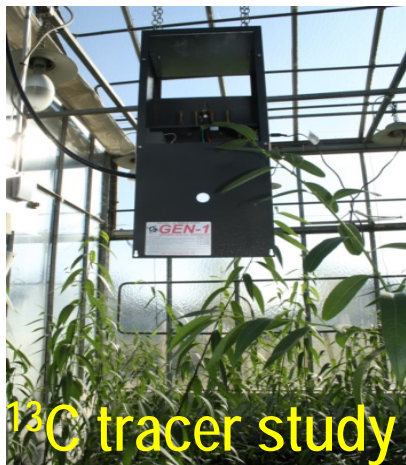
Research Example I



Universität für Bodenkultur Wien
University of Natural Resources
and Life Sciences, Vienna

"BIOCHAR" Recycling, soil conditioning, soil functions: lab, greenhouse and field experiments (Soja und Zehetner et al.)

Institute for soil research, AIT, BFW, Joanneum



incubations



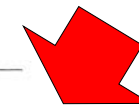
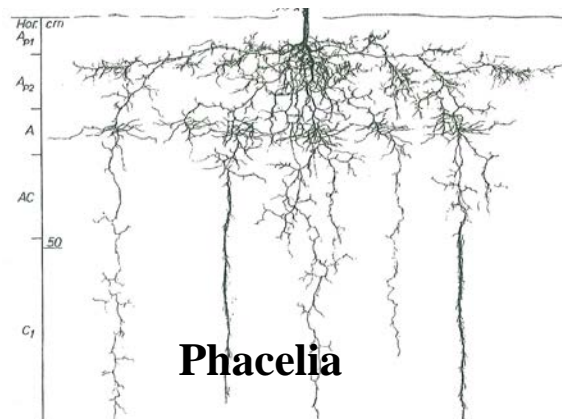
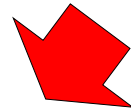
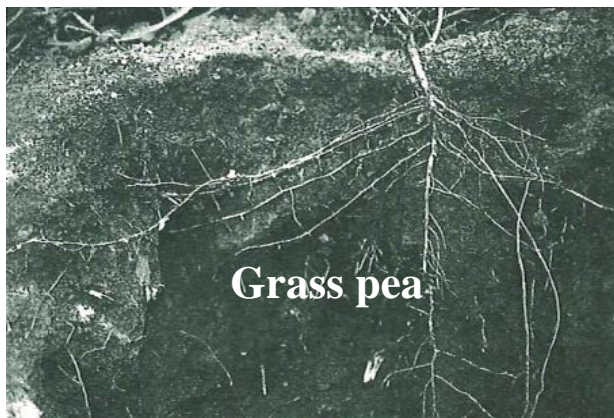
Research Example II

FWF-projekts „Hydraulic effects of root-soil interactions” (2009-2012) & “The roots of drought resistance” (2013-2017), Division of Agronomy

Changed pore size distribution due to roots

	Pore volume (cm ³ cm ⁻³)		
	Unplanted	Coarse roots	Fine
	-	<i>L. sativus</i>	<i>P. tanacetifolia</i>
Microporen1 (r < 2.5 mm)	0.023	0.019	0.055
Microporen2 (2.5 ≤ r < 15 mm)	0.074	0.061	0.086
Mesoporen (15 ≤ r < 37.5 mm)	0.061	0.055	0.055
Makroporen1 (37.5 ≤ r < 500 mm)	0.149	0.178	0.131
Makroporen2 (r ≥ 500 mm)	0.038	0.091	0.052
	Total: 0.345	0.404	0.379

Bodner et al., 2014



Research Example III

Milk production strategies & efficiency of resource use: Projects at BOKU

High-Input/High-Output



- > 10.000 kg milk/**cow**
- Indoor housing
- Intensive feeding
 - TMR
 - Corn and grass silage
 - Concentrates

Low-Input

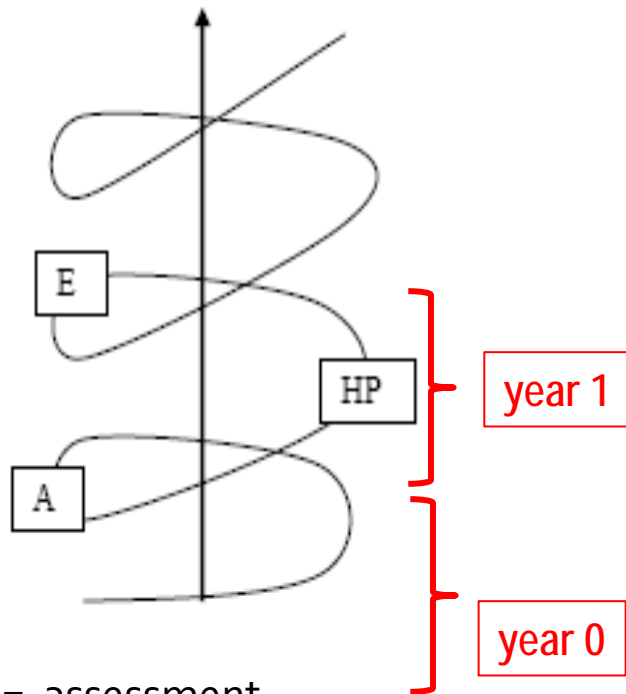


- > 10.000 kg milk/**ha**
- Pasture access
- Pasture based feeding
 - Up to 90 % pasture
 - Low supplemental feeding

- **SOLID** – Sustainable Organic and Low Input Dairying (EU-FP7)
- **By-Products** – Reduction of food – feed competition in Austrian organic dairy cows (BMLFUW et al.)
- **Efficient cow** – Analysis & optimization of production efficiency & environmental impact in Austrian cattle production (BMLFUW et al.)

Research Example IV

Animal Health & Welfare Assessment & Improvement



A = assessment
HP = health planning
E = effectiveness

Communication/Implementation

- StableSchool/“Kuhpraktiker“
- „BETI:“ Animal welfare in pig fattening

Effectiveness

- Cost-benefit analysis in dairy herds (Austria and Kosovo)

Health Planning

- CoreOrganic I & II: ANIPLAN & ProPIG

Assessment:

- EUFP7: WelfareQuality®

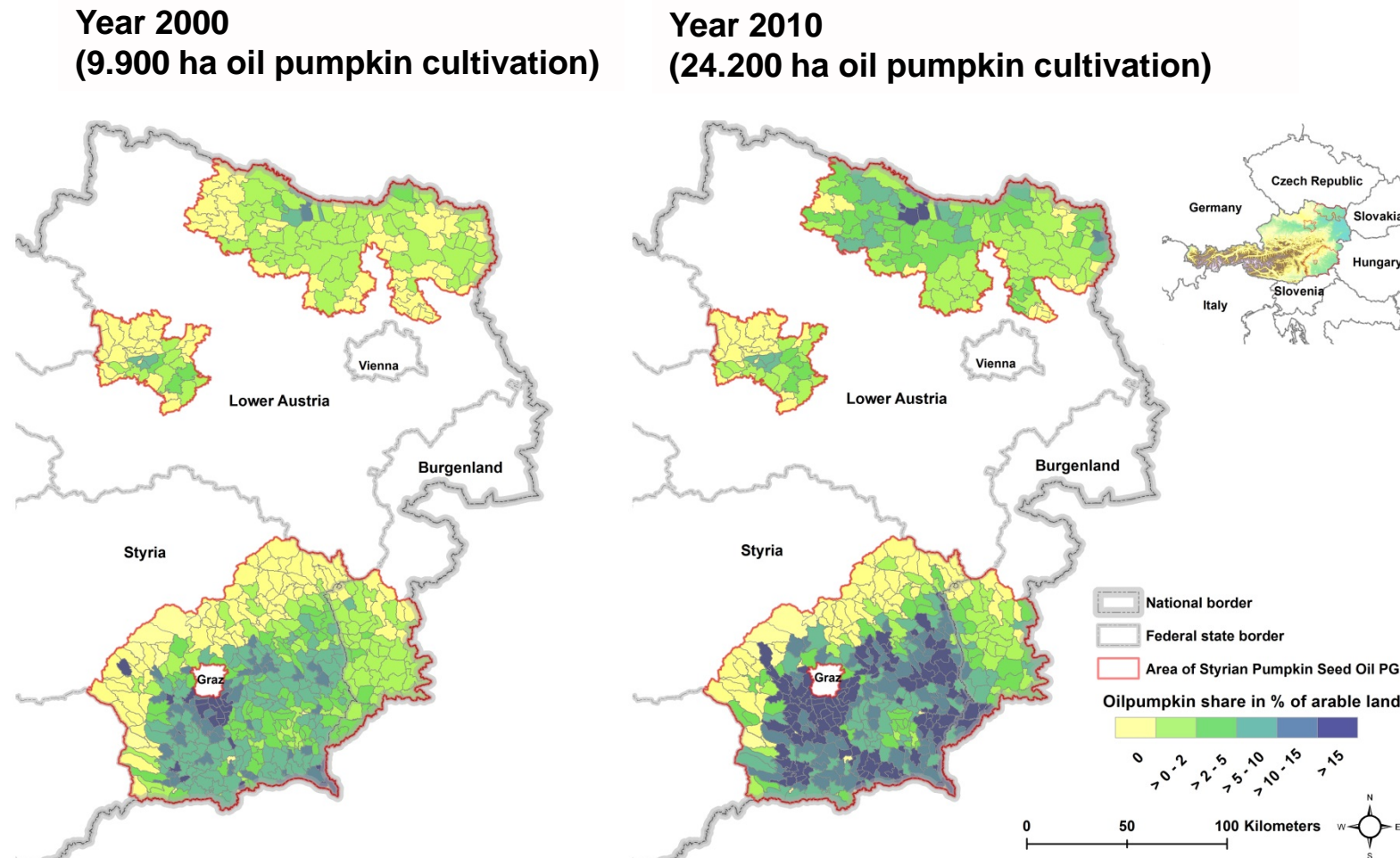
Land Ownership and Soil Conservation

- **Project title:**
Effects of land tenure and socio-economic factors on land use, soil conservation, and participation in agri-environmental programs
- **Main research questions:**
 - *Does* land ownership have an influence
 - a) on soil conservation practices of farmers (e.g. choice of crops and crop rotation)?
 - b) on participation in agri-environmental programs (e.g. support for no-till farming)?
 - *Why* is there an/no effect? Does short-term profit orientation prevail or is there a „psychological ownership effect“, increasing long-term orientation?
- **Significance:**
 - Share of rented land increases – possible negative effects of short-term orientation might increase too. Policy design for efficient & sustainable use of land needs to consider this institutional change!

Research Example VI

Spatial interdependence as determinant of spatial variations in the cultivation of an emerging alternative crop: The case of the Styrian Oil Pumpkin in Austria

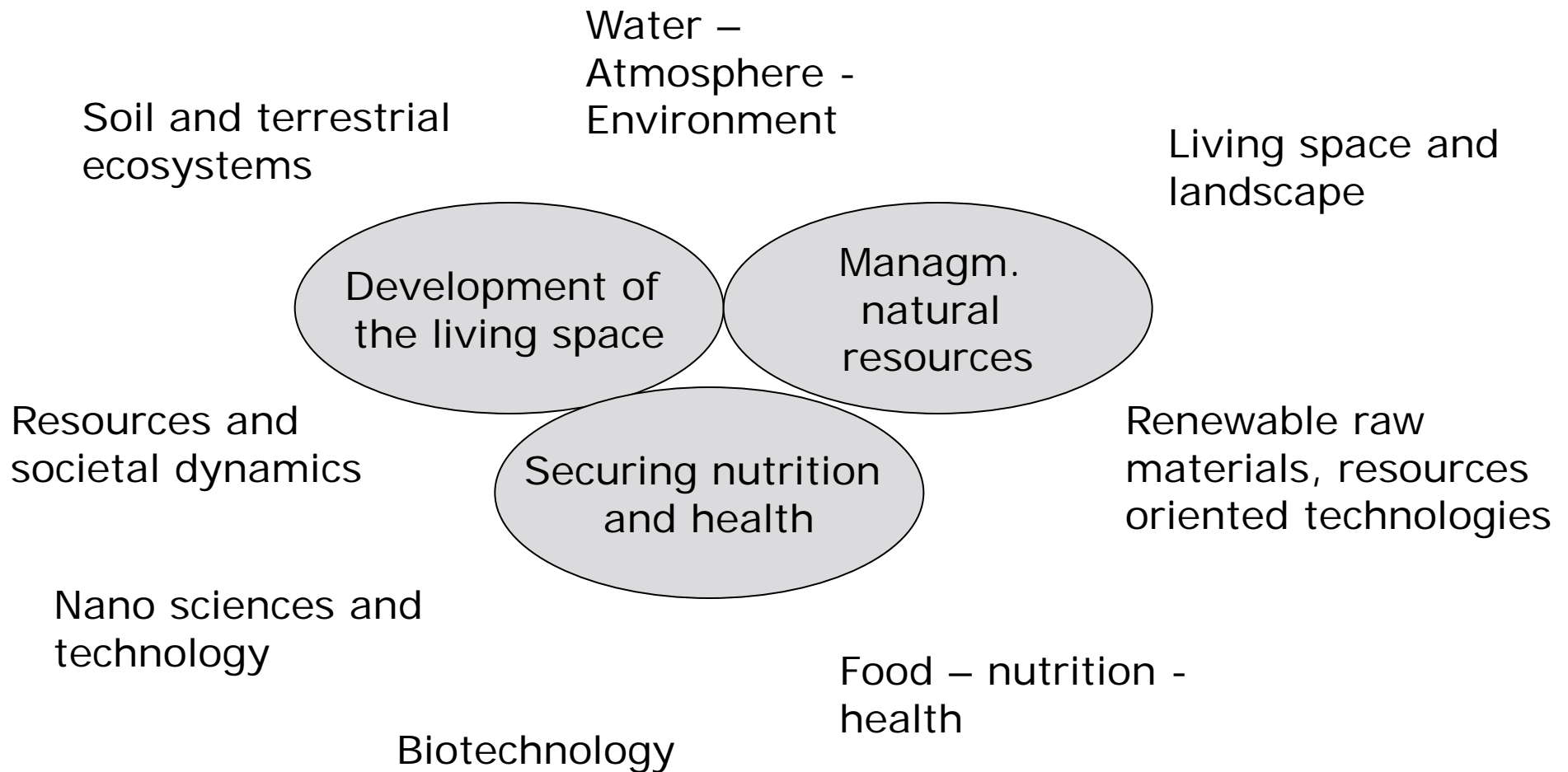
- Protected Geographical Indication (PGI) since 1996
- Research question: Which determinants explain the spatial variations in oil pumpkin cultivated area?
- Methodological approach: Spatial econometric analysis (SLX-Tobit model)



Agricultural research at BOKU ...

- covers a broad variety of research fields
-

BOKU – themes and competences



Agricultural research at BOKU ...

- covers a broad variety of research fields
 - is targeting a system approach
 - is of high practical relevance
 - achieves a high excellence
 - is broadly collaborating with national and international research partners
 - is involving a broad network of national and international stakeholders
-