



Sustainable Food Systems: Resource Efficiency, Food Loss, and Food Waste

Course under the DFC Scholarship Program

Course dates

Online: 22 April - 17 May 2024 (estimated 15 hours)

On-site in Denmark: 20 May – 7 June 2024 (3 weeks)

Target group

The course will target up to 25 participants. Participants must be related to the Danish Strategic Sector Cooperation (SSC) and are expected to have a post-graduate education and/or working experience within the food value chain. Participants must as a minimum have a bachelor degree in a relevant field and must have a good command of English.

This course is tailored for stakeholders in the food value chain, academics working with food value chain systems, food loss and food waste and authorities (administrative level).

Course responsible

Senior advisor, Ph.D. Henning Otte Hansen, Department of Food and Resource Economics, University of Copenhagen, with Olivia Frandsen, scientific assistant, Department of Food and Resource Economics

Course location

Online and Copenhagen University, Copenhagen, Denmark

Course focus

With one third of all food lost or wasted and nearly 800 million people across the globe going to bed hungry every night, food loss and waste is currently one of our biggest global challenges and therefore calls for immediate action. Various scholars have indicated that 1,6 billion tons of food signifying a value of approximately 1,2 trillion USD are either lost or wasted equal to one-third of the total amount food produced. The Food and Agriculture Organisation of United Nations (FAO) estimates, that 14 per cent of food valued at an estimated 400 billion USD is lost between harvest and distribution.

FAO has five key policy messages regarding food loss and food waste:

- Food loss and waste can and must be drastically prevented and reduced. Investing in prevention yields more safe and nutritious food for human consumption than investing only in increasing food production.
- Food loss and waste represents economic losses for all actors along food supply chains, including end consumers. It also represents a highly inefficient use of resources (e.g. labour, water, energy and land) as well as avoidable climate change and social impacts.
- Tackling food loss and waste is a defined target within the internationally agreed Sustainable Development Goals (SDG Target 12.3, which also contributes directly to SDG Target 12.5 and SDG Goal 2) and a key component of the Zero Hunger Challenge.
- The drivers for change are awareness raising combined with evidence based policies that facilitate the identification of targeted incentives and regulatory frameworks. Policies, strategies, interventions and technologies will benefit from improved data availability and quality, harmonization of terminology, definitions and methodologies.



- Processes that engage jointly the public sector, private sector and civil society will facilitate target setting at local, national, regional, and global level, raise awareness, focus efforts, mobilize resources and guarantee action.

The aim of the course is to present and discuss ways to increase resource efficiency and to reduce food loss and waste in the food value chain. Based on Danish experience the course participants have ideas and inputs to be used in their action plan for their own selected cases. The aim is that these plans are implemented in their own countries, and that specific plans for follow-up and control are presented.

Denmark is a global role model for sustainable and resource efficient food production and innovation. Primary producers invest heavily in precision farming technology to minimize their environmental footprint and maximize their yield. Food producers constantly explore new ways to reduce their consumption of water, energy, ingredients and single-use plastic packaging. During the three weeks stay in Denmark several exposure visits will be arranged to obtain an understanding of different stakeholders representing the entire food value chain from 'farm to fork'.

KEY CONCEPTS IN THE COURSE	
RESOURCE EFFICIENCY Is about the organization and efficiency of the value chain. <ul style="list-style-type: none">• Is the value chain efficient without unnecessary middlemen?• Are the transaction costs too big?• Is the vertical integration optimal?• Are market signals quickly transferred in the value chain?• Is the market power in the value chain optimal?• Is control, quality assurance, standards optimal, so that e.g. food loss and waste is reduced? Is the development of productivity in agriculture and the food industry sufficient?	FOOD LOSS Is about how to limit waste, increase the utilization of raw materials, and optimize the value in agriculture, in the supply industry and in the food industry.
	FOOD WASTE Is about how to reduce waste in the value chain after processing in the food industry.

Learning goals

By the end of the course, the participants will be able to:

- Understand the problems, drivers and challenges in relation to the topic.
- Understand the function and benefits of efficient value chains in relation to the topic
- Understand the interaction and synergies from collaboration among different stakeholders in the food cluster in order to reduce food loss and waste.
- Use and implement input from the course in action plans
- Transfer knowledge and experiences from the course to their own situation (such as assessing relevant value chains from their perspective with regards to food loss and food waste issues)
- Bring significant messages and conclusions from the course to relevant stakeholders in their own country and utilize the network they have built up during the course – further on.

Learning methodology



The academic and technical approach of the course is a mix between theoretical and evidence-based learning, and “hands-on” knowledge with a focus on providing and sharing in-depth knowledge and expertise on Food Value Chains. The participants will work on their own cases during the entire course and train the applicability of the presented theoretical input. During the course there will also be a number of presentations from university lectures. The course will include the following learning elements:

- Learning by seeing (Exposure visits): The participants will visit companies and organisations with expertise and know how within the food value chain. The aim is to present companies and cases, to discuss, and to exchange experiences. Examples of the companies that the participants will visit are: The Danish Veterinary and Food Administration, Arla Foods (diary production), The Danish Egg Association, Danish Crown (meat production) and Nordic Harvest (vertical farming).
- Learning by doing/applying (e.g. case or project work): The participants will from the beginning and throughout the course work with their own cases, to identify context relevant problems and suggest solutions.
- Learning by example (Peer learning): Growth counsellors will present success stories etc. and participants will present their own cases with problems, challenges, barriers and solutions.
- Translating learning into action (Action Plan): All participants will work with an individual action plan, which will also be a part of the written project, all participants will submit at the end of the course.
- Passing on learning: All learning material – slides and selected readings - will be available to participants both during and after the course to allow them to pass on course learnings to other colleagues within their organizations.