

Agronomy and Crop Science

University of Rostock, Faculty for Agricultural and Environmental Sciences



Crop Science

Gene expression profiling
(transcriptome analysis)

Allelic diversity of genes

Genome-wide association studies

QTL based modelling

(e.g. prediction of flowering time)

Plant responses on biotic/abiotic stress

Mixed cropping

Agronomy

P fertilizer practice

Biofertilizers and PGPR

Crop production effects on soil
fertility

Recycling of wastes and residues



Interdisciplinary Faculty – Maritime Systems
Leibniz P Campus

Crop Science

ERANET -Bioenergy - Genetic adaptation of sorghum: genomics-based breeding of a sustainable, next-generation bioenergy crop for Europe (2013 – 2016)

Mixed cropping with cereals and legume crops as an opportunity to increase the water and phosphorus efficiency in plant production. BMVEL (2012 – 2015)

The role of phosphorus nutrition on the pathogenicity of *Mycosphaerella fijiensis*. DFG (2011)

Enzyme activity of selected C3 and C4 crops and its effect of P supply under drought conditions, DFG (2009)

Nutrient cycling/Waste and residues/Biofertilizer

Phosphorus utilization from biogas residues after solid – liquid separation. BMVEL (2012 – 2015)

Optimization of nutrient effects and environmental impacts of wastes from bioenergy - In cooperation with Innsbruck (Austria), Debrecen (Hungary), Novi Sad (Serbia), and Academy of Science (Moldova), BMBF (2014 – 2015)

Efficacy of biofertilizers (*Trichoderma*, *Penicillium*, *Isaria*).

ppp – Project with Columbia (Procol), DAAD (2011 – 2012) (2013 – 2014)

Contribution of selected plant growth promoting rhizobacteria to maize phosphorus nutrition as influenced by organic matter management. DFG (2007 – 2010)

Use of biomass ashes for P supply in energy cropping systems. BMVEL (2007 – 2009)

Recycling of sewage sludge products in agriculture. University of Rostock (2009 – 2013)

Cooperation projects/Education projects

BAltic Forum for Innovative Technologies for Sustainable MANure Management.
Lead applicant: Agrifood Research, Finland (MTT),
EU Interreg, BSR Programme (2011 – 2013)

Baltic Sea Bioenergy Promotion. Lead applicant Swedish Energy Agency,
Task leader for 3.4) Sub-regional and municipal showcases
EU Interreg, BSR Programme (2009-2012)

Educational Network in Agro-Biodiversity. Subject-related Partnerships with Institutions of
Higher Education. In cooperation with the Universities in Cuba, Nicaragua, Argentina, and
Colombia, DAAD (2014 - 2017)

Sustainable management of natural resources. Subject-related Partnerships with Institutions
of Higher Education. In cooperation with Cuba and Nicaragua, DAAD (2009-2012)

Experimental station

Field experiment with 9 P fertilizer treatments since 1998

All of the machines needed for crop production

Greenhouse facilities

Photometers

Kjeldahl analyzer

ICP - OES analyzers

Real Time PCR detection system (CFX 96 Touch™, BioRad Laboratories)

PCR Thermal Cycler (T100™, BioRad Laboratories)

Electrophoresis system

PAM- Fluorometer, Licor

Centrifuge

Microwave

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Basics in Plant Production (B.Sc)

Agronomy and Crop Science (B.Sc)

Breeding (BSc)

Biomass for Energy and Materials (B.Sc)

Organic Farming (B.Sc)

Fruit and Vegetable production (B.Sc)

Scientific and Experimental work (B.Sc)

Agronomy and Plant Nutrition (M.Sc)

Specific Agronomy and Breeding (M.Sc)

Production Chains in Fruit and Vegetable Gardening (M.Sc)

Renewable Raw Materials and Bioenergy (M.Sc)

Crop Ecology and Cropping Systems Analysis (M.Sc)

Practical researches in working groups (M.Sc)

Soil Use Systems in the Tropics and Subtropics (M.Sc)

Environmentally responsible Land Use (Remote study course)

Microbial diversity and activity in soil

Cropping and management strategies to increase/improve the microbial live in soil

Mixed cropping systems

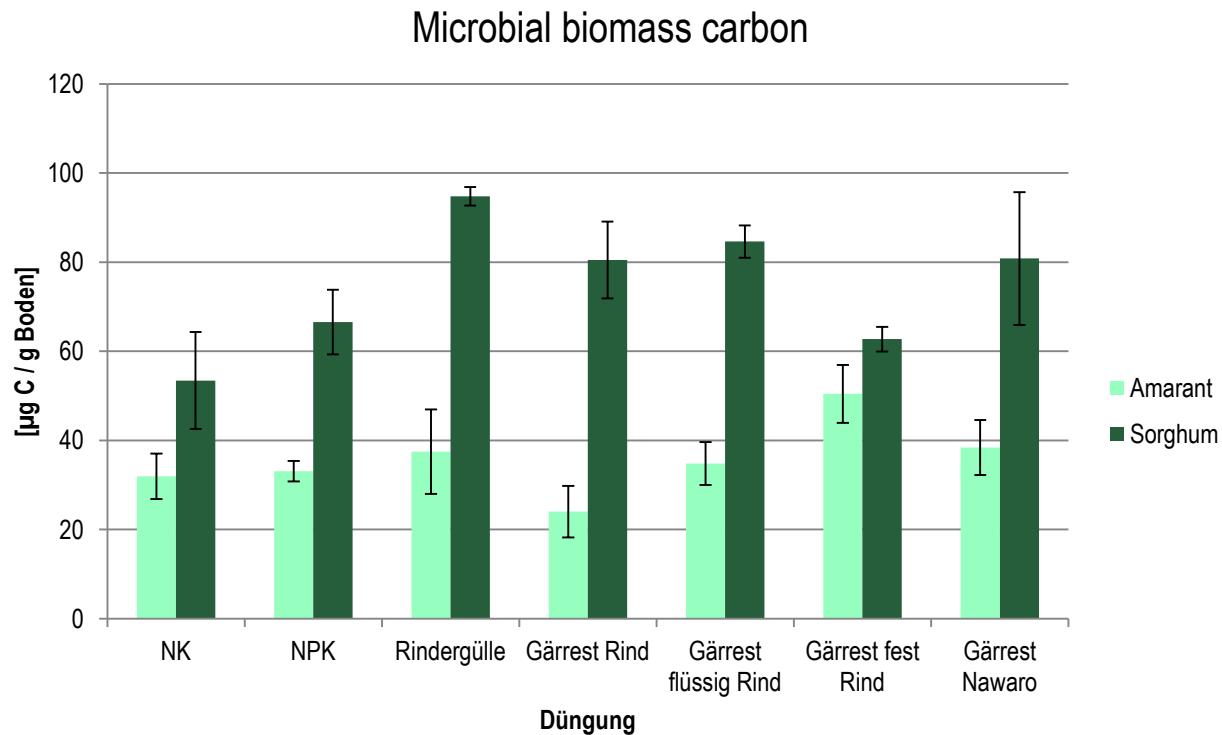
Complementary use of growing factors,
Higher stability of ecosystems

Vice-President for Internationalization, Gender and Diversity management



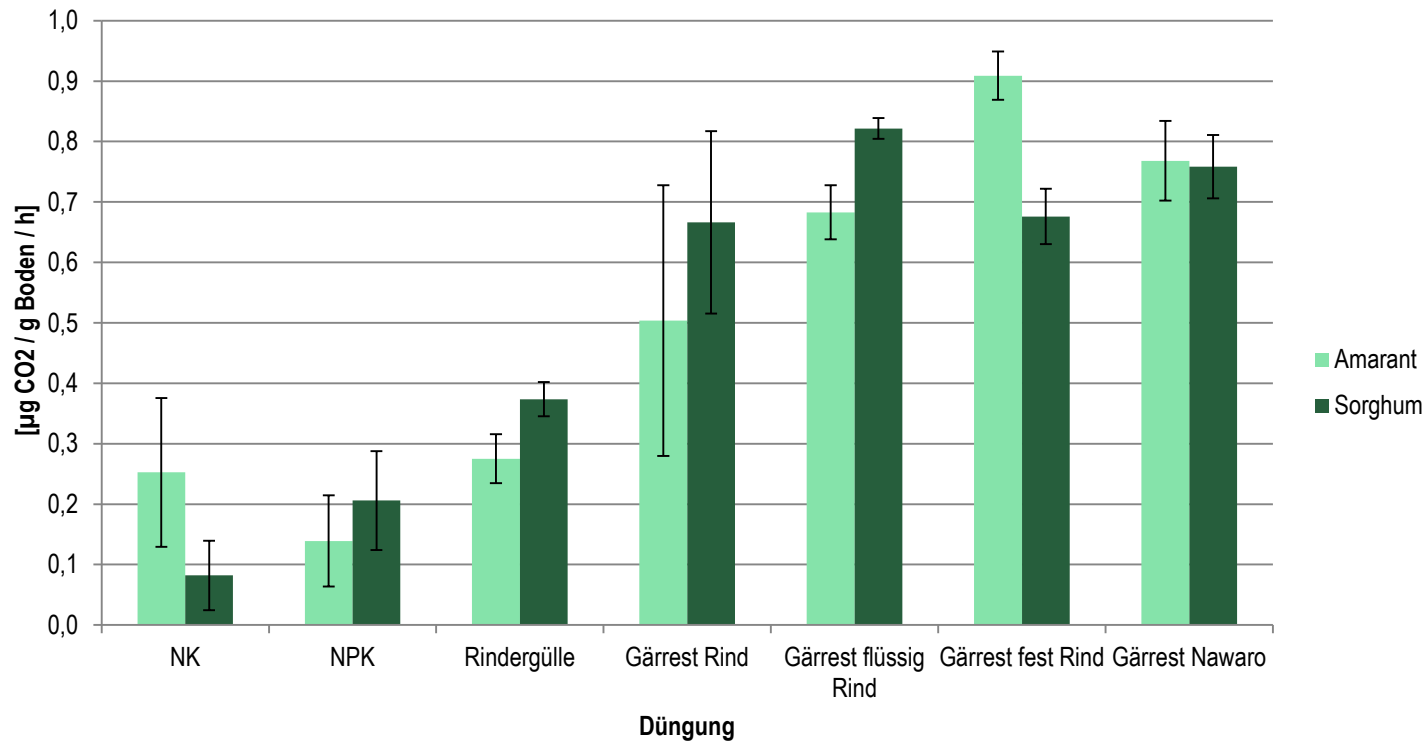
International Study and Exchange Programms
Internationalisation Strategy
ESF Scientific Mentoring
Female Professor Programm I and II
Family Friendly University
Diversity Commission

Microbial diversity and activity in soil



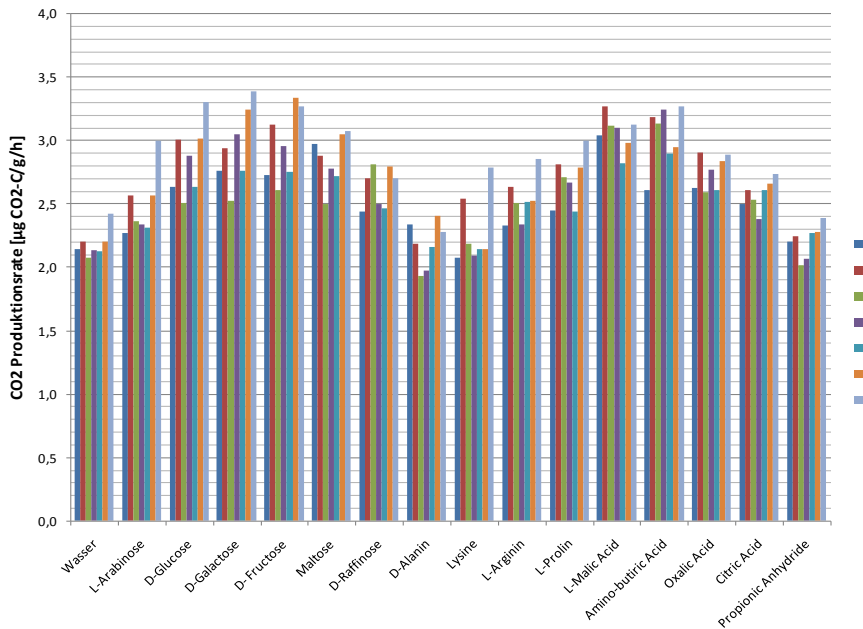
Microbial diversity and activity in soil

Basal respiration

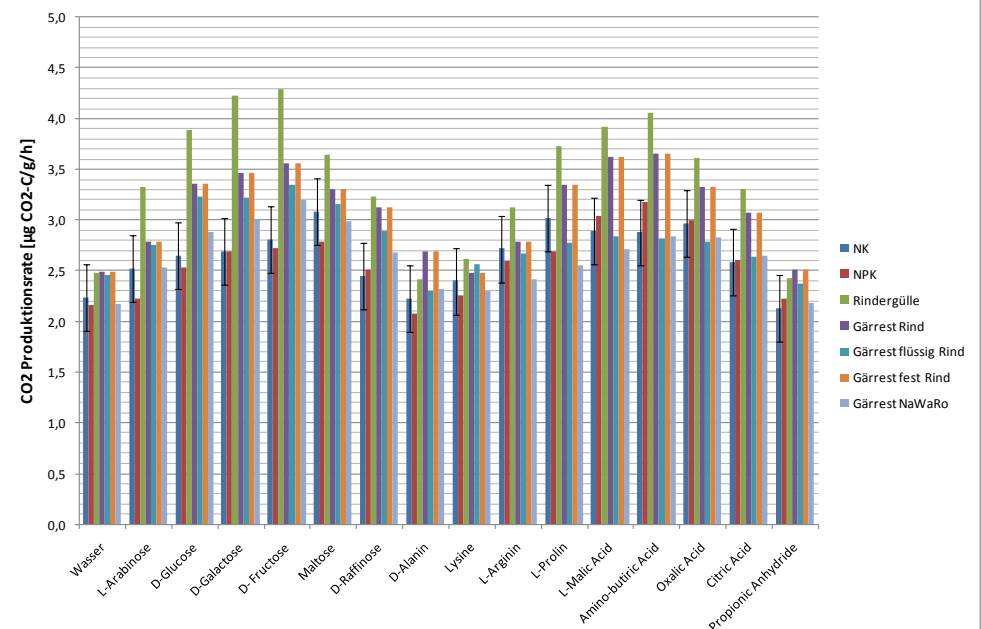


Microbial diversity and activity in soil

MicroResp mit 15 C-Quellen (Amarant)

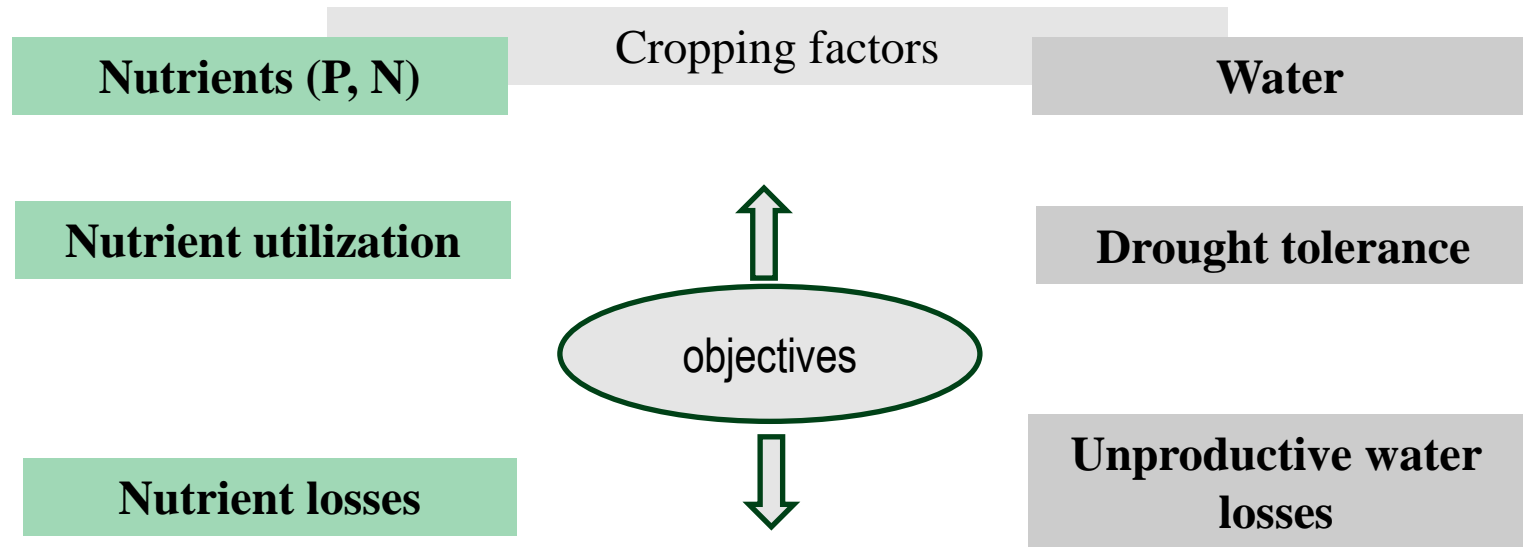


MicroResp mit 15 C-Quellen (Sorghum)





Mixed cropping Cereals/legumes



Greenhouse, Plastic tunnel and field experiments



Yields (dt/ha, DM), autumn 2013, selected treatments

	Without P	TSP /ash	Cattle manure	Biowaste compost	Compost + TSP
maize	119 a	125 ab	138 b	139 b	152 b
Maize + bean	128	125	130	134	133
Sorghum	120 a	134 b	131 ab	139 b	147 b
Sorghum + lupin	97 a	103 a	112 ab	111 ab	127 b

- Development of side adapted cropping systems for bioenergy production (Jana Peters, 2011)
- Use of biomass ashes for P supply in crop production (Katja Schiemenz, 2011)
- Effects of biogas slurries on soil fertility (Silvia Bachmann, 2013)
- Phosphorus nutrition with Phytine in combination with drought stress (Christine Brandt, 2013)
- Contribution of selected plant growth promoting rhizobacteria to maize phosphorus nutrition as influenced by organic matter management (Thomas Krey, 2014)
- Use of micro-organism (*Enterobacter radicincitans* and Mykorrhiza-fungi) for nutrient supply of plants (Malek Almethyeb - submitted)

- Genetic adaptation of sorghum (Sebastian Londono)
- Fertilization effects of residues of waste water treatment (Telse Vogel)
- Utilization of rock phosphates with microorganisms (Gina Al-Najjar)
- Mixed cropping with cereals and legumes and its effects on water and phosphorus efficiency in agriculture (Stefanie Busch)

Scientific staff members

Ralf Uptmoor (head)

Bettina Eichler-Löbermann (Associate Prof)

Claudia Matschgewski (Post doc)

Silvia Bachmann (Post doc)

Christine Brand (Post doc)

Stefanie Busch (PhD student)

Telse Vogel (PhD student)

Sebastian Londono (PhD student)

Malek Almethyeb (PhD student)

Waed Al Mohamad (PhD Student)

Ghina Najjar (PhD student)

Technical staff members

Sabine Jungerberg (Secretary)

Brigitte Claus (Administration, Lab)

Günther Breuel (Field Station, Lab)

Birgit Wego (Lab)

About 10 Master and Bachelor Students