

# Nordic researchers team up to increase the use of plant biomass

**To fight climate change, it is necessary to replace fossil resources with renewable ones. One part of this effort is to increase the use of plant biomass such as wood for materials, chemicals and liquid fuels. Researchers in Scandinavia need to combine their expertise to facilitate this development.**



The Nordic countries have large forest resources as well as high intensity agriculture. As climate change is taking grip on our present and future, humankind needs to seriously step up the use of renewable, plant-based resources for materials, chemicals and fuel.

Plant growth binds CO<sub>2</sub> from the atmosphere and stores it in the tissues produced, which implies that by replacing more energy demanding building materials like for example concrete and steel with wood, CO<sub>2</sub> can be taken out of the atmosphere as long as the material is not degraded or combusted. Likewise, when using for example straw as a raw material for biorefining into chemicals and fuel, it can replace oil. By using our own resources instead of importing for example wood pellets from other continents, CO<sub>2</sub> emission connected with transport can be reduced.



Also, having production take place in the region makes it less difficult to make sure the primary production is carried out sustainably with due consideration for biodiversity and protection of ground water.

Further, all Nordic countries struggle to keep all parts of their countries attractive and populated also by younger people. Production of wood and straw requires labor also in regions far from bigger cities, and may help in this endeavor.

To increase the use of plant material more knowledge is needed. Specifically, knowledge about how exactly the plant cell walls are degraded by microorganisms and which conditions speed up or slow down this process. The reason is that this knowledge is needed two-fold: both for protecting wooden structures against decay while still in service, and for overcoming the build-in resistance of the tissue to decomposition when trying to free up the molecular building blocks to be used for chemicals or liquid fuels via biorefining.

In the Nordic countries, small research groups exist, each with different expertise within the field. The network helped these groups get to know each other better and to map their synergy potential, leading to several common research proposals being submitted, and with more on the drawing board. The network also helped young researchers in the field learn relevant advanced experimental tools, which is expected to also boost the development in future years.

The activities of the network showed that there is a high interest and potential in the Nordic countries to pursue research within this area, and that the small, specialized research groups that exist have the potential to propose highly relevant and scientifically well-founded projects when combining their efforts. In a time where national research funding is becoming more scarce, thus putting pressure on individual national research groups, the outcome of the network illustrates the importance of availability of Nordic and other regional funding opportunities that allow researchers to focus their own research but at the same time create synergy via collaboration.