Effect of management strategies for rearing supernumerary piglets on piglet survival and growth

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The context

- Large numbers born alive = challenge
  - Piglets: Growth and survival
  - Sows: lesions at udder

- Management strategies
  - Nurse sows (Experiment 1)
  - Artificial rearing (Experiment 2)
Nurse sows strategies
Methods

1 step strategy

Control
1 day farrowed

Nurse sow (N1)
21 days lactation
2 step strategy

Control
1 day farrowed

Nurse sow (N2-A)
7 days lactation

Nurse sow (N2-B)
21 days lactation
Methods

Control
1 day farrowed

R = 9 litters / 118 piglets
CF = 10 litters / 117 piglets
N1 = 10 litters / 120 piglets
N2-A = 9 litters / 106 piglets
N2-B = 9 litters / 108 piglets

All piglets remained with their dam
Some piglets exchanged: cross-fostering
Hypotheses

- Both strategies are effective in rearing supernumerary piglets until weaning
- 2 step-strategy better for growth and survival
  - Match stage of lactation and age of piglets
Data collection and analysis

Weighing schedule

D0
D01
D03
D10
D17
D24
Weaning + 7 days
Stage 2

Statistical analysis

General Linear Model
random effect of sow and replicate
repeated effect of day
covariates: age (post-weaning data)
Mortality

N1 = 1 day-old piglets reared by 21 d lactation nurse sow
N2-A = 1 day-old piglets reared by 7 d lactation nurse sow
N2-B = 7 days-old piglets reared by 21 d lactation nurse sow
R = piglets remained with dam
CF = cross-fostering

Treatment: NS
Weights pre-weaning

N1 = 1 day-old piglets reared by 21 d lactation nurse sow
N2-A = 1 day-old piglets reared by 7 d lactation nurse sow
N2-B = 7 days-old piglets reared by 21 d lactation nurse sow
R = piglets remained with dam
CF = cross-fostering

Day: P<0.001
Treatment: P<0.05
Treatment*Day: P<0.001
Weights post-weaning

N1 = 1 day-old piglets reared by 21 d lactation nurse sow
N2-A = 1 day-old piglets reared by 7 d lactation nurse sow
N2-B = 7 days-old piglets reared by 21 d lactation nurse sow
R = piglets remained with dam
CF = cross-fostering

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

P<0.005
Growth rates

N1 = 1 day-old piglets reared by 21 d lactation nurse sow
N2-A = 1 day-old piglets reared by 7 d lactation nurse sow
N2-B = 7 days-old piglets reared by 21 d lactation nurse sow
R = piglets remained with dam
CF = cross-fostering

P<0.05
Conclusion

- Survival did not differ
- Newborn fostered onto nurse sow in late lactation (N1)
  - Numerically lower growth in lactation
  - Higher growth following weaning
Artificial rearing
Methods

2 step strategy

Large litter
1 day farrowed

Nurse sow (N2-A)
7 days lactation

Nurse sow (N2-B)
21 days lactation
Methods

Large litter 1 day farrowed

Nurse sow (N2-A) 7 days lactation
Methods

Litter pairs recruited, same age/weight/size (12 piglets)

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
Hypotheses

Artificially reared piglets should...

- Have higher survival
  - No risk of crushing
  - Lower risk of starvation
- Similar or higher growth
  - Growth check after transfer
  - Ad libitum milk replacer
Data collection and analysis

Weighing schedule

D0 D01  D07  D14  Weaning  Slaughter

Transfer

Statistical analysis

General Linear Model
- random effect of sow and replicate
- repeated effect of day
- covariates: transfer weight and age (post-weaning data)
Weights

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

Weight of pigs (kg)

-0.19 kg
-0.58 kg
-0.75 kg
-1.44 kg
Growth rates

Average Daily Gain of pigs (kg/day)

- Assignment - Weaning
- Weaning - Slaughter
- Assignment - Slaughter

P<0.001

SR
AR
Conclusion

- Survival not compromised
  - 7 days-old piglets
  - More checks in Rescue Deck room
- Growth check just after transfer
- Thrive after weaning
Thank you

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