

## CROP.SENSE.net seminar series on “Field phenotyping”

09.06.2015 to 17.06.2015

CROP.SENSE.net is an innovative and interdisciplinary network, which supports and encourages the use of modern sensor technologies for plant field phenotyping.



The intention of the seminar series is to demonstrate challenges and possibilities which are provided by modern, sensor based field phenotyping technologies. Lectures on soil and image analysis, experimental design and data management provide the theoretical fundamentals of this complex topic. We offer practical exercise on gamma spectroscopy, proximal soil sensing and root phenotyping (“shovelomics”).

### Intended audience

The lectures will primary oriented to Ph.D. students and early phase post-doctoral researchers with a background in agricultural science, biology or working in the field of plant phenotyping or precision agriculture. Furthermore, all scientists working in related fields are invited. Basic knowledge in plant phenotyping, sensor technology and data management are advantages.

### Conditions of participation

The lectures are free and without limit to the number of participants. The practical exercise on gamma spectroscopy, proximal soil sensing and root phenotyping are limited to 15 scientists, thus registration is needed. Also registration on the field trip to Siebeldingen is requested. The [registration](#) is open until **03.06.2015**.



REGISTRATION

### Participation fee

CROP.SENSE.net is financially supported by the Ziel2-Programm NRW 2007-2013 “Regionale Wettbewerbsfähigkeit und Beschäftigung” by the Ministry for Innovation, Science and Research (MIWF) of the state North Rhine Westphalia (NRW) and European Union Funds for regional development (EFRE). The lectures are free.

### Field trip to Siebeldingen:

- Takeover of travel expenses
- Accommodation expenses and meals are NOT included

### Contact

#### Content related questions:

Prof. Dr. Jens Léon ([j.leon@uni-bonn.de](mailto:j.leon@uni-bonn.de))

Prof. Dr. Uwe Rascher ([u.rascher@fz-juelich.de](mailto:u.rascher@fz-juelich.de))

#### CROP.SENSE.net Coordination Office:

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<http://www.cropsense.uni-bonn.de/veranstaltungen>

**Tuesday, 09.06.2015 – Soil characterization**

<b>Time</b>	<b>Theme</b>	<b>Lecturer</b>	<b>Place</b>
09:45 - 10:00	Welcome	Jens Léon	CKA Forum
10:45 - 12:15	Lecture: Soil heterogeneity at the field scale	G. Welp, S. Pätzold, INRES Soil Science	CKA Forum
12:15 - 13:00	LUNCH		CKA Forum
13:00 - 13:45	Lecture and practice: Gamma-spectrometry	G. Welp, S. Pätzold & T. Heggemann, INRES Soil Science	CKA Forum
13:45 - 14:00	BREAK		CKA Forum
14:00 - 15:30	Lecture: Introduction to proximal soil sensing	L. Weihermüller, Research Center Juelich	CKA Forum
15:30 - 16:00	Practice: Proximal soil sensing	L. Weihermüller, Research Center Juelich	CKA Forum
16:0 - 16:15	BREAK		CKA Forum
16:15 - 17:00	Lecture: Nuclear magnetic resonance spectroscopy, from soil to root	A. Pohlmeier; Research Center Juelich	CKA Forum
17:00 – open	Discussion		CKA Forum

**Wednesday, 10.06.2015 – Plant modeling**

<b>Time</b>	<b>Theme</b>	<b>Lecturer</b>	<b>Place</b>
09:00 - 09:45	“3D-Modelling”	S. Paulus; LemnaTec GmbH	Forum

**Thursday, 11.06.2015 - Statistics & Experimental design**

<b>Time</b>	<b>Theme</b>	<b>Lecturer</b>	<b>Place</b>
9:00 - 12:00	Data management & Software solutions	Svenja Diehl; Kenomx Data Solutions GmbH	Forum
12:15 - 13:00	LUNCH		Forum

13:00 - 14:00	“Formulating mixed linear mixed models for randomized experiments”	Hans-Peter Piepho; Institute of Crop Science, Universität Hohenheim	Forum
14:00 – 14:15	BREAK		
14:15 – 17:00	Discussion	Hans-Peter Piepho; Institute of Crop Science, Universität Hohenheim	HS V <sup>1</sup>
<b>Friday, 12.06.2015</b>			
12:00 – 13:00	“	Ali Naz; INRES Plant breeding	HS V
<b>Monday, 15.06.2015 - Roots, the neglected and complex hidden parts of plants (root phenotyping)</b>			
<b>Time</b>	<b>Theme</b>	<b>Lecturer</b>	<b>Place</b>
9:00 – 9:45		F. Hochholdinger; Crop Functional Genomics, Universität Bonn	HS IX <sup>2</sup>
10:00 – 10:45	Molecular Biology of the Rhizosphere	C. Knief, INRES Soil Science	HS IX
11:00 - 12:00	“Shovelomics for root phenotyping in the field”	T. Wojciechowski; Research Center Jülich	Seminar room
12:15 - 13:00	LUNCH		Forum
13:30 - 15:00	Practical training on shovelomics	T. Wojciechowski; Research Center Jülich	CKA

<sup>1</sup> Katzenburgweg 5, Bonn

<sup>2</sup> Meckenheimer Allee 172, Bonn (OG 3, R 3.004)

**Tuesday, 16.06.2015 - Trip to the institute for Grapevine Breeding, Siebeldingen**

<b>Time</b>	<b>Theme</b>	<b>Lecturer</b>	<b>Place</b>
9:00 - 12:00	Departure to Siebeldingen <sup>3</sup>		Geilweilerhof
12:30 - 14:00	Lunch	Catering Rebmann im Casino	Geilweilerhof
14:00 - 15:15	Welcome / Guided tour	Prof. Dr. Töpfer	Geilweilerhof
15:15 – open	Wine tasting	Prof. Dr. Töpfer	Geilweilerhof

**Wednesday, 17.06.2015 – Grapevine field phenotyping**

9:00 - 9:30	Phenotyping	Anna Kicherer	Conference room
9:30 - open	Sensor presentation	Anna Kicherer	
15:00	Departure to Bonn		



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<sup>3</sup> Julius Kühn Institute (JKI), Federal Research Centre for Cultivated Plants, Geilweilerhof