



Eleventh Annual Report

July 2021 - June 2022

PlantLink is a network platform for plant science in Southern Sweden. It was formed in 2011 as an alliance between Lund University (LU) and the Swedish University of Agricultural Sciences in Alnarp (SLU Alnarp) with initial support from the Skåne Regional Council (Region Skåne). Our ambition is to stimulate, unite and promote plant research and higher education in the region.

PlantLink wants to bridge the gap between basic and applied plant research with the objective to provide plants as part of a sustainable plant production for healthy food, future climate, medication, energy and new green materials. PlantLink gathers around 40 research groups and provides a platform for interactions between industry and universities in Southern Sweden and Denmark.

PlantLink strives to increase the interest and competence in plant science through education and information. Our goal is to create an environment that excels plant research and innovation and that leads to dynamic interactions between the universities, private companies and the general public.

Research

PlantLink Focus Areas

- Plant Breeding and engineering
- 'Post-harvest' – quality and new products
- Abiotic stress
- Biotic interactions
- Modelling and informatics
- Plants, People and Society

Major research projects associated with researchers in PlantLink

- C4F
- CropBooster-P
- ELLS iPBL
- EMPHASIS
- ERASMUS+ ESCAPAdE
- MSCA-ITN PROTECTA PhD program
- NordPlant (NordForsk)
- Resilient Northern Crop Network - Nord-Crop (NKJ)
- ScanOats (SSF)
- SLU GroGrund
- STEPS (Mistra)

PlantLink – an increased focus on plant food systems

PlantLink aims to have an increased role as an interdisciplinary platform where different actors of society work for the development of sustainable plant food systems, from farm to fork. Therefore, we will contribute to sustainable agriculture, food production and consumption. This may concern crops for food and sustainable production of raw materials, new production technologies, consumer products, analysis and measuring methods, equipment, production and process control methods, meal solutions and suchlike. PlantLink works actively to ensure that research outcomes are utilised to help solving the challenges that society faces.

A closer cooperation between PlantLink, the industry and different actors of society is, therefore, of primary importance for achieving this aim. We will continue our support for research in the region, increasing also our network with international partners. Look forward to seeing what our next activities bring!

The PlantLink Team

PlantLink's new director!

Federico Gómez, professor at the Department of Food Technology, Engineering and Nutrition, is since 1 July 2022 the new director of PlantLink!

He has a background in food processing and the application of electrotechnologies. Plant-based food and alternative proteins are on the top of his research interests. He has also worked with food product development together with students. Since his time as a PhD student he has had a keen interest on the influence of plant stress physiology on food processing operations.

The former PlantLink director Erik Alexandersson takes the position as assistant director from 1 July 2022.



NordPlant and PlantLink supported publications 2021-2022

- Darwish, E., Ghosh, R., Ontiveros-Cisneros, A., Tran, H. C., Petersson, M., De Milde, L., ... & Van Aken, O. (2022). Touch signaling and thigmomorphogenesis are regulated by complementary CAMTA3- and JA-dependent pathways. *Science Advances*, 8(20), eabm2091.
- Grimberg, Å., Saripella, G. V., Valencia, R. A. M. R. C., Bengtsson, T., Alandia, G., & Carlsson, A. S. (2022). Transcriptional Regulation of Quinoa Seed Quality: Identification of Novel Candidate Genetic Markers for Increased Protein Content. *Frontiers in plant science*, 13.
- Snell, P., Wilkinson, M., Taylor, G. J., Hall, S., Sharma, S., Sirijovski, N., ... & Grimberg, Å. (2022). Characterisation of Grains and Flour Fractions from Field Grown Transgenic Oil-Accumulating Wheat Expressing Oat WRI1. *Plants*, 11(7), 889.
- Jammer, A., Akhtar, S. S., Amby, D. B., Pandey, C., Mekureyaw, M. F., Bak, F., ... & Roitsch, T. (2022). Enzyme activity profiling for physiological phenotyping within functional phenomics: plant growth and stress responses. *Journal of Experimental Botany*.*
- Melmann, J. A., Dalmanndottir, S., Hykkerud, A. L., Hytönen, T., Samkumar, A., & Jaakola, L. (2021). Influence of Arctic light conditions on crop production and quality. *Physiologia Plantarum*, 172(4), 1931-1940.*
- Samkumar, A., Karppinen, K., McGhie, T. K., Espley, R. V., Martinussen, I., & Jaakola, L. (2022). Flavonoid biosynthesis is differentially altered in detached and attached ripening bilberries in response to spectral light quality. *Frontiers in Plant Science*, 2529.
- Karppinen, K., Lafferty, D. J., Albert, N. W., Mikkola, N., McGhie, T., Allan, A. C., ... & Jaakola, L. (2021). MYBA and MYBPA transcription factors co-regulate anthocyanin biosynthesis in blue-coloured berries. *New Phytologist*, 232(3), 1350-1367.*
- Olsson, P. O., Vivekar, A., Adler, K., Garcia Millan, V. E., Koc, A., Alamrani, M., & Eklundh, L. (2021). Radiometric correction of multispectral uas images: Evaluating the accuracy of the parrot sequoia camera and sunshine sensor. *Remote Sensing*, 13(4), 577.*
- Samkumar, A., Karppinen, K., Dhakal, B., Martinussen, I., & Jaakola, L. (2022). Insights into sugar metabolism during bilberry (*Vaccinium myrtillus* L.) fruit development. *Physiologia Plantarum*, 174(2), e13657.*
- Pandey, C., Großkinsky, D. K., Westergaard, J. C., Jørgensen, H. J., Svendsgaard, J., Christensen, S., ... & Roitsch, T. (2021). Identification of a bio-signature for barley resistance against *Pyrenophora teres* infection based on physiological, molecular and sensor-based phenotyping. *Plant Science*, 313, 111072.*
- Gao, J., Westergaard, J. C., & Alexandersson, E. (2021). Computer Vision and Less Complex Image Analyses to Monitor Potato Traits in Fields. In *Solanum tuberosum* (pp. 273-299). Humana, New York, NY.*

**NordPlant supported*

New and better communication

How to transform PlantLink with its unique extensive plant science network into something more vibrant? How to fulfil its potential? We want to make PlantLink more:

- visible
- up to date
- attractive to interact with

To achieve this, a brand-new LinkedIn page has been created (make sure to follow us!), now having more than 200 followers. To fasten the communication among our members, a Slack channel has been started. Currently, 84 members are actively exchanging information in calls for proposals, job offers and upcoming events and meetings. Our Facebook webpage got a new facelift along with 300 more followers. In two months of its active existence, 11 posts were created, with Fascination of Plants Day being the most successful one, reaching 1,305 people. Twitter has been the most active social media tool so far, and the numbers of followers are still rising. The backbone of our platform is still the PlantLink webpage. By increasing the social media activity, we improved the visibility as well as the network traffic. There are a few more ideas on how to enrich the content – stay tuned!

Anna Maňourová, our new coordinator!

Anna is a PhD student at the Faculty of Tropical Agri-Sciences, Czech University of Life Sciences, Prague and a member of expert group on development aid projects at Mendel University in Brno.

Her major interest is in tropical agriculture, mainly crop diversification, tree domestication and ethnobotany. She enjoys working directly in the field, the epicentre, and finds herself lucky to get life lessons from several work trips to Cameroon, Ethiopia and Zambia.

Experiencing different roles in scientific, development-aid and capacity-building projects, she values communication and networking as the key tools to any success!



Education

PhD Education

The cooperation between the LTV faculty and the Post Graduate Courses in Life Science (PCLS) at Lund University is now well established and continued for a sixth time during the autumn 2021, giving PhD students at SLU Alnarp full access to about 15 PhD-courses in molecular biology at Lund University.

Master studies

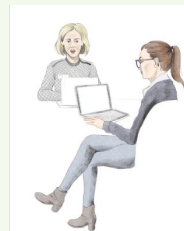
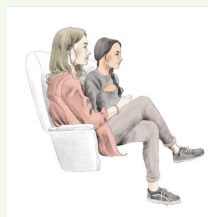
An MSc summer school within ELLS (Euroleague for Life Sciences) and ESCAPAdE „Host Plant Resistance Breeding as a part of Integrated Pest Management“, 3.0 ECTS, was hosted 17-21 August in Alnarp. 34 students attended. This summer school was a joint effort between ELLS subject areas 'Plant Molecular Breeding and Biotechnology' and „Plant Health“. During the fall of 2021 PlantLink continued its support to the ELLS iPBL project which had the aim to initiate project-based learning (PBL) competitions at three different ELLS universities: BOKU, CZU and SLU. The first prize is for MSc students to travel to the ELLS student conference in Prague in September 2022. As part of this PlantLink hosted Anna Maňourová (CZU) in an ERASMUS exchange during 2 months. The subject areas „Plant Breeding and Biotechnology“ and „Plant Health“ were formed on initiative of PlantLink and includes all six ELLS universities.

ESCAPAdE job fair

Erasmus+ ESCAPAdE three-year project came to an end with an MSc course and multiplier event in the form of a lunch-to-lunch job fair in August 2021. Almost 200 persons joined the event "Job Perspectives in Applied Plant Sciences" co-organized by PlantLink and held as a hybrid meeting at SLU Alnarp and online. The main focus of this event was the job market for plant scientists outside of academia, but it also contained a

session called "how about a PhD?".

We warmly thank our sponsors SPPS and the LTV faculty at SLU. And of course all our speakers and company representatives, and the ESCAPAdE representatives for a fruitful collaboration!





Budget and organization

PlantLink had a budget of 1,3 million SEK over the year, with SLU and LU contributing ca 0,5 million SEK each. From July 2021 to June 2022 the total salary costs were 1 million SEK. Positions funded were one PlantLink director position (20-35%), one PlantLink assistant director position (0-15%), one PlantLink assistant (0-10%) one PlantLink coordinator (50%), one NordPlant coordinator (10-15%) and one NordPlant administrator (10-15%). Other costs include information and outreach events, seminars, website and travels. NordForsk funding contribute with 125,000 SEK/year for coordination of the project NordPlant.

PlantLink Personnel 2021-2022

Erik Alexandersson (director until 30 June 2022)

Federico Gomez (director from 1 July 2022)

Sofia Marmon (coordinator until 1 March 2022)

Anna Mañourová (coordinator from 20 April 2022)

Steering committee, 2021-2022

Thomas Moritz, University of Copenhagen,
chair

Erik Andreasson, SLU

Mariette Andersson, SLU

Jean Yong, SLU

Leif Bülow, LU

Rajni Hatti-Kaul, LU

Allan Rasmusson, LU

Alf Ceplitis, Lantmännen Lantbruk

Jenny Bergsten, Region Skåne (until March 2022)

Karl Magnus Adielsson, Region Skåne (from April 2022)

Linnea Stridh (until Oct 2021), PhD representative, SLU

Johanna Osterman, (from Nov 2021), PhD representative, SLU

Abraham Ontiveros Cisneros, PhD representative, LU

Permanent observatory member:

Svend Christensen, University of Copenhagen

Steering committee meetings

30 August 2021, Alnarp

6 December 2021, Lund

2 March 2022, Alnarp

24 May, 2022, Lund



Outreach

Social media

PlantLink has continued its extensive work with social media to spread plant science news, information, and upcoming events. On Twitter, we have more than 1500 followers representing many important actors in plant science. Over 2500 people like our Facebook page. More on social media on page 3. Nine newsletters are distributed per year and our homepage (www.plantlink.se) carries information on PlantLink's work and structure, associated researchers, relevant courses etc.. Since 2018 we administrate NordPlant's new homepage (www.nordplant.org) and bi-annual newsletter.

Interactions

PlantLink interacts with several partners. Our collaboration with PLEN at the University of Copenhagen continues. We have dialogues with The Linnean Centre for Plant Biology, Umeå Plant Science Center, EPSO (for which we pay the fees for LU and SLU Alnarp), EMPHASIS and CropBooster- P. In collaboration with "Vetenskap i Skolan" (ViS) 1 high school student did a summer internship in 2021 related to plant research visiting Alfredo Zambrano at ScanOats. Together with ESCAPAdE, we hosted a job fair at SLU Alnarp in August 2021, which attracted close to 200 attendees in place and online.

PlantLink turned 10 years!

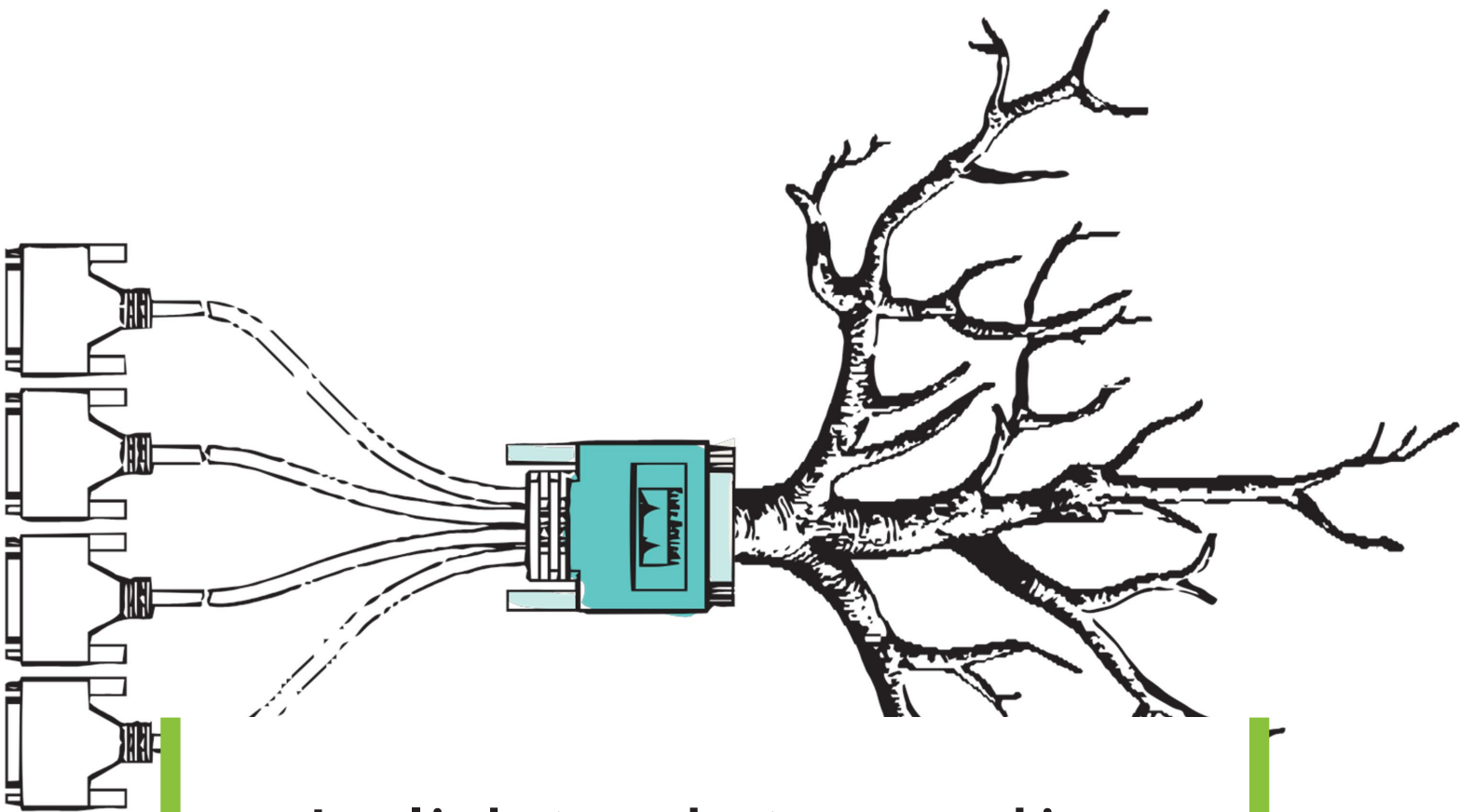
Last autumn we celebrated 10 years of PlantLink with a special annual day summing up the last 10 years as well as looking forward with a focus on plant research. With keynote speakers from Utrecht University, Maastricht University and Kew Gardens the day truly lived up to the to our new motto, that was developed as part of the 10 year celebration:

PlantLink – strengthening plant research, education, and innovation in Southern Sweden for a sustainable society

Read more about our new director Federico Gomez' visions for the future of PlantLink under "PlantLink – an increased focus on plant food systems", on page 2.



Due to the pandemic regulations, only a limited number could attend the 10 year celebrations in place 27 September at Kulturén in Lund, but there was a large crowd online!



Local industry and entrepreneurship

Several of PlantLink's research activities are in close collaboration with local businesses, related to plant science. In fall 2021 a fifth round of the PlantLink industrial mentorship program was initiated. This time with 7 mentor-mentees couples. NordPlant engages Nordic companies by arranging company tech corners during the annual days and through SLU Holding producing a survey of Swedish companies using AI for agriculture. Our support paying the memberships for SLU Alnarp and Lund University in the Plant Biologicals Network Southern Scandinavian (PBN) continues.

PlantLink events 2021 - 2022

(number of attendees in brackets)

- ELLS and ESCAPAdE MSc summer school, Host Plant Resistance Breeding as a part of Integrated Pest Management, 3.0 ECTS, 17-21 August in Alnarp (34)
- ESCAPAdE and PlantLink JobFair, 23-24 August, Alnarp and online (190)
- PlantLink Day and 10 year celebrations, 27 September, in Lund and online
- NordPlant Annual Meeting, 25-26 November, Tromsö and online
- 5th round of PlantLink Industrial Mentorship Programme with two meetings and an end visit to Copenhagen Plant Science Center, 18 March, 2022 (14)
- Advancement of biofortification and tropical crops, online 5 May 2022
- Launch of SLACK channel and re-launch of LinkedIn (May 2022)
- Fascination of Plants Day 18 May 2022 in Lund (40)



Our panel discussion led by journalist Peter Sylwan during the Fascination of Plants Day

Upcoming events 2022

- **PlantLink Day**, 5 October in Alnarp
- **Centennial anniversary of the ecotype concept: the legacy of Göte Turesson**, 29 November in Lund
- **NordPlant annual meeting: Envirotyping for plant breeding and precision agriculture**, 30 November in Lund

Contact and more information

Follow us on Facebook and Twitter to get continuous updates from PlantLink.
For more information check our homepage: www.plantlink.se

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