

**Declaration of the Danish Agriculture and Food Council  
in cooperation with Novozymes to the United Nations  
Climate Change Conference in Copenhagen**

# the Bioboased Society

A vision for a sustainable future based  
on agriculture, biotechnology and  
resource management

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# Preface

The world's population is expected to increase by 50 percent and reach more than 9 billion in 2050, presenting global society with a huge challenge to ensure the future food supply.

The growing population will put the world's natural resources under pressure in the decades to come, and climate change is already adding to these challenges. We therefore need to reduce the current reliance on limited fossil resources for energy and materials, and instead focus on renewable resources and recycling, thus turning waste into value, and closing biological production cycles.

Agriculture acknowledges its responsibility to produce sufficient food for the rapidly increasing global population, without increasing the impact on the surrounding environment and climate. This responsibility is challenged by global warming, which will affect agriculture and require adaptation in order to cope with changes in waterfalls, pests and plant diseases.

In addition, future agricultural production is dependent on the soil fertility and the availability of nutrients, thereby increasing the significance of soil carbon content management and the recycling of phosphorus from the food chain.

Traditional as well as modern biotechnology plays a significant role in providing technologies for sustainable agriculture and food production. Biotechnology can help in improving crop yields, optimizing the use of raw materials, enhancing recycling processes and reducing greenhouse gas emissions.

By using renewable feedstock from agriculture, forestry and the aquatic environment together with enzymes and microorganisms, biotechnology is key to the development of a true biobased society.

# The joint vision of The Danish Agriculture and Food Council and Novozymes for a future biobased society:

- 1 **agriculture provides the growing global population with safe and sufficient food and feedstock for the production of energy and biomaterials based on sustainable production. This production focuses on reduced emissions of greenhouse gases, bio-diversity, landscape management, water management and nutrient recycling, while maintaining the fertility of the soil and maximizing carbon sequestration**
- 2 **by using solutions offered by biotechnology throughout the value chain, agriculture and producers of food, energy and biomaterials can provide high quality sustainable products**
- 3 **the transformation of the current fossil based society into a true biobased society, based on the recycling and reuse of feedstock and nutrients, is promoted by the synergies obtained through combining agriculture and biotechnology, thus leading to smart and sustainable solutions**

## What is a biobased society?

In the biobased society all political decisions have a strong focus on avoiding the dependency on limited fossil resources as well as fostering the development of a sustainable society based on optimized use of renewable resources and minimising the loss from cradle to cradle. A biobased society is characterized by:

### Less dependency on oil

Society is less dependant on fossil raw materials as renewable feedstock and biological processes are used not only for the production of food and feed, but also for the production of energy (biofuels, biogas) and products, such as chemicals and biomaterials (plastics, fibers).

### Recycling – producing less waste

The production of food, materials and energy is integrated by using the by-products and focusing on the reuse and recycling of feedstock, nutrients and natural substances in closed loops. Many substances that are considered waste in one process are used as a raw materials in another process.

### Higher crop yields

As the global need for food increases, and biomass from agriculture and forestry become valuable raw materials, a strong and targeted effort to increase global crop production yield is essential. This implies the development of management practices in relation to crop rotation, water management and further development of the crops themselves.

The use of biotechnology to optimize agricultural production and biological processing is important in this respect. Examples are the development of crops that are resilient to abiotic and biotic stress, and the use of specific microorganisms that enhance the utilization of plant nutrients in livestock manure and fertilizers.

### Higher food quality and security

By including biotech solutions in food processing, the quality and quantity of food is improved. A more efficient use of raw materials, and reduced losses through waste, can increase food production and contribute to food security.

### Bio-refineries and biogas plants

A biobased society is characterized by a high occurrence of bio-refineries that use advanced enzyme systems to transform biomass and organic waste material into biofuels for transportation, or into chemicals.

In a biobased society the majority of livestock manure is treated in local biogas plants and converted into environmentally-friendly fertilizer and renewable energy, while reducing odour, the leaching of nitrates, and emissions of greenhouse gases.

## Recommendations for policy measures to develop a true biobased society

The Danish Agriculture and Food Council and Novozymes call on all parties taking part in the UNFCCC process to ensure a long term political commitment to promote a true biobased society. This includes the establishment of framework conditions that promote sustainable solutions and private investments.

The Danish Agriculture and Food Council and Novozymes support the establishment of a work programme on agriculture under SBSTA that can provide in depth studies of agricultural mitigation and related issues.

A specific strategy leading to a biobased society should be developed, including strong and effective policies on:

- financial support for research, development and demonstration projects in agriculture and biotechnology
- measures to promote a sustainable and sufficient supply of biomass feedstock

- framework conditions that promote balanced landuse and the optimized utilization of biomass resources
- incentives and framework conditions to promote the responsible use and recycling of scarce minerals such as phosphorus
- how to attract and encourage private investment
- smooth procedures for the approval of products based on biotechnology without compromising the safety of humans, animals and the environment

The Danish Agriculture and Food Council and Novozymes acknowledge the need for acceptance by society of the concept of a biobased society and encourage policy makers to promote the direct involvement of, and interaction with the public (trust building).