

Sustainability threatened by rising demand for livestock products

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Global demand for meat, milk and eggs has tripled in the past four decades and is expected to double by 2050. Increased global livestock production has great impacts on the environment and increases global warming. A major new European research project at the University of Copenhagen aims to identify and develop innovative solutions and technologies to handle and utilise the huge quantities of animal waste from livestock production. In Denmark, 34 million tons of animal manure are produced annually.

Production of meat has huge negative impacts on the environment. Consumers in Europe and many other places in the world want to take meat, eggs and milk home in their shopping bags. The world average intake of meat is around 50 kg per capita, but in Europe consumption is approximately twice that figure.

[Livestock production](#) in agriculture requires enormous inputs of resources such as land, energy, water and nutrients. New research and innovation will pave the way for the development of technologies and systems to make agriculture more resource-efficient. The principal coordinator for the major new European research project ReUseWaste, Professor Lars Stoumann Jensen from the [Department of Agriculture and Ecology](#) at the Faculty of Sciences, explains:

"The ambition of the research project is to generate new knowledge that can help agriculture to contribute to a much more resource-efficient society. The demand for resources is rapidly increasing at the global

scale, so we urgently need to think innovatively in order to ensure sustainable agricultural production in the future - it will be absolutely critical for the food and [energy security](#) at the global level."

The goal is a more resource-efficient farming system

The research project will focus on extracting bio-energy from waste in order to reduce consumption of [fossil energy](#), increasing the recycling of nutrients in order to decrease the use of artificial fertilisers and conserving [soil quality](#) by returning organic matter to agricultural land.

In Denmark, 34 million tons of [animal manure](#) are produced annually. The project will concentrate on these three focus areas, nutrients, energy and organic matter in agricultural production.

"We believe that these three parameters are key to increasing sustainability. As an example, manufacture of artificial fertilisers is extremely energy-intensive and one of the nutrients involved, phosphorus, is a limited resource. By developing technologies for recycling, we can obtain multiple benefits. The ambition is to create a great deal of new knowledge and to develop sustainable technologies that will make agriculture more resource-efficient," says Lars Stoumann Jensen.

The project is based around strong collaboration between research institutions and environmental technology companies, in order to ensure rapid implementation of research results into development and commercial innovation. Furthermore, public authorities are included as associate partners in order to ensure that environmental regulations, which are often a barrier to the implementation of new solutions in agriculture, can be used strategically to drive more sustainable development.

The project is funded as a European research training network, so in addition to producing new research knowledge, it also aims to strengthen training, skills development and competence building among future young scientists across Europe and between universities, companies and authorities.

Provided by University of Copenhagen

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