Nurse sow strategies: an effective way to rear super-numerous piglets?

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Background

No. Born Alive per Litter

Piglet Mortality %

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Background

- Increased litter size is a challenge
  - Piglets: growth performance, health, survival (crushing)
  - Sow: competition at udder, increased attention

- Nurse sow to rear super numerous piglets
  - Whole litter removed = better acceptance (Reese and Straw, 2006)
  - Milk quality considerations
Background

- Importance of maternal abilities
  - Milk quality = number reared, number of teats
  - Crushing = number crushed, body lesions, lameness

- Better fostering biggest piglets (Milligan et al., 2001; Muns et al., 2014)
  - Better at teat acquisition (Milligan et al., 2001)
  - Better able to undergo delayed nursing
Objectives

Determine the impact of fostering on piglets’ growth and pre-weaning survival

Determine if one strategy would promote piglets’ growth and survival compared to the other
Experimental Design

1 step strategy

Remain (R) 1 day farrowed
Nurse sow (N1-D21) 21 days lactation

R = 10 litters / 117 piglets
N1-D21 = 10 litters / 120 piglets
**Experimental Design**

- **R** (Remain): 1 day farrowed
- **N2**: Nurse sow (N2-D7) 4-7 days lactation
- **N3**: Nurse sow (N2-D21) 21 days lactation

**2 step strategy**

- R = 9 litters / 118 piglets
- N2-D7 = 9 litters / 106 piglets
- N2-D21 = 9 litters / 108 piglets
Data collection and analysis - Growth

- D0 = fostering
- D1
- D3
- D10
- D17
- D24
- (D31)
- Weaning
- Weaning + 7 days
- Stage 2

- Piglets individually weighed
- Growth rate = Average Daily Gain calculated between two measurement days
- Death of individuals recorded as occurred
- Average litter mortality for the entire lactation

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Statistics

- **Weight and Average Daily Gain**

  Normal data distribution

  General Linear Mixed Model (GLMM)
  Repeated measures (day)
  Random factor (sow)

- **Mortality**

  Binary data distribution

  General Linear Mixed Model (GLMM)
Pre-weaning mortality

Mortality rate (%)

- N1-D21
- N2-D7
- N2-D21
- Remain
- Remain Mix
Pre-weaning growth – Body weight

Day: P<0.001
Treatment: NS
Treatment*Day: P<0.001
Pre-weaning growth – Average Daily Gain

Average Daily Gain (kg)

N1-D21
N2-D7
Remain
Remain Mix

D0-D1
D1-D3
D3-D11
**Post-weaning growth – Body weight**

**Day:** P<0.001  
**Treatment:** NS  
**Treatment*Day:** P<0.001

![Bar graph showing weight progression over days and treatments.](image)

- **N1-D21**
- **N2-D7**
- **N2-D21**
- **Remain**
- **Remain Mix**

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Conclusions

Fostering onto a nurse sow

• Did not compromise survival nor growth of fostered piglets

Compared to the lightest littermates which remained with their dam

-> Further investigation is needed to assess the impact of fostering on heaviest piglets’ growth and survival
Conclusions

Fostering onto a nurse sow

- Did not compromise survival nor growth of fostered piglets
- Allowed lightest piglets to catch up with fostered piglets

Some of fostered piglets experienced growth check after fostering

-> Further investigation is needed to assess the impact of fostering on heaviest piglets’ growth
Conclusions

Fostering onto a nurse sow

• Did not compromise survival nor growth of fostered piglets
• Allowed lightest piglets to catch up with fostered piglets

Both nurse sow strategies were effective in ensuring survival and growth of super-numerous piglets
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Questions?