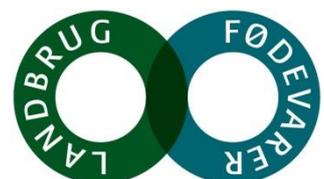


Contribution from the Danish Food Cluster to the National Action Plan on the 2030 Agenda for Sustainable Development and the UN Sustainable Development Goals



Contribution from the Danish Food Cluster to the National Action Plan

A sustainable, productive and resource-efficient agricultural and food production will directly or indirectly contribute to all 17 of the UN Sustainable Development Goals (SDG) as the agriculture and food sector reaches into many corners of society. However, there are huge differences between food productions across the globe; from Denmark in the North to China in the East, Nigeria in the South and Brazil in the West. An increasing global population puts further pressure on demand for food production. A global sustainable agriculture and food sector is therefore crucial in achieving results on the SDG agenda, moving towards 2030. In its "World Livestock 2011" report, FAO states that intensive, but sustainable, production is necessary to produce sufficient food for the growing population.

The Danish agriculture and food sector is one of Denmark's most important strongholds and can contribute to sustainable food production both nationally and internationally, thus supporting the 2030-agenda for sustainable development. The sector's sustainable and intensive production – where we produce more with fewer resources - is a crucial element in the progress made by the Danish food cluster. E.g.; even though production today is significantly higher than ever before, each unit of production requires dramatically less water and energy consumption and causes far fewer CO₂ emissions.

This progress is based on a strong public-private partnership culture, close integration throughout the food chain from farm to fork, ground-breaking research and innovation, and an approach to production with constant focus on resource-optimisation. The Danish independent agricultural advisory system, based on the needs of farmers, is a cornerstone for on-going progress and innovation. Based on the Danish model of cooperation between companies, farmers, organisations and authorities, knowledge and chain integration, our contribution to the 2030-agenda can be summarised as follows:

The Danish Food Cluster Contributes with Healthy, Safe and Sustainable Food and Solutions to Denmark and the World

On this background, two Sustainable Development Goals have been selected, where the contribution from the Danish food cluster is strongest, both on the national agenda and in international initiatives:

1. **Sustainable Development Goal #2** End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
2. **Sustainable Development Goal #12** Ensure sustainable consumption and production patterns

Sustainable Development Goals #2 and #12 have been chosen as the specific goals that impact most widely for the many strongholds encompassed by the sector. This does not imply that the other 15 Sustainable Development Goals are less important. As the Sustainable Development Goals are closely linked to each other, it is therefore relevant to consider the interplay between them.

The Danish national action plan for the 2030 Agenda should include prioritised focus on sustainable agriculture and food production. Food production is pivotal in relation to ensuring economic growth, employment, trade, nutrition and health, security of supply and stability, in Denmark and in the remotest parts of the world. More focus on sustainability and productivity in global food production is also inescapable if environmental impacts and climate change are to be minimised. Denmark can take a leading role in this change.

How can the Food Cluster Contribute?



Sustainable agricultural production, better nutrition and security of food supply require focus on Danish technological solutions, research and innovation, as well as public-private partnership.

Globally, focus should be on sustainable agricultural and food production with higher productivity and resource-efficiency to make it possible to produce more food without compromising the environment and climate. It is vital that food production in developing and growth countries is greatly improved, while countries such as Denmark must constantly move forward to increase productivity and quality in our own food production and simultaneously reduce environmental and climate impacts. Growing population and associated demand for food means that it is increasingly important to consider the relationship between productivity, nutrition and sustainability. New sustainable solutions may also present a commercial opportunity for Danish companies, possibly heralding a new export success.

Danish Agriculture & Food Council proposes:

- **More Transfer of Danish Technology Solutions and Know-How to the World:** The Danish food cluster exports sustainable technology solutions and know-how globally. Solutions are in operation in China, Russia, Vietnam, Nigeria and Ukraine, countries with huge potential for efficiency improvements and reductions in climate and environmental impacts. Specialist and resource-optimised technology solutions, combined with Danish management know-how of the food value chain in both conventional as well as organic production form the foundation for international knowledge transfer. The international activities of the Danish Food cluster are borne by well-functioning public-private partnerships, an independent agricultural advisory system, and progressive companies keen to take advantage of the business and growth opportunities in strengthening food production abroad. Denmark must continue to promote Danish strongholds globally on a foundation of strong public-private partnerships within both export promotion and development assistance.
- **More Healthy and Safe Food Globally:** Good, healthy and safe food is an important element in preventing hunger and malnourishment. More healthy food products also play a vital role in preventing the increase in lifestyle diseases such as diabetes and obesity, which are becoming ever more common globally, even in poor countries. The number of over nourished people globally in the rapidly growing middle classes is about to overtake the number of under nourished poor. In addition to this; an increasingly aging population demand a greater focus on optimal nutrition, contributing to maintaining a good and healthy lifestyle is also vital. Globally, Denmark must encourage better access to nutritious food for all. There should be a good balance between local and imported food products. In many developing countries, stronger agricultural development to secure better quality of local produce will help improve this balance and reduce reliance on imported food. Denmark can help create new solutions for the nutritional needs of populations globally and nationally, including the aging population. Danish companies are developing ingredients to improve nutrition and the knowledge and competences held by these companies should be incorporated in common efforts with partners from the pharma and medical industries in order to find solutions to alleviate nutrition needs for different population groups. Nationally, Denmark's focus should be on ensuring that the correct information is available for consumers to enable them to make healthy choices. Company communication about nutrition, health and food can make a strong and positive contribution to a healthy lifestyle and diet within the existing dietary recommendations and framework.
- **Research and Innovation Are the Platform for Sustainability:** Efficient research and innovation efforts based on public-private partnerships are the foundation for the resource efficient and sustainable approach to Danish agricultural and food production. New knowledge has constantly raised the bar. Denmark must lead the way in research initiatives for sustainable agriculture and food production adapted to new challenges. This requires more research on primary production, including new

technology for livestock and food production, processing and breeding, emissions monitoring and optimal exploitation of nitrogen, phosphorus and other nutrients; more research into using by-products; more research on health, safety and quality throughout the chain; and more research into optimisation and development of food processing. Denmark should strongly support international agriculture research, as this is a core contribution to development of sustainable practices.



Sustainable food production and consumption require focus on less food waste, circular economy, water consumption, as well as climate efficient and energy efficient production methods.

Sustainable consumption and production should be perceived as an entity, comprising many important and mutually linked focus areas. Producing more sustainably means considering derived environmental impacts, considering and minimising impacts on land resources, focusing on resource efficiency and innovation in order to constantly optimise production processes. Sustainable consumption is also a question of how consumers eat, what they eat, and what they throw away. Denmark is well-known for its sustainable, intensive production, and over the years Denmark has managed to produce more food, with less environmental impacts. Significant reductions in water consumption, energy consumption and CO₂ emissions put Denmark among the very best in the world.

Danish Agriculture & Food Council proposes:

- **Stronger Position of Danish Knowledge in European Standards:** Traditionally, Denmark has based production on a high level of knowledge. Openness and knowledge about production and environmental impacts will help provide consumers with a tool for more sustainable consumption. Therefore, it is crucial that both the industry and the authorities continue to provide Danish knowledge and input for the EU's development on standards for sustainable production and consumption (e.g. Product Environmental Footprint - PEF). Stronger Danish participation in the development of European and global standards will support the resource-efficient production in the Danish food cluster and will contribute to consumers' factual knowledge about sustainability and consumption.
- **Efficient Exploitation of Resources – Technological Solutions for a Circular Economy:** For the food cluster, the circular economy is about high resource-efficiency, recirculation and use of renewable bio-based raw materials, energy and food and constantly developing high-value products from resources. Sustainable consumption and production can be supported effectively by changing to a more bio-based circular economy, thereby increasing focus on usage of resources and products manufactured from bio-based raw materials with high recirculation potential. Resource efficiency is important in global agriculture and forestry as land is a limited resource. Techniques and systems are being developed to increase farming and forestry yields and to minimise loss and waste in all links in the production chain from the farm to the consumer. Ensuring high output of feed in the stable and fertiliser on the field, preventing losses of crops in transport from the field to the consumer, and using residual products from the food industry for high-value products and for energy are the main issues. There is a long tradition in Denmark for sustainability, and for intensive production of bio-based raw materials for food, animal feed, materials and energy, and this could help set a global standard for best practice for technological solutions for sustainable intensive production.
- **Less Food Waste:** Denmark is a forerunner of reducing food waste, and Denmark must take on an active role in further prevention. In Denmark, this includes reducing food waste at consumer and retailer levels. Using food as well as residual-products and by-products from food production as high up the food hierarchy as possible, without compromising food safety. Danish food companies are constantly working to optimise usage of resources and thereby minimise food waste. The Danish Government has

implemented statutory amendments to make it easier for companies to donate food to charity. Similarly, a large number of private initiatives are contributing to reducing food waste. Denmark should support this development further by prioritising work in the European Commission's upcoming platform for food waste and remove barriers for the best possible use of food resources. Food waste in a global context is also about reducing food loss in the field and loss in connection with storage and transport, especially in developing countries. Denmark should make reduction of food waste in food production a priority in development cooperation, backed up by Danish know-how.

- **Optimised Water Consumption in Food Production:** Water is a scarce resource in global terms, and even today more than a billion people have no access to clean drinking water. This could rise to three billion in 20 years. Resource efficient and water-saving food production solutions have therefore never been more urgent and must be applied globally. Food production in particular uses large amounts of clean water to ensure hygiene. Despite rigid hygiene requirements, the Danish food cluster has achieved significant reductions in water consumption through efficiency improvements and through focus on optimising water consumption by recycling process water in different parts of the production process. A large partnership project (Danish partnership for Resource and water-efficient Industrial food Production (DRIP)) with support from Innovation Fund Denmark has been launched to work on minimising water consumption in food production by developing water-saving technologies and techniques within a limited number of years. These technologies and techniques could contribute to significant reductions in water consumption in food production and they could potentially be spread worldwide.
- **Denmark as a Front-Runner for Climate-Friendly Agricultural Production:** If the average temperature rises by one degree, global corn yields will fall by about five percent¹ with a greater risk for even more dramatic drops in yields². While climatic conditions in Denmark are expected to be more favourable in such a future, globally there is a major need to climate adapt food production. Danish strongholds in research and innovation, e.g. in plant refining, may provide an important contribution, provided there is adequate investment and focus. Furthermore, an increase in the global food production entails a risk of higher emissions of greenhouse gasses. Sustainable, intensive Danish production and Danish know-how make Denmark an important front-runner with regard to low-climate-impact production. Together with a number of other countries, Denmark has acceded to the FAO-facilitated "Global Alliance for Climate-Smart Agriculture" (GACSA), as well as the French-initiated COP21 initiative "4 pour 1000". Over the next few years, Denmark should demonstrate leadership within both platforms, strengthen global specialist and organisational capacity, and profile the Danish food cluster as a leader within climate-friendly agricultural production.
- **Kick-Start Bio-Economy and Focus on Renewable Energy:** Bio-based solutions are the backbone of a fossil independent global economy in which fossil carbon compounds in oil, plastics and chemicals are replaced by carbon compounds from biomass. Therefore, an advanced Danish bio-economy must be kick-started in order to place Denmark as the hub in developing the new opportunities. Therefore, we must strengthen Danish research, development, demonstration and use of new biomaterials for animal feed, fibre, materials and energy. In EU, energy consumption related to the entire food product value chain amounts to 17% of total gross energy consumption and 26% of final energy consumption (JRC, 2015)³ Therefore, there will be a huge impact if parts of the production chain can be made more energy efficient and if energy consumption can be made more climate friendly. The Danish food cluster is a front-runner in both areas. There is considerable unexploited potential for Danish energy-efficient solutions within system consultancy, energy efficient technologies, biogas, biomass boilers, etc.

¹ Challinor et al., 2014: "A meta-analysis of crop yield under climate change and adaptation" (Nature Climate Change 4, 287-291, 2014).

² Lobell et al., 2014: "Getting caught with our plants down: The risk of global crop yield slowdown from climate trends in the next two decades" (Environmental Research Letters, 2014).

³ Monforti-Ferrario et al., 2015. "Energy use in the EU food sector: State of play and opportunities for improvement", Joint Research Centre, 2015