



Collaboration between agriculture and forest science will strengthen Nordic research in bioeconomy. Photo: Mats Hannerz, Montage :Filip Hannerz

Four new cross-sectoral networks will strengthen Nordic bioeconomy research

Last year, SNS (Nordic Forest Research) and NKJ (Nordic Joint Committee for Agricultural and Food Research) launched a joint call for cross-sectoral networking between researchers and stakeholders from the agricultural and forestry sectors. The overall aim of the networks is to encourage a transition towards a bio-based economy in the Nordic region.

The call listed topics where both sectors could cooperate to create synergies. Some examples were: use of recycled material, application of fertilisers, reproduction of plants, refining bi-products from biomass, land-use issues such as food versus

biomass production, and bioenergy.

Four out of 11 network proposals were successfully granted funding. The networks started up in 2015 and we introduce them on the following pages: →

Biofibre research is one example where cross-sectoral networking will strengthen both the forestry and agricultural sector. Photo: Danish Technological Institute.



“Cross-sectoral” is defined by the Oxford Dictionaries as “Relating to or affecting more than one group, area, or section”.

Cross-sectoral is also a current buzzword in research funding. The idea is to create synergies by blending competences and ideas from various research fields.

1. “Fiber Ties” brings together biofibre developers

Wood fibres have the potential to be exploited far beyond their traditional use in construction, furniture and paper. Numerous groups in the Nordic and Baltic region work with biobased fibres from different plants. Bringing experience together, new opportunities for fibre use can emerge.

The idea behind this network is to merge competences and ideas from different sectors working with biobased fibres; such sectors include the wood industry, wood research, biomass research, agricultural production and by-streams, and industry related to agriculture. The collaboration may open up the introduction of plant fibres into new areas of use and constellations previously unthought-of.

The intention of the project is not only to exchange knowledge

and come up with new applications for further research, but also to strengthen and position Nordic research and innovation in relation to the production and use of fibrous materials in Europe. The project runs for two years and includes partners from Denmark, Sweden, Norway, Finland and Wales (UK).

The network has, so far, held a two day symposium in Denmark. A follow-up meeting will be arranged in spring 2016.

Project title: Fiber Ties – the use of fibrous materials for biomass.

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Project homepage: <http://www.teknologisk.dk/fiberties/nordic-network-on-biofibers/36324>



“A number of bio-fibres such as hemp, bamboo and cotton are produced and handled on an industrial scale, but there remain numerous plant materials for which this development is possible.”
Anne Christine Steenkjaer Hastrup.

Photo: Danish Technological Institute.

2. Modelling of the impact of land use strategies

Increased use of biomass from agriculture and forests is necessary to achieve a green economy. But, what are the consequences for food production, biodiversity and emissions of carbon dioxide of using more feedstock from agriculture and forests? Through better modelling, based on knowledge from different sectors, this project will enhance the reliability of various calculations.

Choices about the best use of land are key both at a national and EU-level. Modelling is one tool that can allow us to assess the impact of different land use strategies. The issue is complex, and there is an urgent need to bring together experts from different sectors to map existing competencies, identify synergies and gaps and lay a foundation for future research cooperation and common research activities within this field.

This project will assemble researchers in forestry and agriculture from the Nordic countries in workshops and a symposium to promote further collaboration. The aim of the project is to contribute scientific input to policy formation and societal discourse regarding sustainable use of biomass through improved modelling.

The project runs for two years and includes partners from Denmark, Finland, Norway and Sweden.

Project title: Sustainable production of biomass – a sectorial perspective.

Project leader and contact: Professor Ljusk Ola Eriksson. Department of Forest Resource Management, SLU, Sweden.
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“By mapping available competences and current and future activities, a basis is established with the potential for improvement in several impact-related parameters.”

Ljusk Ola Eriksson.

Photo: Mona Bonta Bergman.

3. Effects of bioenergy production on ecosystem services

Both the forestry and agricultural sector are important for providing society with bioenergy. A great deal of work has been done in assessing impacts of bioenergy harvest on ecosystem services such as carbon sequestration, water regulation and biodiversity. There has, however, been little contact between experts in different sectors.

This project will examine potential synergies and aims to build bridges between agricultural and forestry experts. Many environmental processes, such as hydrology, water quality and biological diversity, operate over large scales. Thus, there is a need to address a broad perspective with respect to bioenergy production and extraction and to include multiple sectors. The aim of this project is to create a network of scientists from the forest and

agricultural sectors to cooperate regarding these issues.

Exchange of information, two workshops and joint cross-sectorial scientific papers are some of the expected outcomes from this project. The network involves scientists from all the Nordic countries and Baltic countries, all addressing this urgent issue.

The project runs for two years and includes partners from Denmark, Sweden, Norway, Finland, Iceland, Estonia, Latvia and Lithuania.

Project title: Effects of bioenergy production from forests and agriculture on ecosystem services in Nordic and Baltic landscapes.

Project leader and contact: Dr. Nicholas Clarke. Norwegian Forest and Landscape Institute, Norway. Nicholas. clarke@skogoglandskap.no



“By comparing scientific results we may, for example, find out what differences in ecosystem type and variation, and differences in climatic and topographical conditions are important for solving the challenges with respect to ecosystem services.” *Nicholas Clarke. Photo: Erling Floistad*

4. Oomycete diseases in forestry and agriculture

Plant pathogenic Oomycetes, including those of the genus *Phytophthora*, cause billions of dollars in losses every year to agriculture and forestry worldwide. Some of these species have spread to the Nordic countries, causing disease in agriculture and forest ecosystems. A network initiated by Nordic scientists is working on control of the spread of invasive Oomycete species and a symposium to address the issue is being organised.

International trade, climate change and rapid pathogen adaptation to new environments has facilitated the spread of new invasive Oomycetes, such as *Phytophthora spp.*, to the Nordic region. The problems caused by pests and pathogens are a major bottleneck for increased production and sustainable production in forestry and agriculture. Scientists from both forestry and agriculture need to be

involved in controlling such pathogens.

An Oomycete Molecular Genetics Network meeting will be held in June 2016 addressing the issue through exchange of information, initiating new research collaborations, providing a platform for dissemination of results and to link Nordic activities to a wider goal platform within this field. Environmentally sustainable disease control, reducing chemical pesticides is to be encouraged.

The project runs for one year and includes partners from Sweden, Norway, Finland and Denmark. Collaboration has also been established worldwide.

Project title: The Nordic network for pathogen-informed control of Oomycete diseases in forestry and agriculture.

Project leader and contact: Ass. Prof. Laura Grenville-Briggs. Dep. of Plant Protection Biology, SLU, Sweden. laura.grenville.briggs@slu.se



“For the first time, our network will bring together researchers in diverse areas of forestry and agriculture that face similar problems and threats to crop and biomass production. Our new methods of biological control are also widely applicable to both sectors.” *Laura Grenville-Briggs. Photo: Private*

Shortcuts

Finland

Chanterelle cultivation on its way

The Aalto University in Finland has succeeded in producing mycelium of the chanterelle mushroom – a culinary delicacy – under laboratory conditions. Dr Salem Shamekh believes that the methods could be used by forest owners to increase the crop of chanterelles. The work on mushroom cultivation takes place at the Juva Truffle Center in eastern Finland.

Read more: forest.fi

Finland

Forests younger than expected

Researchers at Luke have found that tree age has been overestimated in Finland. In inventories, age is estimated by counting tree rings at breast height. Total age is then derived by adding the time it takes for a seedling to reach breast height. This time has previously been based on data from the 1920s to 1940s collected in uneven-aged, naturally regenerated forests. New estimates using field data collected in the 1970s to 1980s show that the actual time to achieve this height is less; a couple of years in southern Finland and over 10 years in the northern part of the country. The new function for calculating age will be used in managed production forests in Finland.

Read more: www.luke.fi

Norway

Catching pine sawyers with pheromone traps

Longhorn beetles of the genus *Monochamus* may be vectors for the dreaded pinewood nematode (*Bursaphelenchus xylophilus*), which causes pine wilt disease. The nematode has not yet spread to the Nordic countries, but authorities are aware of the risk. One method for preventing invasion is to monitor and combat the pine sawyer, the

beetle that spreads the nematode. Pheromone traps are now used in Norway to catch beetles and search for nematodes in them. So far, very few nematodes have been found. The method is quicker and more efficient than searching for nematodes in wood samples.

Read more: www.nibio.no

Denmark

First Christmas with local greenery in Greenland

The arboretum in Greenland has, for the first time, harvested greenery – decorative branches – for local use. Greenland has previously relied on imported Christmas trees

and greenery. The arboretum in Narsarsuaq was established in the late 1970s, and is now sufficiently well-established to support this harvest.

Read more: www.ign.ku.dk

Greenery harvest from spruces in the Greenland Arboretum. Photo: Kommune Kujalleq



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