MANAGEMENT OF LARGE LITTERS USING MILK SUPPLEMENTATION - PRELIMINARY RESULTS
BACKGROUND

Large litter size

~17 liveborn piglets in Denmark
(Hansen, 2018)

Large piglet mortality
MANAGEMENT SOLUTIONS?

When more piglets than teats on the sow
- Nurse sows are used in Denmark
- Artificial rearing with milk replacer in Netherlands, Germany and USA

Can the sow nurse all her own piglets?
- With milk replacer
- Improved udder access by loose housing
WHAT?

Can milk replacer reduce mortality in large litters without compromising litter weaning weight?
HOW?

3x2 factorial design

- Milk replacer
  - +Milk
  - NoMilk
- Experimental litter size
  - 14 piglets day 1
  - 17 piglets day 1
- Housing
  - Crate
  - Loose

Examples: 17, +Milk, Crate

14, +Milk, Loose
HOW?

Ninety-eight litters
~ 12 litters per treatment
Three batches
1st-2nd parity
Birth weight >700g
Random litter equalization
Weaning day 28

Examples: 17, +Milk, Crate
14, +Milk, Loose
TWO TYPES OF MILK REPLACER

Day 1-12
Skimmed milk powder, whey powder, vegetable fat, wheat protein concentrate

Day 12-28
Wheat, whey powder, vegetable oils, soy protein concentrate, wheat gluten, potato protein and rice
RECORDINGS

Birth weight (kg)

Weaning weight (kg)

Mortality (dead/not dead)

Drinking milk replacer day 7 (~12h period)
  • Individual marks on the back
  • Drinking (Drinkers vs. NotDrinkers)
MORTALITY

**Milk replacer**

- NoMilk: 25% incidences of dead
- +Milk: 15% incidences of dead

**OR** = 1.6  
**P** = 0.02

**Experimental litter size**

- 14 piglets: 20% incidences of dead
- 17 piglets: 25% incidences of dead

**OR** = 2.4  
**P** < 0.001

**Housing**

- Crate: 10% incidences of dead
- Loose: 20% incidences of dead

**P** = 0.08
WEIGHT AT WEANING

Litter

NoMilk, 17

NoMilk, 14

+Milk, 17

+Milk, 14

Piglet

NoMilk, 17

NoMilk, 14

+Milk, 17

+Milk, 14

Lowest litter weight in NoMilk 17

Higher litter weight in +Milk 17, but not different from litters of 14

Lowest individual weight in NoMilk 17

Lower individual weight in +Milk 17 compared to 14 +Milk and 14 NoMilk
Subset of data – only +Milk
PIGLET WEIGHT – ONLY + MILK

Drinkers = drinking at least once day 7

NotDrinkers = no drinking on day 7

\~ 50/50
WHAT CHARACTERIZES DRINKERS?

Increased birth weight increased odds of being a Drinker

With 200g increase the OR was 1.3 (P<0.001)

More Drinkers in Crate

Housing

% incidences of Drinkers

Crate 60 50 40 30 20 10 0

Loose

OR=2.4
P=0.008
SUMMARY

Mortality was lower:

• In +Milk compared to NoMilk
• In 14 compared to 17 piglets per litter
• No significant effect of housing although numerically lower in crates

Litter weaning weight:

• Highest in litters of 17 piglets and +Milk
• Lowest in litters of 17 piglets and NoMilk

Drinking milk replacer:

50% became Drinkers
High birth weight increased odds of being a Drinker
Crate increased odds of being a Drinker
CONCLUSION

Can milk replacer reduce mortality in large litters without compromising litter weaning weight?

YES: Milk replacer could reduce mortality in large litters and increase litter weaning weight – at least in very large litters.

However, it was achieved on the expense of reduced individual weaning weight
WHAT IS NEXT?

Do frequent Drinkers gain more weight?

Do frequent Drinkers drink less frequently from the sow?

Do frequent Drinkers have a lower body fat and protein content than fully sow-reared piglets (due to lower quality nutrition)?