

*Economic aspects of manure management –
the case of the Danish pigmeat sector*



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Seoul, 24 – 27 April 2012

Agenda

- Short introduction to the Danish pigmeat sector
- The Danish pigmeat sector in an environmental legislative context – EU requirements and national implementation hereof/additional requirements
- Various aspects, including the economic aspect, of the handling of manure
- Results, perspectives and conclusions

Introduction to the Danish pigmeat sector

Structure development

Suppliers

- 1990: 33,000 suppliers (approx)
- 2010: 4,500 suppliers (approx)

Production mil. pigs

- 1990: 16,3
- 2010: 28,6



Pig Producers 4,500

28.6 m Pigs
2.1 m tonnes of pigmeat



Live export: 7.5 m piglets
Live export: 1.0 m sl.pigs/sows



Private sl.houses: 2.0 m.
Cooperative Slaughterhouses:
18.1 m pigs



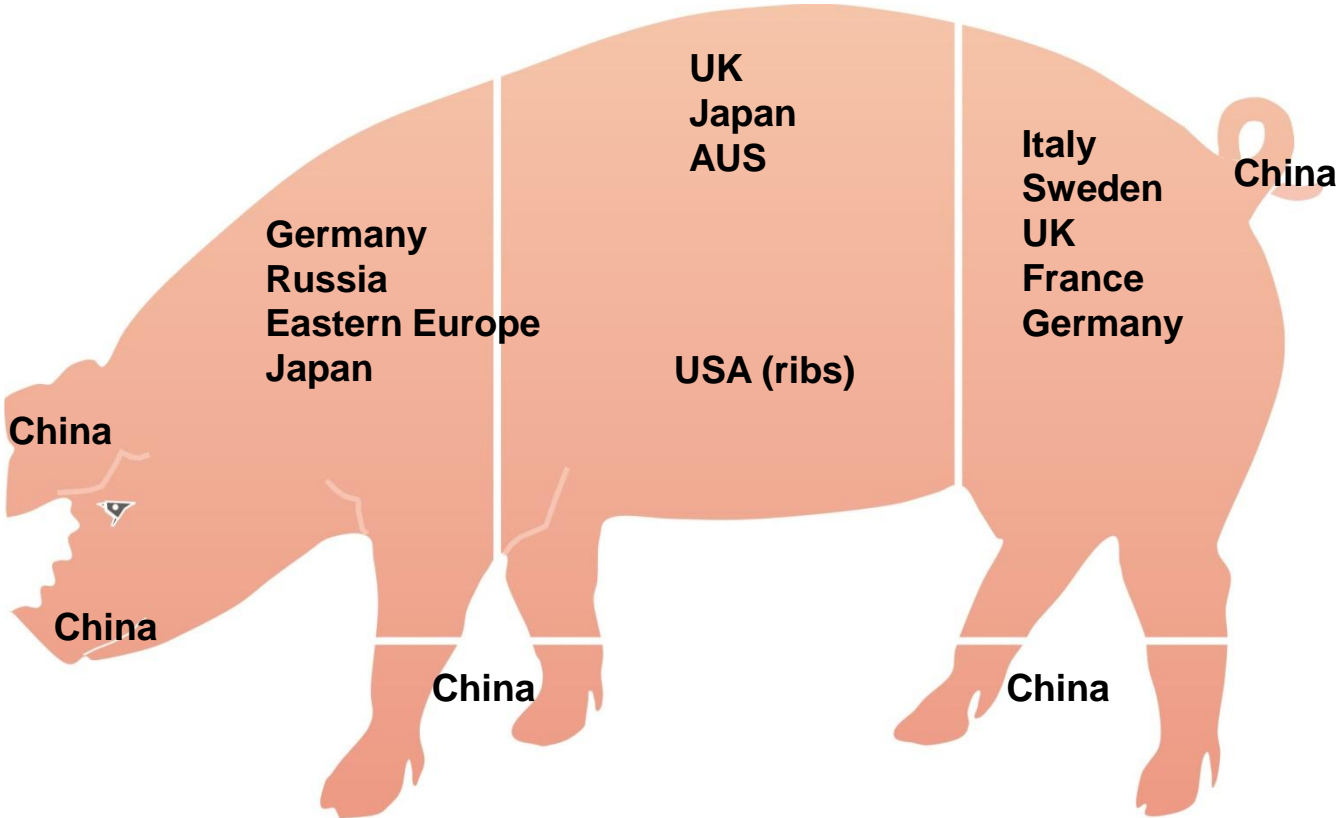
Export
28.1 DKK
bill.
Domestic
market:
3 DKK bill.

Markets
Export 90%
Domestic 10%

Value: 31 DKK bill.



Export destinations



The Danish pigmeat sector in an environmental legislative framework

The situation of Denmark



- 5,5 mio people
- Produce 28.5 mio pigs
- Surrounded by costal zones
- No cleaning of drinking water
- Classified as sensitive area
- Outdoor pig production not possible

- Various EU directives (Habitat, Nitrate, IPPC/IED)
- National implementation of EU requirements and additional national requirements.
- Best Available Techniques (BAT) – In depth implementation of this concept in Denmark, e.g. regarding:
 - Slurry/manure
 - Noise and odour

- Various aspects of the handling of manure

Different aspects of handling the manure/slurry

2. Handling of manure in staples

3. Storage of slurry



1. Efficient use of feed

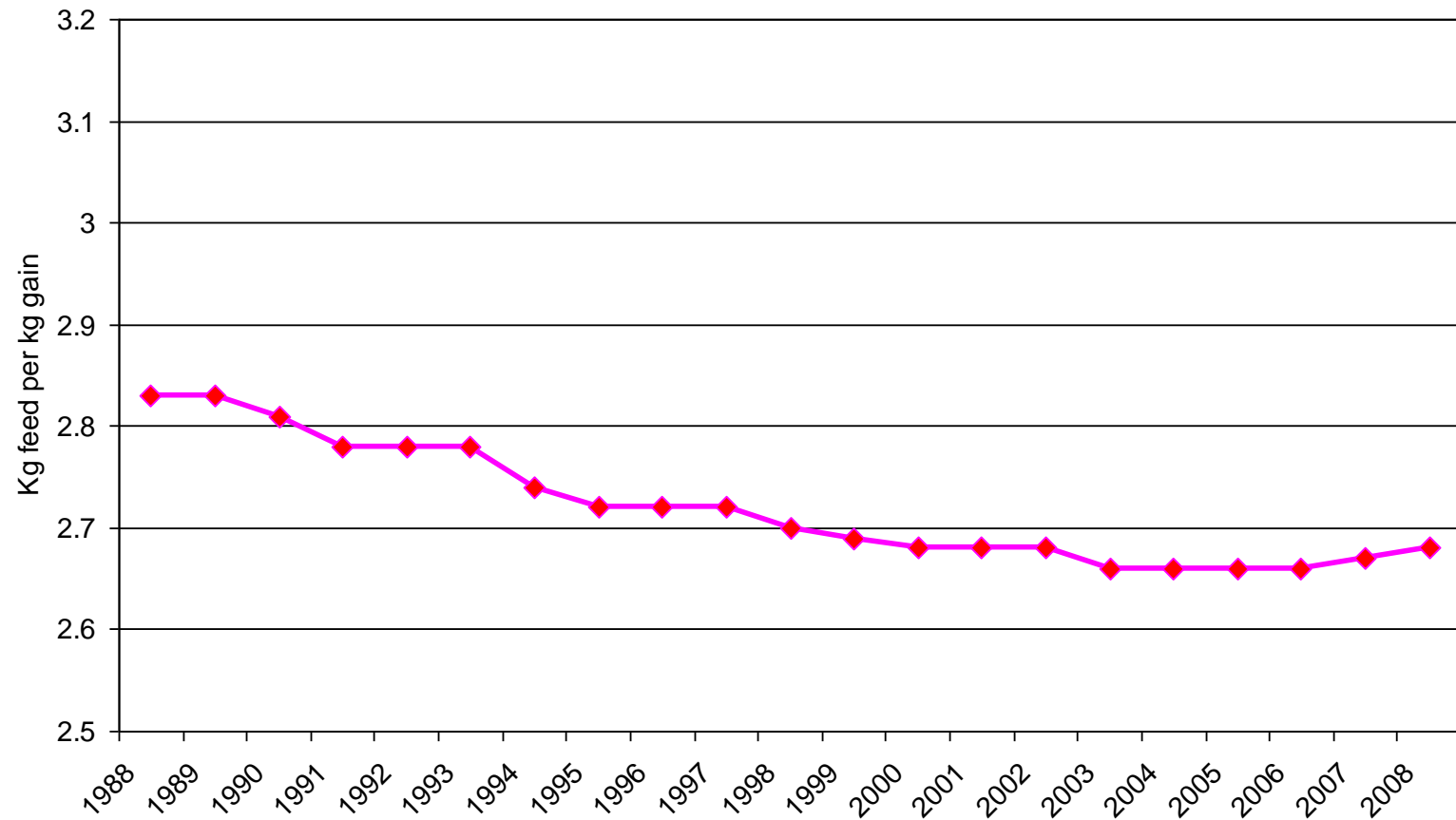
4. Spreading slurry on the fields

Efficient use of feed

- Low feed conversion ratio
- Exploit the minerals in the feed by fx adding phytase
- Reduce the amount of nutrients in slurry
- Genetics



PROGRESS – FEED CONVERSION RATIO



Handling of slurry/manure in staples

- Cooling of slurry
- Floor design (partly or fully slotted floor, reducing manure channels)
- Air cleaning mechanisms (acidifications)

Storage of slurry

- Requirement for 9 month storage capacity since 1986
- Covered slurry tanks to reduce ammonia emission, green house gas emission (CO_2 , CH_4 , N_2O) and odour
- Covered slurry tanks can reduce ammonia emission from 9 percent to 1 percent



Handling of slurry

- Compulsory yearly manure accounts
- Harmony - Balance between land and animal units or written contracts
- Requirements for utilization of nitrogen in slurry equal to 75 percent
- Allocation of slurry: 10 pct. Below economic optimum
- Maximum application of 140 kg nitrogen per hectare
- No broad spreading of slurry allowed
- Requirements for catch crops during winter
- Spreading of slurry only allowed from February to harvest
- More strict requirements for vulnerable areas



The economic aspect of manure management

- Significant investment - 3 mio US \$ spend each year on applied research and development by the pig industry
- BAT (1- 1,5 EUR pr. produced slaughterpig).
- Outcome of the EU BAT-negotiations in Sevilla?
- Biogas, political priorities and prices.
- The costs have to recouperated.

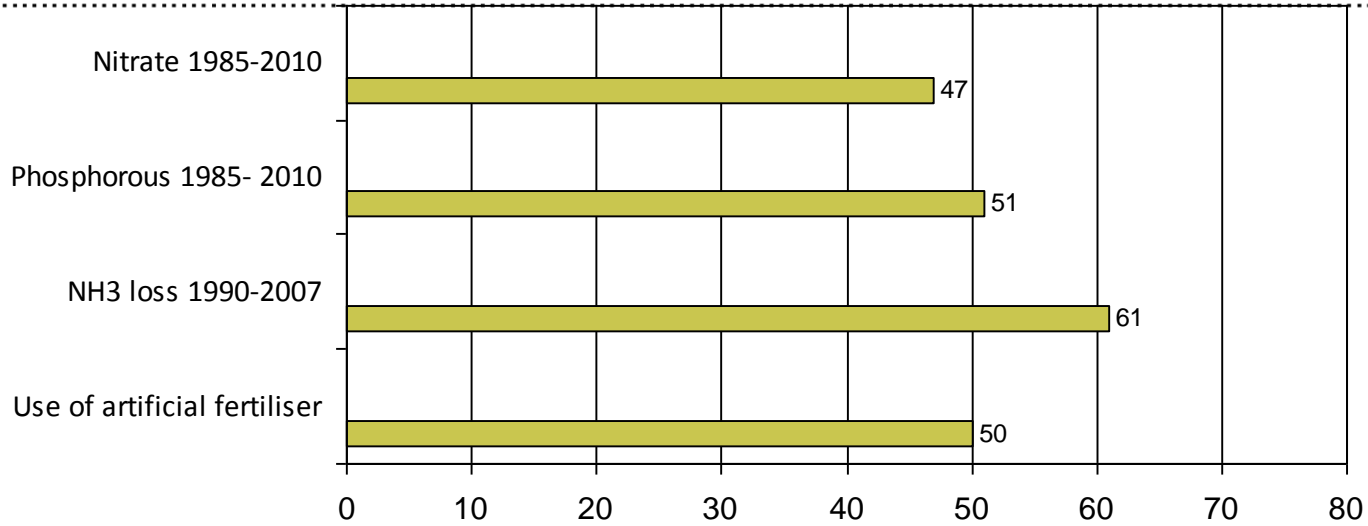
Results, perspectives and conclusions

ENVIRONMENTAL IMPROVEMENTS

- "Today we can produce two pigs with same environmental impact as just one pig in 1985"



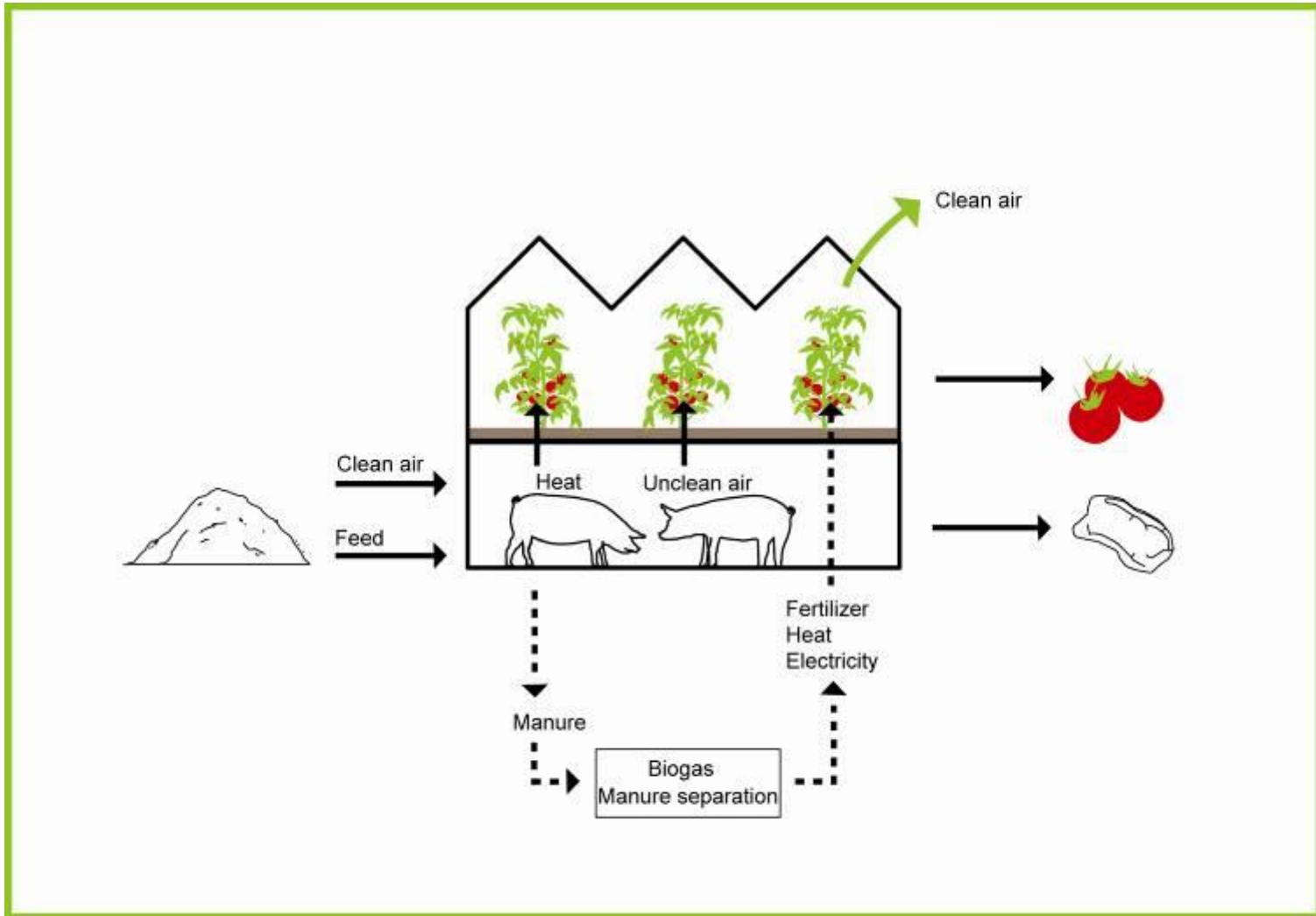
Environmental improvements



**Commercial farming
with a minimal environmental impact**



Future development



CO₂ neutral farms with high level of animal welfare



BANK OF CLUSTER



// SITUATIONSVIEW