



RISK FACTORS FOR PIGLET MORTALITY IN DANISH ORGANIC PIG PRODUCTION

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THE PROJECT

- ▶ What? Identifying the risk factors of piglet mortality in Danish organic pig production.
- ▶ Why? An estimated pre weaning mortality between 25 and 40 % is unsustainable both from an economic and animal welfare point of view.
- ▶ How?
 1. Detailed on farm registrations on the piglet mortality in 9 farms during one year
 - › Approximately 6000 farrowings
 2. Necropsies on a selection of the dead piglets from the 9 farms
 - › 100-125 piglets per farm per season ~ 4000 necropsies



STOCKMAN RECORDINGS FOR MORTALITY CALCULATIONS- METHODS

- ▶ A pocket sized booklet.
- ▶ Counting and registration of piglets four times during the seven week long pre weaning period; At birth, castration (or 3-5 days after birth), vaccination (or 14-21 days after birth) and at weaning.
- ▶ Registrations on the sows include: Parity, body condition, health status and functional teats on the gilts.
- ▶ Data collection from June 2014 until May 2015
- ▶ Registrations on approximately 6000 farrowings

STOCKMAN AND THEIR RECORDINGS DIFFERS ...

| | | | | | | | |
|---------------------|------------------------------|------|------|-------|-------|-------|------|
| Hold: | So nr. | 500 | 774 | 911 | 635 | 642 | 705 |
| | Hytte | 73 | 63 | 26 | 115 | 65 | 44 |
| | Læg nr | 5 | 2 | 1 | 4 | 4 | 3 |
| Indsæt føremærk | Dato | 13/8 | 15/2 | 25/2 | 19/2 | 25/2 | 13/8 |
| | Halvbed (0-1) + Huld (2-4) | 3 | 7 | 4 | 3 | 2 | 3 |
| Faring | Faring, dato | 24/6 | 29/1 | 24/8 | 24/8 | 24/8 | 24/8 |
| | 1. tilsyn efter faring, dato | | | | | | |
| | Dødføde | 5 | 3 | | 6 | 2 | 1 |
| | Døde efter faring (S/A) | | 1 5 | 1 5 | | 3 5 | |
| Indtil kastning | Levendeføde | 19 | | | 18 | 24 | 22 |
| | Heraf små (max. 21 cm) | | 2 | | | 1 | |
| Gylte | Kuldudjævning +/- | -1 | -3 | +9 | -3 | -6 | |
| | Antal pætter | 14 | 14 | 14 | 14 | 15 | |
| Kastrering | Kastrering dato | 30/8 | 24/8 | 30/8 | 4/9 | 4/9 | |
| | Antal grise v/start | 14 | 14 | 14 | 14 | 13 | |
| | Affliv. efter optæll. antal | | | | | | |
| Førgård/vaccination | Evt. kuldudjævning +/- | | 73 | | | -2 | -2 |
| | Dato | 13/8 | 17/8 | 7/9 | 13/9 | 13/9 | |
| Fravæning | Antal grise | 13 | 13 | 10 | 12 | 13 | |
| | Dato | 24/6 | 24/6 | 14/10 | 24/10 | 24/10 | |
| Noter (evt system*) | Antal grise frav. soen | 12 | 11 | 2 | 10 | 12 | 13 |
| | | | | SUR | | oldet | |

*Lidelse: 1. Førefeber 2. yverbet. 3. ben 4. andet. Antibiotika i/v

| Række | | 4 | | | | | | | | | | AVL 500-579 | | | | | | | | | | 600-679 | | | | | | | | | |
|-------|-------|--------|-----|--------|------|--------|------|---------|-----|---------|-----------------------|-------------|-----------|-------|---------------|-------|-------|-----------|-------|------------|------|----------------|--|--|--|--|--|--|--|--|--|
| By | Hytte | So nr. | Læg | Indtil | Huld | Faring | Lev. | Dre nr. | Små | Dødføde | Kuldudjævning i kast. | Kastrering | Dato kast | Antal | Kuldudjævning | Vacc. | Antal | Fravæning | Antal | Ligger med | Døde | Bemærkning | | | | | | | | | |
| 13 | 770 | 13/6 | 3 | 30/6 | 19 | 3 | | | | | | | 1/7 | 14 | 3 | | 15/7 | 13 | 1 | | | | | | | | | | | | |
| 14 | 770 | 13/6 | 3 | 30/6 | 12 | 2 | | | | | +21 | | 15/7 | 12 | | | 15/7 | 12 | 1 | | | | | | | | | | | | |
| 15 | 534 | 13/6 | 3 | 21/6 | 22 | 7 | 4 | 1 | | | | | 20/6 | 12 | 31 | | 14/2 | 11 | 1 | | | AVL (4) | | | | | | | | | |
| 16 | 519 | 13/6 | 3 | 25/6 | 12 | | | | | | -44 | | 21/7 | 13 | | | 14/2 | 13 | 1 | | | | | | | | | | | | |
| 17 | 518 | 13/6 | 3 | 28/6 | 19 | | | | | | 32 | | 20/6 | 11 | | | 14/2 | 8 | 1 | | | Reponering 3/2 | | | | | | | | | |
| 18 | 524 | 13/6 | 3 | 29/6 | 22 | 2 | 2 | 1 | | | | | 20/6 | 19 | 34 | | 14/2 | 13 | 1 | | | | | | | | | | | | |
| 19 | 520 | 13/6 | 3 | 27/6 | 17 | 1 | 4 | 1 | | | | | 1/7 | 16 | 22 | | 11/2 | 12 | 1 | | | 12 år | | | | | | | | | |
| 20 | 75 | 13/6 | 3 | 26/6 | 20 | | | | | | -4 | | 20/6 | 11 | 22 | | 15/7 | 10 | 1 | | | | | | | | | | | | |
| 21 | 642 | 13/6 | 3 | 6/6 | 10 | 1 | 26/5 | | | | | | X | 3 | | | 14/2 | 10 | 1 | | | Amesoo | | | | | | | | | |
| 22 | 461 | 13/6 | 3 | 15/6 | 19 | 1 | | | | | 3 | -4 | 20/6 | 12 | | | 14/2 | 10 | 1 | | | Bytteso | | | | | | | | | |
| 23 | 131 | 13/6 | 3 | 21/6 | 16 | 1 | 2 | 2 | | | | | 20/6 | 13 | | | 14/2 | 11 | 1 | | | 11 år | | | | | | | | | |
| 24 | 438 | 13/6 | 3 | 25/6 | 25 | 3 | 2 | 4 | | | | 33 | 20/6 | 13 | 31 | | 14/2 | 12 | 1 | | | 11 år | | | | | | | | | |
| 25 | 106 | 13/6 | 3 | 17/6 | 17 | | | | | | 35 | | 20/6 | 12 | | | 14/2 | 10 | 1 | | | Bytteso | | | | | | | | | |
| 26 | 759 | 13/6 | 3 | 18/6 | 18 | 8 | | | | | | | 23/6 | 13 | | | 14/2 | 12 | 1 | | | | | | | | | | | | |
| 27 | 478 | 13/6 | 3 | 26/6 | 23 | | | | | | 2 | | 20/6 | 14 | | | 14/2 | 11 | 19/13 | 11/1 | | | | | | | | | | | |
| 28 | 530 | 13/6 | 3 | 25/6 | 18 | | 3 | 1 | | | | | 20/6 | 12 | 22 | | 15/7 | 12 | 1 | 12 | | | | | | | | | | | |
| 29 | 505 | 13/6 | 3 | 24/6 | 13 | | 2 | 1 | | | -2 | | 20/6 | 11 | | | 15/7 | 10 | 1 | 10 | | | | | | | | | | | |
| 30 | 487 | 13/6 | 3 | 28/6 | 14 | | | | | | | | 20/6 | 14 | | | 15/7 | 11 | 1 | 11 | | | | | | | | | | | |
| 31 | 538 | 13/6 | 3 | 26/6 | 17 | | 2 | | | | | | 20/6 | 14 | 33 | | 15/7 | 13 | 1 | 14 | | | | | | | | | | | |
| 32 | 458 | 13/6 | 3 | 29/6 | 15 | | | | | | 3 | | 2/7 | 14 | | | 15/7 | 11 | 1 | 11 | | | | | | | | | | | |
| 33 | 434 | 13/6 | 3 | 26/6 | 18 | | | | | | | | 20/6 | 12 | 2 | | 15/7 | 10 | 1 | 10 | | | | | | | | | | | |
| 34 | 524 | 13/6 | 3 | 26/6 | 18 | | | | | | 3 | | 20/6 | 12 | 22 | | 15/7 | 12 | 1 | 11 | | AVL (5) | | | | | | | | | |
| 35 | 500 | 13/6 | 3 | 23/6 | 14 | | | | | | -6 | | 20/6 | 16 | 32 | | 15/7 | 12 | 1 | 12 | | AVL (6) | | | | | | | | | |
| 36 | 531 | 13/6 | 3 | 23/6 | 14 | | 1 | | | | -1 | | 20/6 | 14 | | | 15/7 | 14 | 1 | 14 | | | | | | | | | | | |
| 37 | 484 | 13/6 | 3 | 28/6 | 19 | 4 | | 5 | | | | | 20/6 | 13 | | | 15/7 | 12 | 1 | 12 | | | | | | | | | | | |
| 38 | 493 | 13/6 | 3 | 28/6 | 18 | | | | | | 3 | | 20/6 | 14 | 31 | | 15/7 | 13 | 1 | 13 | | | | | | | | | | | |
| 39 | 507 | 13/6 | 3 | 28/6 | 18 | | | | | | 2 | | 20/6 | 16 | 22 | | 15/7 | 12 | 1 | 12 | | | | | | | | | | | |

Prognosis 23-24

CROSS FOSTERING AND NURSING SOWS IS DIFFICULT

- ▶ Risk of double registrations when cross fostering piglets and using nursing sows
- ▶ Communication with the farmers and the employees in the farrowing unit
 - Have they changed their daily routines?
 - Are new employees being trained to do the registrations correctly?



NECROPSIES - METHODS

- ▶ Dead piglets from approximately 25 sows on each farm.
- ▶ 4 collection periods - summer, autumn, winter and spring.
- ▶ Collection during the same 12 month period as the mortality registrations are performed.
- ▶ Dead piglets are kept frozen and necropsies are performed at the farms.
- ▶ Detailed information on body condition, stomach content etc. and a cause of death is noted for each piglet.

- ▶ **Necropsies on approximately 4000 piglets**

NECROPSIES - A PICTURE IS WORTH A THOUSAND WORDS





NECROPSIES - ISSUES

- ▶ Dystocia vs. crushed – from what do the oedema originate?
- ▶ Intrauterine Growth Restriction (IUGR) is hard to evaluate
- ▶ Diagnoses on older piglets – often in need of histology or other diagnostic tools
- ▶ Consistency in the use of diagnoses



THE END PRODUCT OF THE STUDY

- ▶ A PhD thesis including three peer reviewed articles to be published in internationally recognised journals.
- ▶ Suggestions on how to combine the results from the necropsies and the detailed registrations in solid hypotheses



HYPOTHESES – WORK IN PROGRESS

- ▶ A proportion of piglets that are diagnosed as crushed have other potential underlying predisposing factors such as poor nutritional state, low birth weight or infectious diseases.
- ▶ Poor health status, nutritional stage and high parity of the sow will increase the piglet mortality rates.
- ▶ There is a significant difference of pre weaning mortality and causes of death both regarding the temporal distribution and in the individual variations between the farms.

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