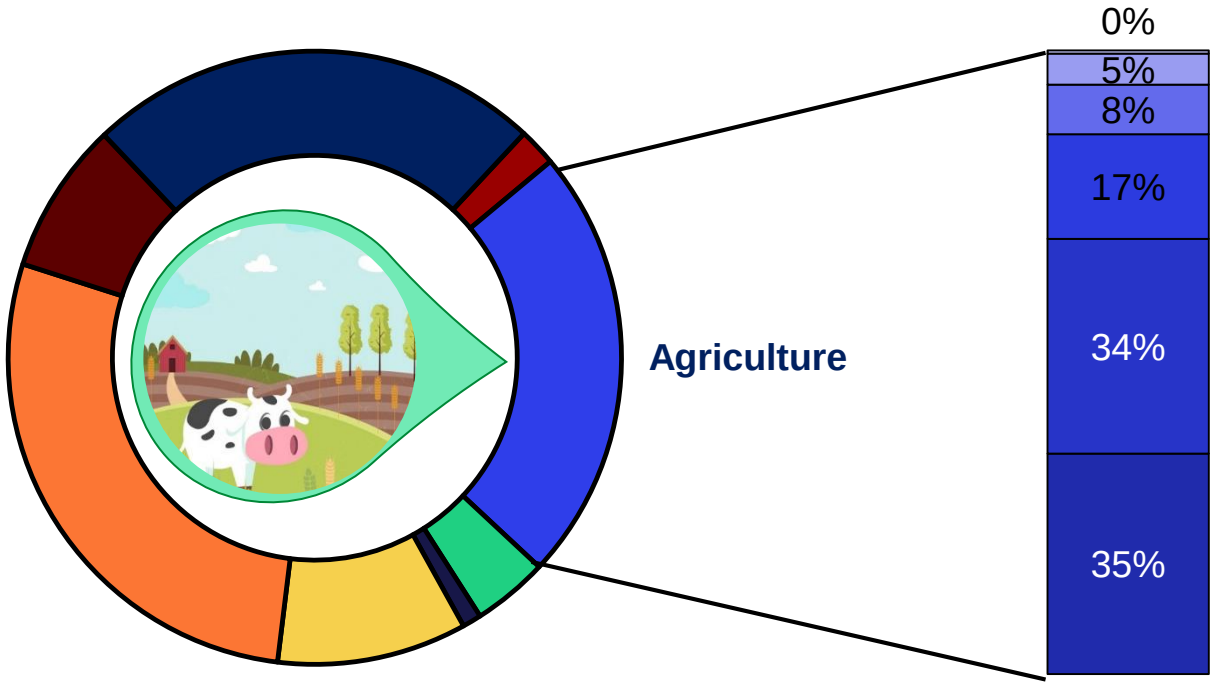
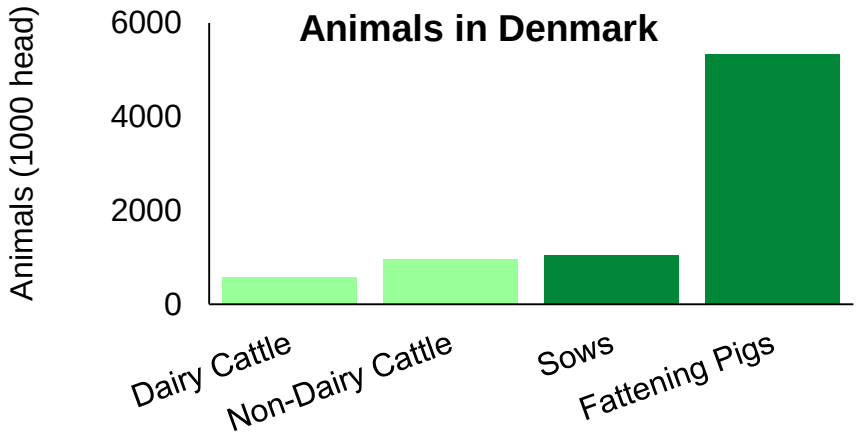
N. T. Vechi, A. Delre, C. Scheutz

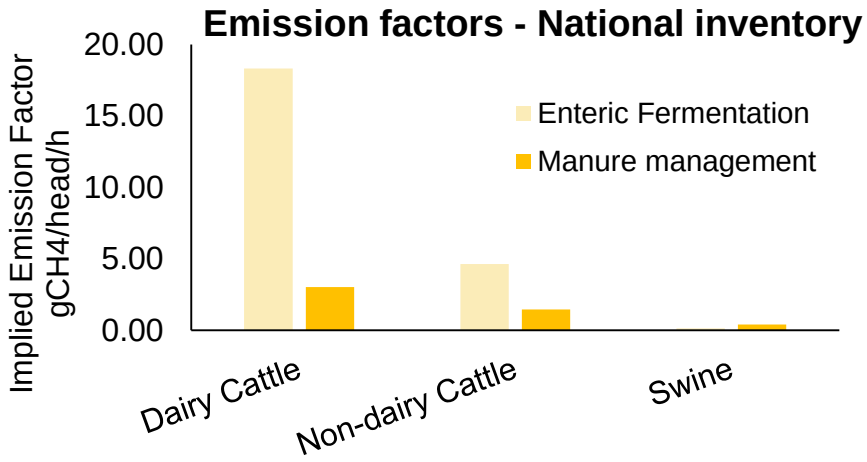
Assessment of methane emissions from Danish livestock production practices using the tracer gas dispersion method

Introduction
Agricultural contribution to GHG in Denmark



Source: Nielsen, O.-K., et.al., 2020. Denmark's National Inventory Report 2020. Emission Inventories 1990-2018 - Submitted under the United Nations Framework Convention on Climate Change and the Kyoto Protocol. Aarhus University, DCE – Danish Centre for Environment and Energy 904 pp. Scientific Report from DCE – Danish Centre for Environment and Energy No. 372. http://dce2.au.dk/pub/SR372.pdf



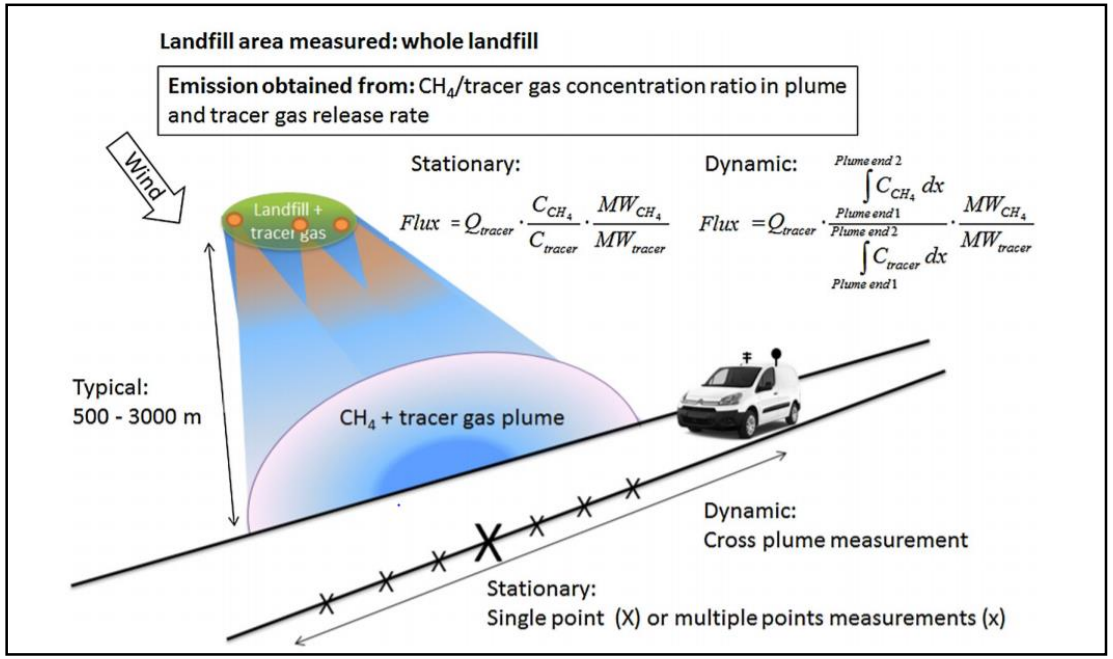


Aim

The aim is to:

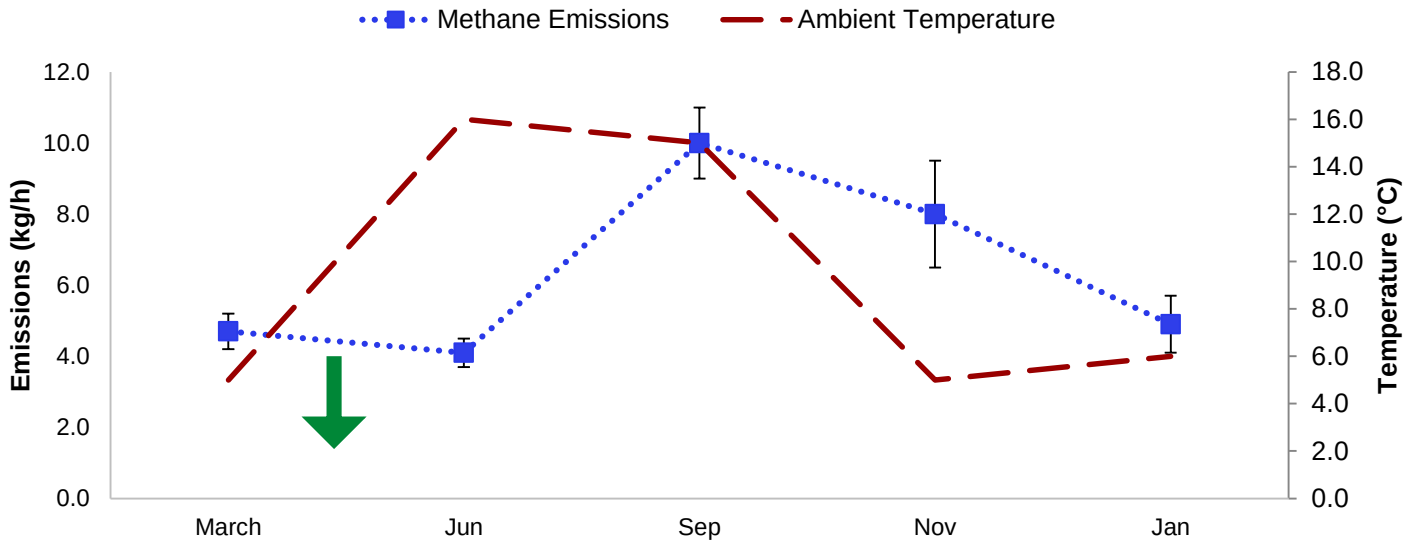
- Quantify methane emissions from pig and cattle farms using the tracer gas dispersion method and
- Compare measured emission rates with inventory default emission rates

The tracer Dispersion Method



Mønster, J., Kjeldsen P., Scheutz C. 2018

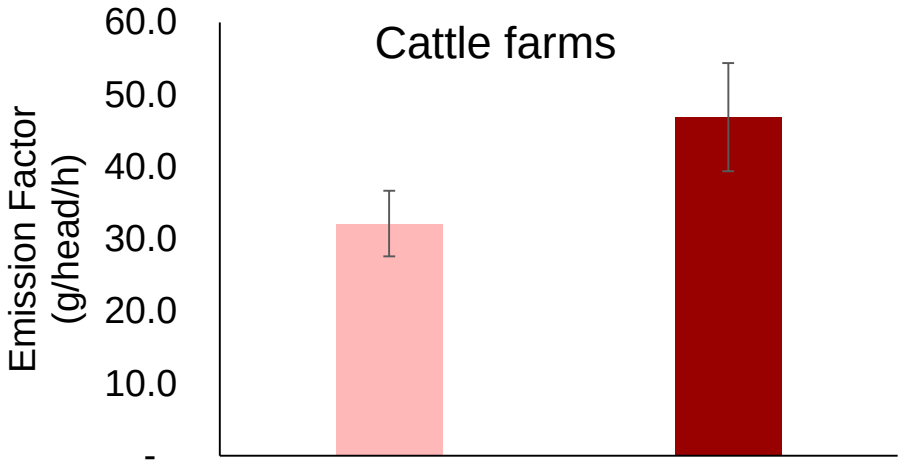
Annual emission variation measured at a pig farm with sows



*The green arrow shows when the manure tanks were totally empty in April

- Fluctuations in the emissions are likely caused by temperature changes and manured stored in on-site tanks

Emission factors based on measured emission rates

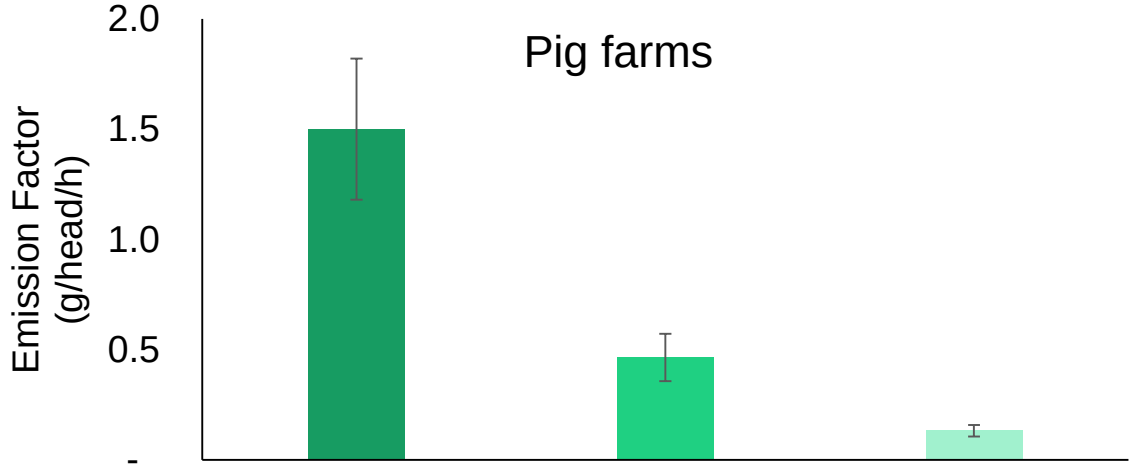


Farm 1

- Organic
- **Jersey**
- Slatted floor
- Liquid manure management

Farm 2

- Conventional
- **Holstein**
- Slatted floor/**Deep litter**
- Liquid manure management - **Biogas**



Farm 3

- Fattening pigs
- Liquid manure management

Farm 4

- Fattening pigs
- Liquid manure management **- Biogas**

Farm 5

- Fattening pigs
- Liquid manure management - **Acidification**

Discussion / Conclusions

- TDM is a suitable method to measure methane emissions from the whole animal farms
  There are some challenges associated with low emissions and measurement duration

- Differences in cattle operation were identified using the method, and are likely related to manure management and animal breed

- Pig farms also showed differences associated with type of manure management

- Comparison with inventory estimates are still in progress

Thank you!

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