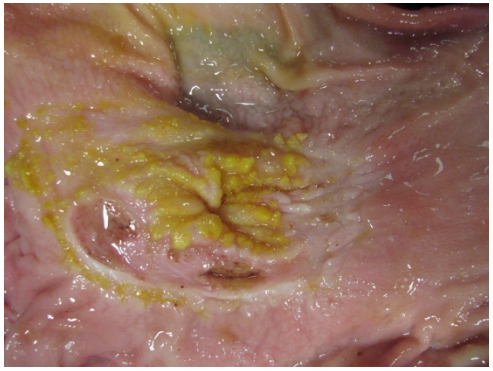
# Does permanent access to straw affect the occurrence of gastric ulceration in pigs at slaughter?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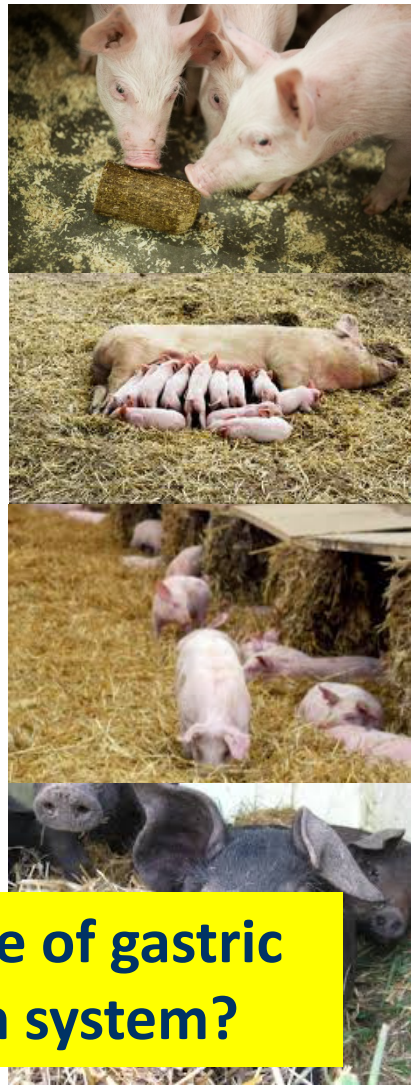
# Introduction

- Straw = beneficial ~ animal behaviour
  (tail biting) (Taylor et al., 2012)

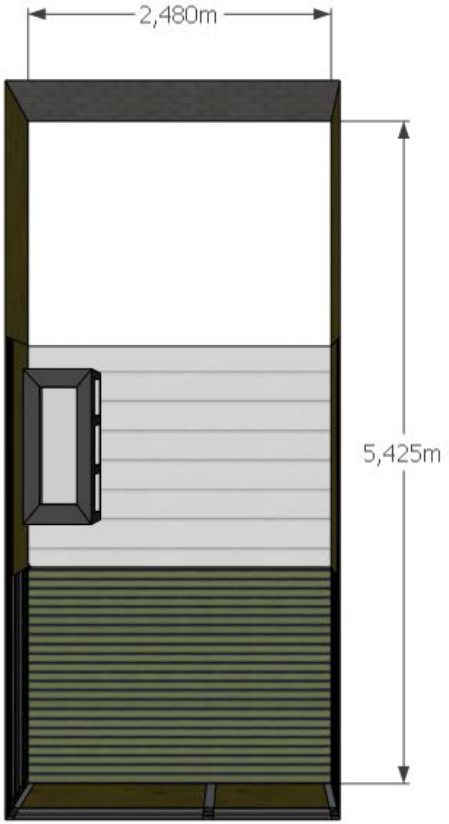
- Straw ⇒ ↓ gastric ulceration
  - confounded by system comparison
  - not from commercial conditions



**Does permanent access to straw affect the occurrence of gastric ulceration in a standardised, conventional production system?**

# Materials & methods

- Growing pigs from 30-100 kg
- Resident herd at AU-FOULUM
- Floor: 1/3 concrete, 1/3 drained and 1/3 slatted
- Pen area: 5.4 m x 2.5 m
- 18 pigs per pen, 0.7 $m^2$/pig
- Commercially available dry feed, 3 feeding places per pen, *ad lib.*




Part of study by Pedersen et al., subm.

# Straw treatments


- Straw (whole wheat) once daily
- Left-over straw removed twice a week
- Provided manually on to the solid floor
- Data from 45 pigs (3 from each of 15 pens)
- N = 18 pigs with access to 10 g straw
- N= 27 pigs with access to at least 500 g straw

Photos by Hyologisk, Denmark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# Data collection

- Euthanised, no prior  feed withdrawal
- Stomachs and esophagi removed
- Opened along the greater curvature
- Cleaned with cold water
- Scored according to gross morphological findings and histological examination (scale from 0-10)
- Dimensions of the non-glandular (pars oesophagea) quantified

**No differences found here**

Photo: Sarah-Lina Schild

| GROSS MORPHOLOGY | | | | |
|---|---|---|---|---|
| **Simple scale** | **Detailed scale** | **10 g** | **Permanent** | **P-value** |
| Normal | 0 | 33 | 33 | NS |
| Hyperkeratinosis | 1-3 | 17 | 41 | NS |
| Erosion | 4-6 | 17 | 19 | NS |
| **Ulceration** | **7-9** | **33** | **7** | **P<0.05** |
| Stricture | 10 | 0 | 0 | NS |

Within both groups 67% of the stomachs showed signs of gastric pathology

**Permanent access to straw leads to lower occurrence of gastric ulceration at slaughter**

# Discussion

- The mechanisms behind the effect of straw have not been examined in this small study

- Nutritional as well as environmental factors

- Increasing the amount of straw

  → ↓ penmate directed oral behaviour

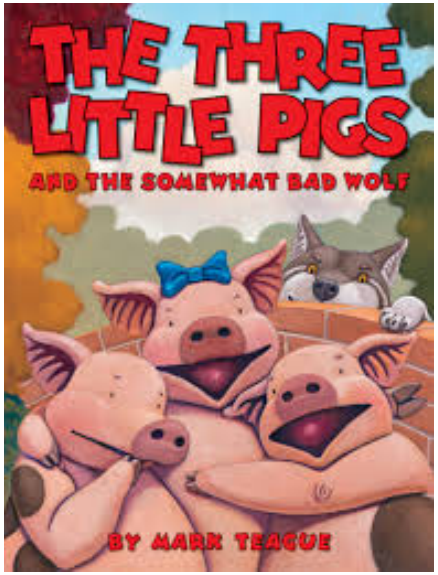
  → ↑ level of activity (Pedersen et al., subm.)

**Knowledge about nutritional and environmental effects and their interaction is needed**

# Conclusion

- Irrespective of the amount of straw provided, 2/3 pig showed signs of gastric pathology
- **The proportion of pigs with severe pathological changes (ulcerations) was decreased by the permanent access to straw**
- Provision of large amounts of straw may be one way to limit the occurrence of severe gastric ulcers

**How much straw is enough to get this effect?**





# Maybe the first little pig wasn't that stupid after all…..

*This project was funded by The Danish* Ministry of Agriculture and Aarhus University

# Introduction

- **EU-regulation: pigs must have permanent access to suitable rooting material (2001/93/EC)**

- **Straw has received more focus than other materials and can be beneficial from a welfare point of view**

  - **preferred** (Studnitz et al., 2007)
  - **↓ manipulation of pen mates** (Pedersen et al., in press)
  - **↓ risk of tail biting** (Taylor et al., 2012)

**But how does straw affect the health of growing pigs?**