Management strategies to improve piglets’ survival

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The context

Increase in litter size:

- ↑ Litter weight variability
- ↑ Small piglets prevalence

(< 1.1 kg birthweight; normal = 1.5 kg)
The context

Increase in litter size:

• ↑ Litter weight variability
• ↑ Small piglets prevalence
  (< 1.1 kg birthweight; normal = 1.5 kg)
• ↑ Fighting at the udder
• ↑ Piglet mortality
Experiment 1
Energy boost at birth
Why bother?

- Neonatal mortality
  - Low energy reserves (427 kJ/kg BW) vs. High energy demand (27 kJ/h/kg BW) (Mellor and Cockburn, 1986)

- Energy boost ↑ survival and growth (Decleck et al., 2016)

- Coconut oil
  - Riche in energy (fat)
  - Easily absorbable by piglets
Methods

Birth Weight < 1.10 kg (30% total born)

Average litter size 14.4 piglets born alive

Not dosed: 97 piglets
Coconut: 107 piglets
Commercial: 101 piglets
Water: 100 piglets

3h post-partum

0 KJ/2ml

74 KJ/2ml

71 KJ/2ml
Measures of interest and results

- **Weights**  → No effect
- **Glucose**  → No effect
- **Temperature**  → No effect
- **Mortality**: 24h and pre-weaning
Live born mortality

No effect of treatment

Mortality D2 - Weaning
Mortality D0 – D1

* Experimental piglets were < 1.1 kg birthweight
Conclusions

- No effect of energy boost on survival, growth, blood glucose or temperature

  Why ??

- Low mortality = Optimum management / health status ?
- 2 ml enough ?
- Two doses within 24 h better (Muns et al., 2017)
Take-home message

A single dose of 2 ml of energy boost is a waste of time and money
Experiment 2
Nurse sow strategies
Why bother?

- High prevalence of large litters
  - Most sows farrow >14 piglets
  - Equalisation of litters impossible

- Nurse sows = sows already in lactation to rear extra piglets
  - Concern for piglets: growth, survival, fighting
Methods

1 step strategy

Control
1 day post-partum

Average litter size
13.3 piglets born alive

Nurse sow (1STEP21)
21 days lactation
Methods

2 step strategy

Control
1 day post-partum

Nurse sow (2STEP7)
7 days lactation

Average litter size
13.3 piglets born alive

Nurse sow (2STEP21)
21 days lactation
Methods

Control
1 day post-partum

Litter remains **intact** with mother

Litter remains with mother but is **equalised**

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<tr>
<th>Treatment</th>
<th>Litters/sows</th>
<th>Piglets</th>
</tr>
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<tr>
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<td>9</td>
<td>118</td>
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<td>RE</td>
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<tr>
<td>1STEP21</td>
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<tr>
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</table>
Measures of interest

- Pre-weaning mortality
- Weight
- Fighting behaviour at udder

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Pre-weaning mortality (live born)

Mortality (%)

1STEP21  2STEP7  2STEP21  RI  RE

No treatment effect
Pre-weaning weights

Weaning weight (kg)

Fostered piglets bigger at start

No difference at weaning

1STEP21  2STEP7  RI  RE
Fighting behaviours at the udder

Early lactation sows < Late lactation sows
Conclusions

Nurse sows strategies had

- Minor effects on piglet performance
  - Fostering did not impair survival
  - Overall survival should be improved
  - Birth weight advantage not maintained at weaning

- Nurse sows in late lactation = more fights
Take-home message

Nurse sows represent a viable solution to deal with large litters and improve overall piglet survival
Experiment 3
Artificial rearing
Why bother?

- Nurse sows unavailable

Large litter 1 day post-partum

Nurse sow 7 days lactation
Why bother?

- Nurse sows unavailable

- Artificial rearing = rear piglets apart from sow with milk replacer
  - Promotes survival and growth
  - May affect piglets welfare
    - Lack of mother care
    - Reduced space (0.11 vs 0.25 m²/piglet)
Methods

Litter pairs recruited, same age/weight/size (12 piglets)
Healthy and good body condition

Sow reared (SR)
- Farrowing room
- 7 days to weaning

Artificially reared (AR)
- Milk replacer
- Separate room
- 7 days to weaning

SR = 10 litters / 116 piglets
AR = 10 litters / 117 piglets
Measures of interest

- **Pre-weaning mortality** → No effect
  (1 piglet dead in each treatment)

- **Weights**

  ![Image](www.bestanimationbooks.com)

  ![Image](www.depositphotos.com)
Pre-weaning weights

Sow-Reared > Artificially-reared

-0.19 kg
-0.58 kg
-0.75 kg
-1.44 kg
Conclusion

- No difference survival
  - 7 days-old piglets
  - Good health and body condition

- Growth check just after transfer
  - AR lighter at weaning
  - 5 days difference at slaughter

Economic loss 2,50 euros / pig
Take-home message

Artificial rearing can improve overall survival of litters

but

resulted in a long-lasting impairment of piglet growth
Thank you

Commercial farm owners and staff
The Moorepark Pig Research Facilities staff

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Sows body condition

1STEP21 = 21 d lactation nurse sow receiving 1 day old piglets
2STEP7 = 7 d lactation nurse sow receiving 1 day old piglets
2STEP21 = 21 d lactation nurse sow receiving 7 day old piglets
RI = newly farrowed sow with intact litter
RE = newly farrowed sow with equalised litter

No effect of treatment

Backfat thickness (mm)

Entry
Foster
Weaning