



NordPlant

NordPlant Newsletter December 2018

Christmas is fast approaching, but there is still time for the first official NordPlant newsletter, with information about past and upcoming events.

NordPlant Kickoff in Helsinki 24-25 October 2018

The NordPlant university hub was officially launched on October 24-25 at a 2-day conference in Helsinki. The first day was dedicated to plenary presentations about the participating facilities and the research activities of the groups participating in NordPlant. Kristiina Himanen (UHEL), Laura Jaakola (UiT), Aakash Chawade (SLU), Thomas Roitsch (UCPH) and Anna Maria Jönsson (LU) presented the phenotyping facilities available at their respective universities and presented results from their research. In addition, Roland Pieruschka presented the progress with the EMPHASIS-PREP as well work within EPPN, Lukas Spichal talked about high-throughput image-based shoot phenotyping in their facility in the Czech Republic and Shawn C. Kefauver talked on affordable phenotyping, among many others. The program and presentations are available at www.nordplant.org.

There was also an opportunity to tour the Finnish National Plant Phenotyping Infrastructure facility (NaPPI).



Demonstration of the large plant phenotyping system at NaPPI

In the evening there was a memorable conference dinner at the Viking-themed restaurant Harald. On the second day, there was a Focus Group session, where the activities of the first four NordPlant focus groups were discussed. The groups are described in more detail below. After that, a successful speed-dating session for scientists was held, where the participants were given the opportunity to discuss common interests and possible collaborations for 15 minutes per session, with no less than 87 requested one-to-one meetings.

Four NordPlant Focus groups formed

At the NordPlant kickoff meeting, the following focus groups were formed:

1. *Phenotyping methods in field, greenhouse, and cell physiology (UHEL)*: This group expressed an interest in a survey of needs from end users (farmers, breeders, students), with the goal of sharing knowledge and meeting educational needs. On the university level, a long-term goal would be to establish phenomics as a new discipline, where the students would study the topics that are already needed in the field. In addition, a research need is to establish a shared technological infrastructure.
2. *Data handling and integration related to phenotyping and modelling by integrated climate and phenomics data (UCPH/LU)*: The participants identified a need to educate Nordic scientists and students already today using plant phenotyping in their research and discussed how this should be done. The group agreed that it needs to be an iterative process where users and developers have

an active dialogue. It was also considered whether there were some specific needs for the Nordic countries with regard to standards, but the conclusion was that it foremost was important to align and link Nordic plant phenotyping research to already ongoing pan-European and global efforts in the area. In line with these thoughts, NordPlant is hosting an INRA-led workshop on plant phenotyping standards in Lund 29-30 April 2019

3. *Emerging and increasing plant pathogens and pests in the Nordic countries (SLU)*: The group members have discussed the possibility to write a review/summary article related to their respective subject area. The focus groups shall report back to the WP1 leader (Erik Andreasson) regarding activities, dissemination of findings and results. Possible subjects are emerging and increasing plant pathogens and pests in the Nordic countries, with the goal of collate, translate and compare recommendations from the respective authorities in each country.

4. *Abiotic stress relevant for future climate change in the Nordic countries (UiT)*: The participants in focus group 4 are primarily interested in cereals, grain legumes and other broad-leaved crops. One planned potential activity is to use the broad spectrum of expertise in the group to gather interested parties to write an opinion or review paper about the most abiotic stresses with a Nordic/Baltic focus with *Physiologia Plantarum* as a possible target journal. The group also discussed a PhD course/workshop combining environmental stress and phenotyping at Tromsø focusing on transportable phenotyping methods, as well as a workshop on metabolomics along with morphological phenomics with a special focus on how to integrate the various omics.

Facility in focus – The Biotron (SLU Alnarp, Sweden)

Located at the SLU campus in Alnarp in southern Sweden, [the Biotron](#) offers 24 climatized chambers of four different kinds - climate chambers, daylight chambers, greenhouse chambers for precision experiments and growth chambers for propagation of plant material. The climate chambers have high precision and accuracy on the control of temperature, humidity, artificial light and CO₂. Two of the chambers are equipped with LED lights from Heliospectra. The growth chambers are designated for research activities with less stringent demands on climatization, with control of temperature and light but not humidity and CO₂. The daylight chambers allow control of temperature, humidity and CO₂, with natural light, and the greenhouse chambers have functions for the control of temperature and air humidity. The facility is primarily designed for plant research, but can be used also for other areas of research with demands on access to climatized rooms, which allow a high degree of control and sanity.



The Biotron at SLU Alnarp

Svante Resjö is starting as administrative coordinator December 1, 2018

Since December 1, 2018, Svante Resjö is working as the administrative coordinator of NordPlant. Svante is a researcher at the Department of Plant Protection Biology at SLU Alnarp, working mainly with late blight on potato where he uses proteomics to study mechanisms of infection and resistance. Svante will work one day per week with NordPlant administration and coordination.



Svante Resjö

PhD fellowship/scholarship at Graduate School of Science and Technology, Aarhus University, Denmark - Phenotyping towards more resilient and sustainable crops

The project will focus on the effects of elevated CO₂ concentration and melatonin on cultivated and wild tomatoes at combined heat and drought from the perspective of photosynthetic responses, metabolism, genetic regulation (e.g. non-coding RNAs) and yield.

More information at <http://phd.scitech.au.dk/for-applicants/apply-here/february-2019/phenotyping-towards-more-resilient-and-sustainable-crops/>

Workshop on phenotyping standards in Lund 29-30 April 2019

This is a 1 1/2 days introductory workshop hosted by NordPlant and INRA on data standards for plant phenotyping led by Célia Michotey (INRA). It will be held 29-30 April in Lund and is open for maximum 20 participants. Employees at the five NordPlant university have priority, but a number of places are also reserved for researchers at other Nordic Universities.

To register please send an email to [Erik Alexandersson](mailto:Erik.Alexandersson@nordplant.org) including a short motivation why this workshop would benefit you. It is open to PhDs, post docs, university staff and researchers.

Preliminary outline

Day 1 morning

- General overview of the standards for phenotyping studies
- Presentation of the MIAPPE standard, used to describe trial studies (<https://www.miappe.org/>)
- Presentation of the cropontology standard, ontologies used to define observations made in the trials (<http://www.cropontology.org/>)
- Presentation of an ontology for forest trees: the “Woody Plant Ontology” (https://urgi.versailles.inra.fr/ontologyportal.do#termIdentifier=CO_357)

Day 1 afternoon:

- Hands-on session: each participant bring a relevant dataset of its phenotyping data and try to use the presented standards to describe it
- Wrap-up of the hands-on session

Day 2 morning

- Examples of data management, advantages of using standards (with an evocation of the BrAPI standard, <https://brapi.org/>)
 - Conclusions of the workshop
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NordForsk supported Nova PhD course 10-14 June 2019

The changing climate demands developing faster breeding methods to provide effective solutions for the future agriculture. This course series aims to introduce the emerging research fields of high throughput plant phenotyping used for plant-environment interactions from highly controlled environments to field conditions, in combination with omics technologies including bioinformatics and R-computing.

The course is of 5 ECTS and is organised by Kristiina Himanen, University of Helsinki, Faculty of Agriculture and Forestry.

The course is the second course in the NOVA PhD course series Phenotyping Technologies in Plant-environment Interactions which is scheduled for 2018-2021.

The course will take place on 10-14 Jun. 2019, in Helsinki, Finland.

1st call deadline: 15 Feb. 2019. Final registration: 1 May 2019.

More information and how to apply [here](#)

Students from NordPlant universities outside NOVA (i.e. UCPH, UiT and LU) can apply for course waiver

Site visit to INRA-Montpellier

One important mission for NordPlant is to better connect with plant phenotyping facilities and already ongoing efforts around plant phenotyping and modelling in Europe. As part of this drive NordPlant's steering committee will visit [INRA Montpellier in March and their plant research platforms](#) to look at solutions and discuss standards and future research.

Next NPPN field day 25 June - save the date

Next year's annual NPPN (Nordic Plant Phenotyping Network) field day will take place at SLU Alnarp with support from NordPlant. The full program will be announced in the spring, but please mark your calendars already now!

The Specalyzer tool – new NordPlant publication out

Spectroradiometer measurements generate large amount of data that requires pre-processing prior to analysis. In this publication Alexander Koc, Tina Henriksson and Aakash Chawade developed an interactive online tool called Specalyzer to assist in pre-processing, outlier detection and estimation of over 120 vegetation indices from the hyperspectral data. Specalyzer can be accessed online at www.specalyzer.org.

Koc, A., Henriksson, T., & Chawade, A. (2018). [Specalyzer – an interactive online tool to analyze spectral reflectance measurements](#). PeerJ, 6(e5031), 1–14.

And finally, Seasons Greetings and all the best for 2019!



Christmas tree photographed by [Malene Thyssen](#)

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