

Call text – Bioenergy and green materials 2023

The encompassing goal is to support research which, by utilizing all of the potentials in the entire agricultural process chain, contributes to a more bio-based society. In addition to a strong focus on grains the raw material base also includes pulses and forages. The Foundation's specific priorities for autumn 2023 are described below. If you have an idea for a project, we are happy to discuss choice of materials and processes before you file your application.

Bioenergy and biorefineries of the future



Energy and fuel components derived from environmentally smart and green sources are necessary to achieve a fossil free agriculture and society 2050. Our goal is to create a project portfolio with the aim of both improving existing products and developing new energy products, preferentially using new raw materials and/or production processes.

Current research areas:

- Renewable components* that can replace fossil based ingredients in use today in e.g. alkylate petrol, more specifically renewable/green iso-octane/alkylate, isomerate, butane and naphtha.
- Renewable fuels for agricultural machinery that preferably can be used in today's diesel engines without modification.

*Currently it is important that these do not contain oxygen due to applicable technical standards.

Green materials and biochemicals



Lantmännen's biorefineries and mills produce a wide range of products and byproducts based on oats and wheat which have huge potentials for development into fossil free materials and chemicals such as binders, oils, fuel components and packaging material.

Current research areas:

- Next generation ester-based bio-oils for use in agriculture and forestry.
- Bio-based and degradable lubricants.
- Starch's potential as a base for green materials (e.g. bioplastics) and bio-based chemicals with a particular focus on starch-based glue.
- The potential of bioethanol as a raw material in green materials and bio-based chemicals.
- Renewable components as starting materials for next-generation's chemicals and materials.
- Recyclable and environmentally sustainable packaging materials for, primarily, grain-based foods.
- Novel application areas for: diverse fiber rich fractions such as wheat bran and oat husks, and spent grains, biogenic carbon dioxide and bioethanol.

Increased value in product streams and side streams



Grains, beans and peas contain components such as starch, protein, fiber, cellulose, hemicellulose and lignin, which all can potentially be used in innovative applications.

Current research areas:

- Innovative areas of uses and applications for starch from wheat, oats and peas.
- Increased value and further processing of forages and catch crops.
- Knowledge regarding which specific factors in grains and peas that affect the yield in various industrial processes. One example is the gluten yield in wheat, where grain lots with similar analytical values can have very different results in gluten yield, and thereby the economy.
- Recovery and refinement of valuable components, for example via extraction, dewatering, modification or film formation. One key element here is to investigate purity and yield as well as the possibility of scaling up and how the process affects the characteristics of end products.