



Green Development and Demonstration Programme, GUDP

Sustainability, efficiency and value
enhancement in the Danish food industry

gudp

Green Development and Demonstration Programme, GUDP

Sustainable growth in the food industry

GUDP is a modern grant scheme for businesses that are open to innovation.

GUDP invests in sustainability and growth in collaboration between industry and research. Innovation happens when researchers, farmers, fishermen and food businesses meet. However, growth that leads to increased export and create more jobs does not come about on its own. This is why GUDP requires environmental sustainability and a sound business philosophy as levers for innovation.

GUDP was established under the Ministry of Food, Agriculture and Fisheries in 2010. [Read more about GUDP \(in Danish\)](#)

Photo: Rune Johansen



"The government wants to promote a green transition of the Danish food sector. The sector should be pushed to the forefront of the development of new environmental technology and know-how which can ensure a greener and even more prosperous food industry, strengthened export opportunities and the creation of more jobs. As part of this, we can build a more robust organic industry with novel technologies and new exciting products. A modern grant scheme like GUDP can help to ensure the delivery of efficient, effective and durable solutions to meet our key goal of a green transition of the Danish society." Mette Gjerskov, Minister for Food, Agriculture and Fisheries.

Pick the problem – a modern innovation policy

Traditionally, public grants have been provided to businesses to support selected and successful enterprises. A modern, "intelligent" grant scheme, on the other hand, aims to enhance the competitive pressure, to encourage enterprises to renew themselves strategically in order to meet current and future challenges. GUDP has been designed to motivate food businesses, researchers, farmers and fishermen to cooperate in order to ensure growth and, at the same time, address crucial challenges facing society; for example climate and environmental problems. GUDP has – so to say – picked the problem, and then invites applicants to find the required solutions – as well as the potential future winning markets.



Make the best win

The competition for the DKK 200 million available from GUDP is tough and the requirements are stringent. GUDP evaluates project proposals against several criteria. Firstly, GUDP evaluates the project's expected impacts. These include socio-economic impacts and growth opportunities, as well as the project's expected contribution to enhanced sustainability; for example reduced nutrient leakage and reduced pesticide usage.

Secondly, impacts of a project are compared to existing practices in the sector. Next, GUDP evaluates the project's uncertainty in relation to obtaining success against its potential impacts and the quality of its business plan. Finally, GUDP reviews the cost-effectiveness of the project. What is the return in terms of expected impacts per DKK invested by GUDP?



"In Denmark we should lead the way and show that sustainability and growth are not a contradiction; on the contrary, they can in fact go hand-in-hand. Sustainable growth can lead to innovation and can be a strong brand for the Danish food industry."

Lars Frederiksen, Chairman of the Board of GUDP.

Impacts:

Examples of the potential impact of the DKK 195 million granted to 46 projects in 2011:

Climate:

Carbon emissions cut by **780,000 tonnes of CO₂**.

This corresponds to **31%** of the existing overall goal for the reduction of carbon emissions from agriculture in Denmark.

The environment:

Nutrients reduced by **10,500 tonnes of nitrogen and 1,000 tonnes of phosphorus**.

For nitrogen, this corresponds to **55%** of the existing Danish goal to reduce by **19,000 tonnes** discharges of nitrogen from agriculture to the aquatic environment. For phosphorous this is enough to fully satisfy the national goal.

Overall economic impact

Around **DKK 1,500 million** which means a fivefold rebate for society. Moreover businesses and research institutes have invested **DKK 104 million** in the projects.





Case:

Danish organic broad beans replacing foreign soya

Organic farmers, researchers, consultants and feedstuffs experts have joined forces to develop a Danish organic protein feed to replace the foreign soya that is becoming increasingly expensive at the world market. For example, the organic protein feed produced in Denmark from Danish legumes, such as broad beans and lupines, has great potential for being exported to the Swedish and German markets. Organic livestock farmers are facing the challenge that from

1 January 2012, according to new EU legislation, feed for organic livestock must be of organic origin. Currently, fish meal and soya are the main sources of protein for poultry and pigs. However, both of these feedstuffs are problematic. Fish meal is a limited resource and the organically farmed soya is expensive; and may also be polluted by genetically modified material. This creates uncertainty for consumers.

The Danish legumes are an attractive source of protein. However, they also contain a number of bitter substances. Innovatively, this project introduces a processing step "between field and farm" to optimize the digestibility of the protein. The project tests different methods of rendering the proteins more accessible - for example by fermentation using lactic acid bacteria, husking and heating.

Making the protein more digestible is not only good for the health of animals; it is also beneficial for the environment, because the animals will excrete less nitrogen.

[Read more about this case \(in Danish\)](#)



Photo: Mike Kollöffel



"Combining sustainability, efficiency and value enhancement GUDP offers a natural platform for organic initiatives that can contribute to achieving the very ambitious political goals for the sector." Susanne Hovmand-Simonsen, Knuthenlund, Board Member of GUDP

Requirements

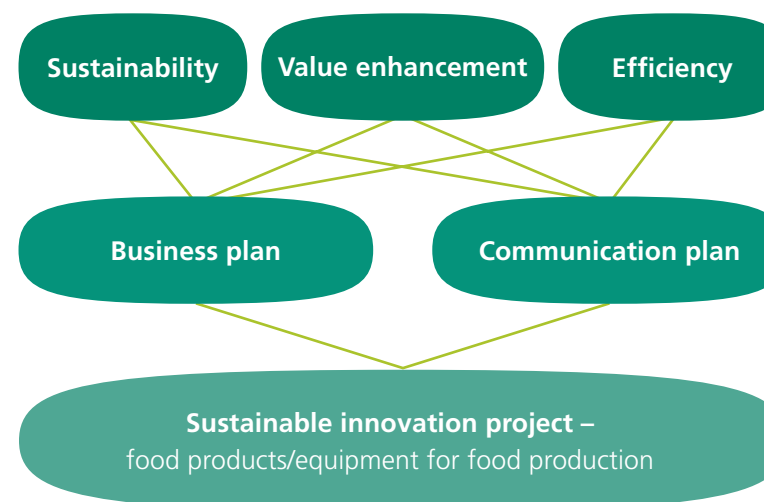
Every project application to GUDP must present a business plan documenting how the desired outcomes and impacts will be achieved. Not in the form of reports or papers, but in the form of innovative and concrete products, novel processes, or new knowledge, which are commercially viable and may subsequently be marketed and sold to consumers or enterprises. GUDP only provides grants to projects which contribute to the development of the food industry of tomorrow based on interactions between:

- Sustainability
- Efficiency
- Value enhancement

All future development must build on sustainability

Danish food production impacts the nature, both on land and at sea. However, our resources are scarce, and the food production of the future must be based on sustainable principles. One of the three pillars on which the development of future foodstuffs relies is the improvement of environmental and climate conditions – for example, reduced nutrient and CO₂ emissions. Sustainability must at the same time facilitate innovation and branding of Danish products.

The building blocks required for projects to achieve funding:



Business plans

The ability to present a clear business plan is an essential criteria for success in obtaining funding from GUDP. The business plan should describe the desired product, the business concept, the market situation, and relevant risk factors. With a business plan, applicants show how they intend to turn the outcomes of the project into concrete and commercial actions. The business plan forms the basis for an evaluation of the expected returns from the project. Furthermore, the business plan is important for GUDP's evaluation of the dissemination of project outcomes and how in terms of efficiency and value enhancement the project will achieve the greatest possible impact.



Efficiency secures our competitiveness

Efficiency provides an important competitive advantage. Therefore, efficiency must be an integral part of each project alongside focus on sustainability and value enhancement.

Value enhancement is a necessity, because Denmark's leading position is under threat

Agriculture and fisheries account for a quarter of the Danish export. The food industry employs around 150,000 people. However, competition has become fiercer and new products from other countries are out-competing Danish products around the globe. Therefore, the Danish food sector needs to continue to innovate. It is not the production of basic food products that should be in focus, but emphasis should be on the production of refined quality food products, which are in demand by consumers both in Denmark and abroad. Achieving the maximum value from raw materials is therefore an important area for attention. An example of this is the utilisation of residues from the food production for new products – for instance processing whey into a savoury protein drink.



"Being challenged to make a business plan is valuable for both researchers and enterprises. One shouldn't apply GUDP funds just to be awarded a grant without having a good business idea. The applicants must believe in their project and their project must have real commercial prospects. The business plan helps to guarantee this, so that the GUDP grant is spent on creating added value and more jobs." Leif Friis Jørgensen, Managing Director, Naturmælk (organic dairy)

The business strategy and the business plan are the hub of applications to GUDP:



Case: Sea farms – now far offshore

In a new project supported by GUDP, collaboration between researchers from the Technical University of Denmark (DTU Aqua and DTU Mechanical Engineering) and the Danish company Hvalpsund Net will set out to develop and test a new generation of sea farming equipment which is strong enough for use in the open sea.

On a global scale, marine aquaculture production has increased by 6-7% annually over the past 30 to 40 years. This is an exceptionally steep increase compared to other food production sectors. Denmark has an annual sea trout production of 10,000 tonnes, and so far we have not been able to compete with the international growth curves. Today the marine aquaculture production in Denmark is located in coastal zones, where the possibilities for expansion are limited.



If new equipment were to make it possible to move the production into the open sea, Denmark could potentially match the production level of the Norwegian sea farming industry that has an annual production of 900,000 tonnes. The new generation of sea farming equipment consists of plastic floating barriers and large cage nets secured to the seabed. The equipment, which can be submerged under the sea surface in bad weather, will be tested during the project in the North Sea.

The environmental vision of the project is to combine the production of fish with the production of mussels and seaweed. Fish need to be fed, whereas mussels and seaweed absorb the surplus nutrition that is in the water from fish food and fish excrement. This makes the aquaculture production environmentally neutral. In general, fish farming discharges only around one-third of the nitrogen compared to that discharged from cattle farms.

[Read more about this case \(in Danish\)](#)



Case:

White rapeseed oil – a new taste for the Nordic kitchen

The Danish Agriculture & Food Council has joined forces with three Danish companies, DLG Food, Dragsbæk, and Knold & Top APS to develop a white flowering oilseed rape for a new cold-pressed rapeseed oil. The new variety carries benefits for the environment, consumer health and food quality. The white flowering oilseed rape attracts fewer insects than the yellow flowering variety. Thus, the use of insecticides can be reduced; possibly by enough to enable organic cultivation of the white rape. If only one-third of current rape land area were to be replaced by white flowering oilseed rape, it would mean a reduction in insecticide consumption by 10,000 kg annually, or approximately 14%.

The project involves developing a new rapeseed oil; from cultivation in the field to consumption of the oil by consumers. This includes testing new varieties of oilseed rape; investigating how to handle the rapeseed after harvesting; and testing the final products for their properties and possible uses, as well as providing information to consumers about the nutritional value and usage of the new oil.

Danish consumers have become increasingly conscious about limiting their fat intake and consuming more of healthy unsaturated fatty acids rather than the saturated variants. This has led to an increased consumption of oils, and of olive oil in particular, but also the Danish produced rapeseed oil. Today, rapeseed oil accounts for 16% of the market, as opposed to a mere 3% five years ago. Both the economy and the environment would benefit if a greater amount of oils consumed were produced in Denmark rather than, for example, olive oil or sunflower seed oil produced abroad. Furthermore, analyses so far indicate that the oil from the white flowering oilseed rape has a higher content of omega-3 fatty acid compared to the yellow rape varieties – which also makes it a healthier alternative.

[Read more about this case \(in Danish\)](#)





Contact information

Innovation Centre

Tel.: +45 33 95 87 22

E-mail: gudp@naturerhverv.dk

www.gudp.dk

Danish AgriFish Agency

Nyropsgade 30

1780 Copenhagen V

Denmark

www.agrifish.dk