

Balancing global needs, intensive agriculture and the environment

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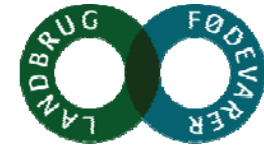


Danish Agriculture & Food Council

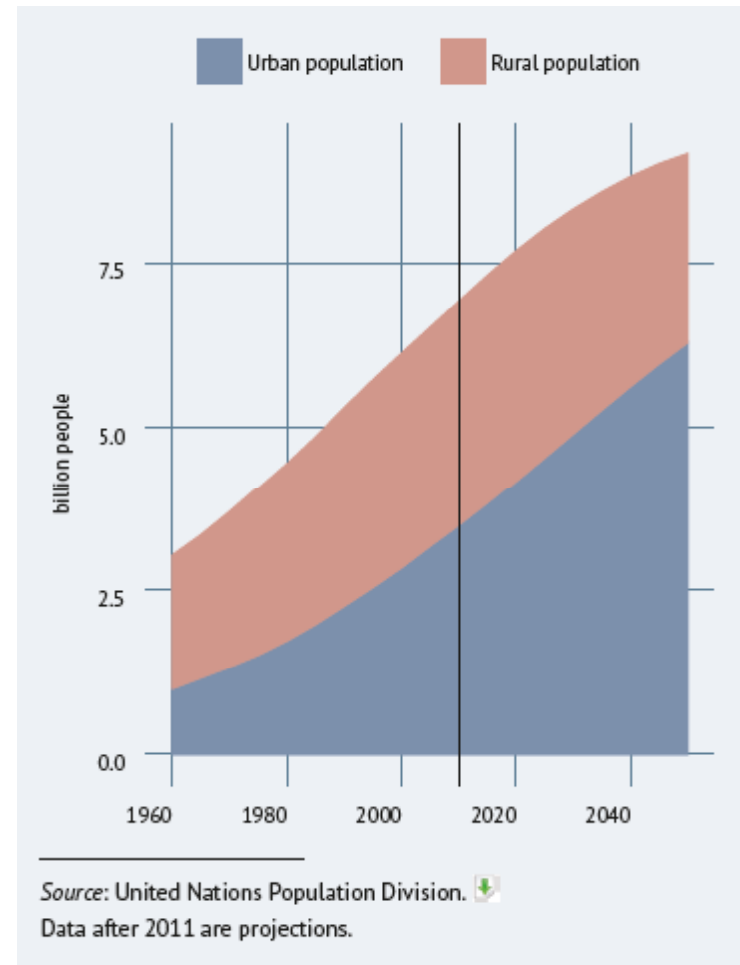
- **Brings together the largest industry grouping in Denmark**
- **Represents the Danish food and farming industry:**
 - Farmers
 - The food processing industry and the agricultural supply industry
 - Agribusiness
- **Production base**
 - 2.64 million hectares = 60 per cent of the total area
 - 30,000 farmers



We are facing a great challenge



- A growing population leads to an increasing demand for food
- Increasing protein consumption





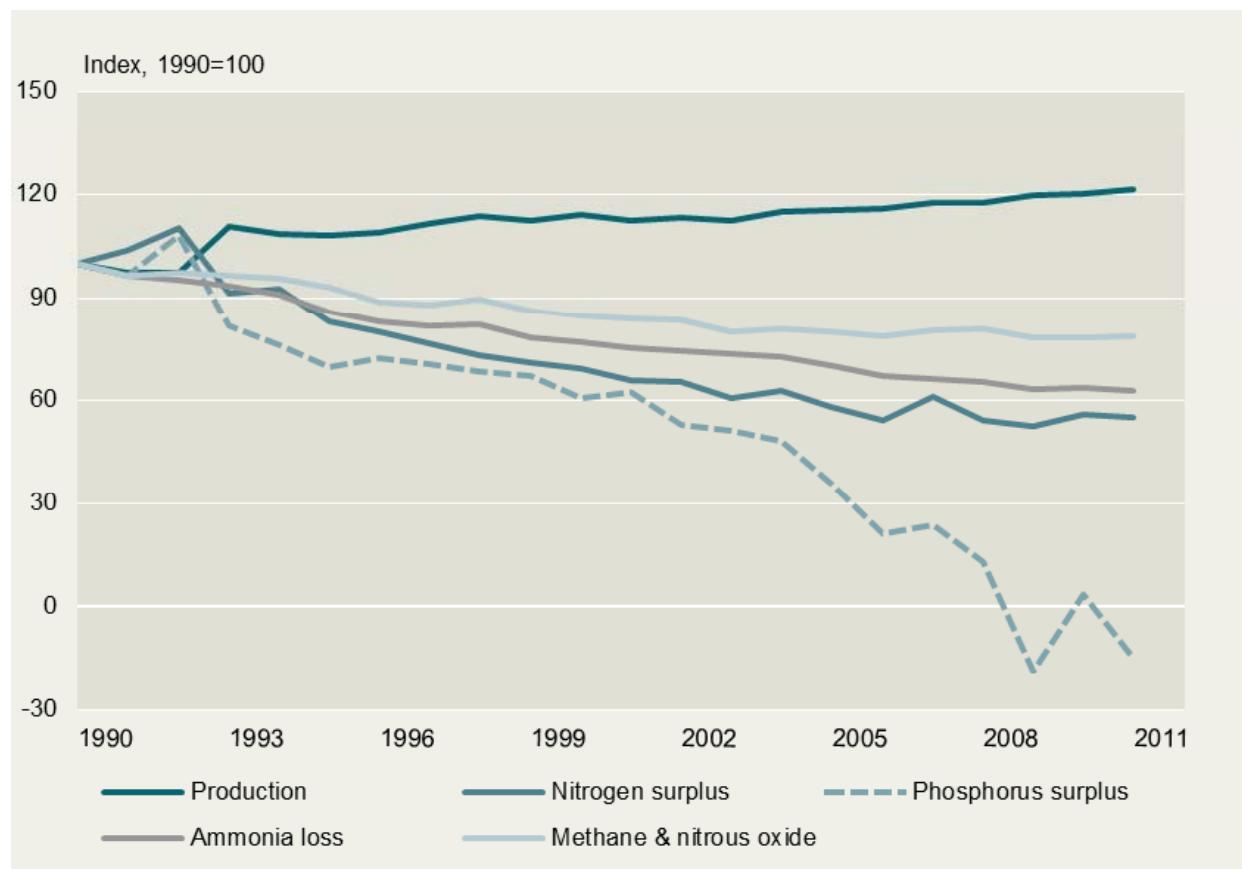
Political focus on the environment and biodiversity

- **Baltic Sea Action Plan by HELCOM**
- **Water Framework Directive by EU**
- **Marine Strategy Framework directive by EU**
- **Nitrate Directive by EU**
- **National legislative initiatives**

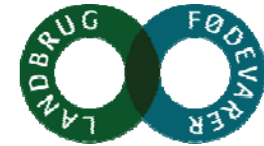




The development in production and environmental impact 1990-2011







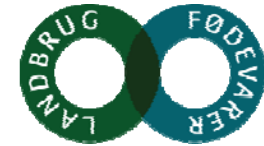
What are the causes of an unhealthy environment?

Holistic approach: include all the stress factors in the analysis

If only one stress factor is addressed, the remediation is slow, expensive and possibly unattainable

The stress factors in the Baltic Sea include fishing, mussel dredging, mining of sand and stone, untreated waste and sewage water, climate change and eutrophication, among others.





If there is an excess of nutrients where does it come from ?

Targeted measures keep the production high while reducing the environmental footprint

- Important to locate the source of a high nutrient output
- Implement measures in places where they will make a difference
- Avoid expensive overimplementation and unnecessary costly restrictions
- Evaluate the cost-effectiveness and the economic consequences of different management scenarios





Planning phase

The cost-effectiveness of measures should be evaluated as part of the decision-making process

- 1: Take action in the recipient water body and the catchment
- 2: Then at the edge of the arable land if needed
- 3: Only if necessary on the arable land





Measures in the recipient water body

- **Re-establish reefs**
 - Provides substrate for microalgae and habitat for a wide variety of marine organisms and reduces oxygen depletion
- **Plant eelgrass beds**
 - Provides uptake and sequestration of nutrients and stabilizes the seabed and habitat
- **Establish protected areas with no fishing or mining activities**
 - Increases the water clarity and protects the ecosystem structure
- **Re-establish mussel beds and establish mussel farms**
 - Increases the water clarity and nutrient uptake



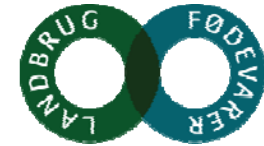
Measures at the edge of the arable land

- **Wetlands and constructed wetlands**
 - Removes particles and nutrients
- **Buffer strips**
 - Reduces the runoff of nutrients



Foto: Jens Tønnesen

Measures related to production



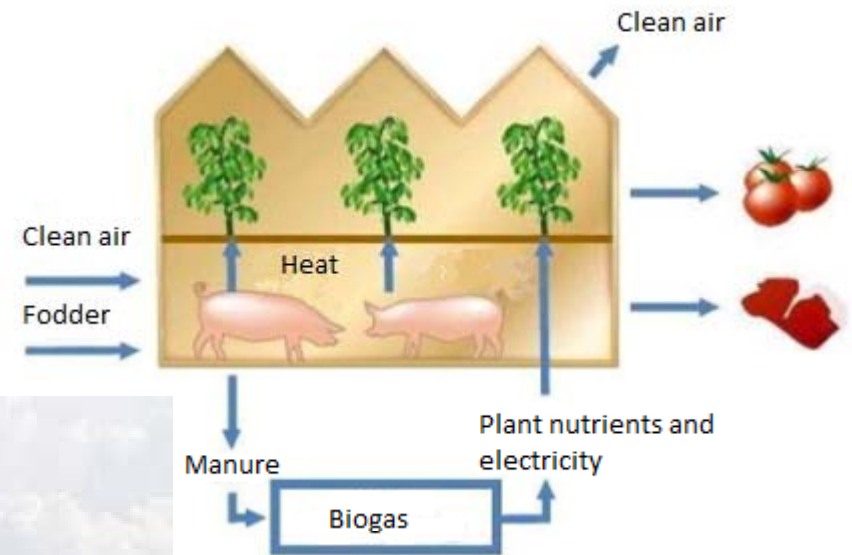
- Use of waste products as biofuels
- Optimizing the feeding efficiency
- Manure handling



Foto: Jens Tonnesen/Dansk Landbrugs Medier

Pig city

Cradle-to-cradle
No waste products





Summary / take home message

- **Sustainable intensive production can provide both food security and a healthy environment**
- **Consider all the stress factors of an ecosystem to obtain the desired effect faster and more cost-efficient**
- **Use targeted measures to avoid expensive over-implementation and restrictions where none are needed**
- **1: The recipient and catchment, 2: The edge of the arable land and 3: Then – if necessary – actions on the arable land**