More Pigs, Less Labor: Today's Sows Can Handle More Than We Think

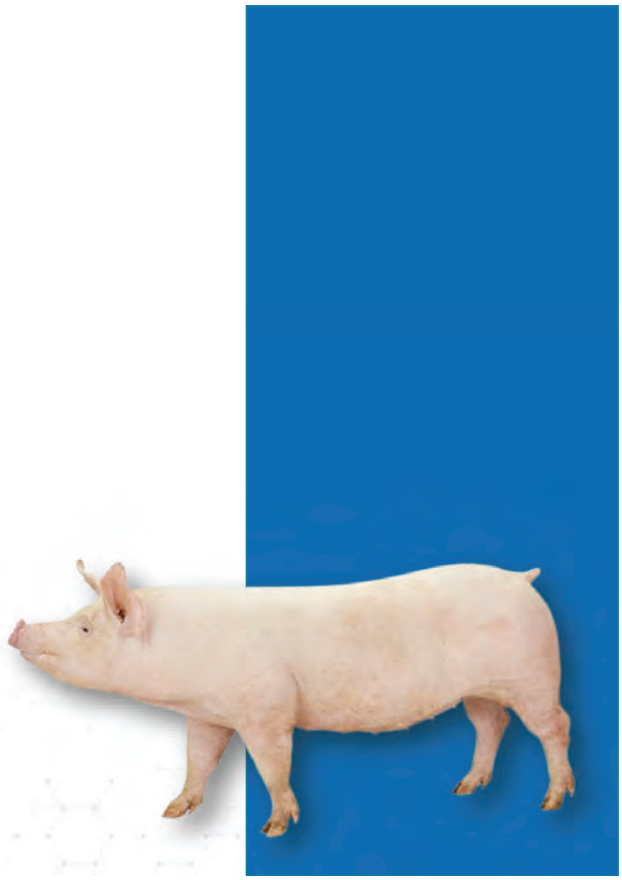
Brady McNeil, DNA Genetics

Banff Pork Seminar

Agenda

- Background
- Split Suckling
- Loading Strategies
- Nurse Sow Utilization

**All data shared will be from DNA/PFF datasets unless otherwise stated.*



DNA GENETICS

- 7,750 purebred nucleus females, conducting individual performance testing on approximately 90,000 offspring annually
- Nucleus Farms in Nebraska and South Dakota
- Gene Centers in Nebraska, Wisconsin, Indiana and Canada.
- International distributor in Brazil and Spain.

DNA GENETICS

THE DNA COMMITMENT

Raising the best farrow to finish pig for producers

More pounds delivered to market per sow at the lowest cost (throughput)

Slat-level, commercial research with direct producer application

Extensive collaboration with world-leading institutions

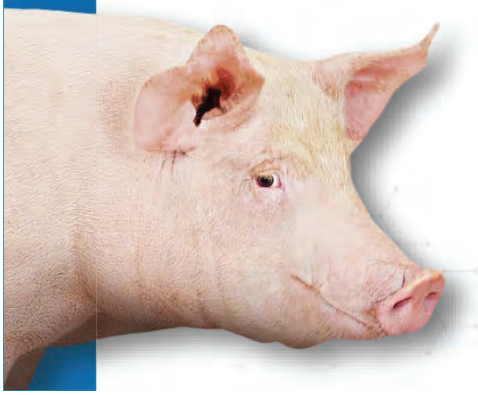
Research Trials since 2024 - (Completed or In Progress)

- **Nutrition**
  - Energy titration in the finisher
  - Lysine evaluation in the nursery
  - Collaborative projects with nutritional suppliers
  - Understanding Sow Anemia
  - Late gestation nutrient requirements
  - Fiber/DDGS in gestation
  - SID Lysine % in lactation
  - Maternal growth curves
  - Lysine in Nursery and Finishing
  - Copper in Finishing
- **Genetic**
  - Nursery+ vs Elite sire groups
  - 3 Sire line evaluations
  - Predicting age at puberty in gilts in the prepubertal stage via vaginal gene expression
  - Gut development around SBM
- **Health**
  - Growing pig performance and influenza A virus in swine (IAV-S) prevalence after vaccination with IAV-S NA
  - Evaluation of a novel Astrovirus 4 on piglet performance pre and post weaning
  - Effects of MCFA in the face of a PRRS challenge on sow and piglet performance
- **Management**
  - Split suckling evaluation
  - Value of teat count and loading strategy on weaned and piglet weight gain
  - Evaluation of the number of sleeving events on PWM, breed back, culling rate/reason
  - Evaluation of the farrowing duration on sow retention
  - Colostrum quality differences with varying teat counts and parities
  - Impacts of teeth clipping
  - Evaluation of a gilt PCAI catheter
  - Effect of pig movement on nursery performance
  - Nursery space, feeder, and water allowance
  - Nursery pull pig
  - Day 1 pig care

Our Maternal Vision

14 PIGS | 14 LBS | 21 DAYS™

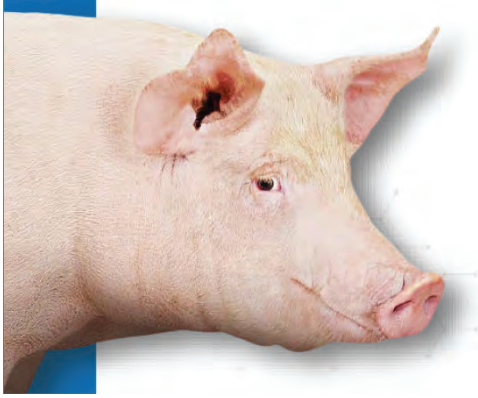
"A highly productive, self-reliant female"



North America's Premier Sow: DNA L241

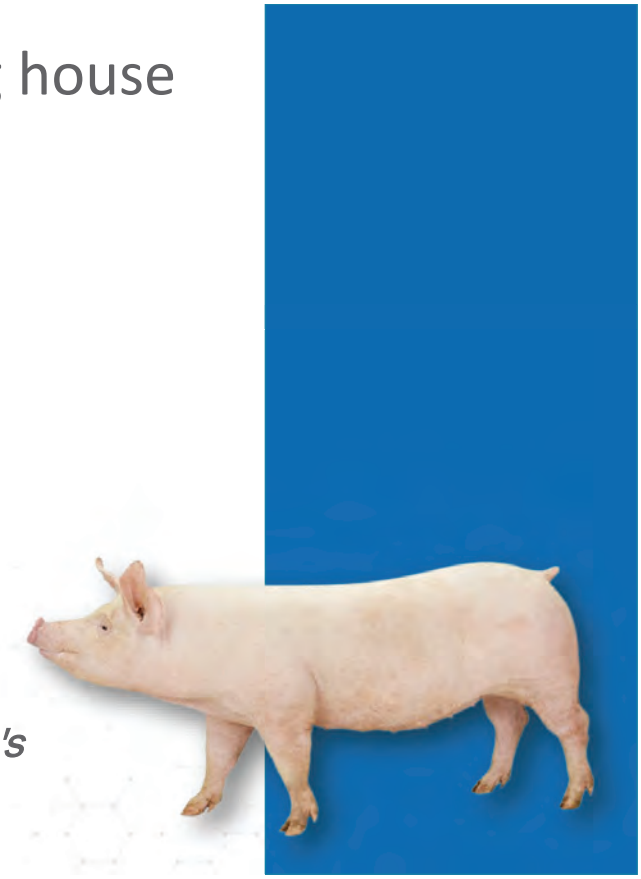
What has changed over the last 13 years?

- Improved birth weights and litter uniformity
- Increased teat count to match litter size
- Reduced pre-wean mortality
- The lowest gestation feed cost
- Industry-leading grow-finish performance



What makes a good farrowing house manager?

- Passionate
  - About saving pigs
- Tender-hearted
- Driven
  - Willing to put in the work to accomplish goals
- Organized/Detail-oriented



How easy is it to change the farrow team's mentality around protocols?

Abstract # 238
Evaluation of split suckling strategies on pre-wean piglet growth and mortality for high-producing sows

Mikayla S. Spinler[1], Samantha A. Swanson[1], Elizabeth Due[2], Maya Lashley[3], Jordan T. Gebhardt[1], Joel M. DeRouchey[1], Mike D. Tokach[1], Robert D. Goodband[1], Ashley R. Hartman[4], and Jason C. Woodworth[1]

[1]Kansas State University, Manhattan, [2]Iowa State University, Ames, [3]University of Nebraska, Lincoln, [4]DNA Genetics, Columbus, NE

K-STATE Research and Extension

Previous Split Suckle Research Results

- 7 trials have been published from 1996 to 2023
  - No consistent protocol utilized across trials
- Pre-wean mortality
  - Tended to decrease: 2 studies
  - No differences: 5 studies
- Pre-weaning growth performance: (2 studies did not report)
  - Decreased: 1
  - No difference: 3
  - Tended to improve: 1

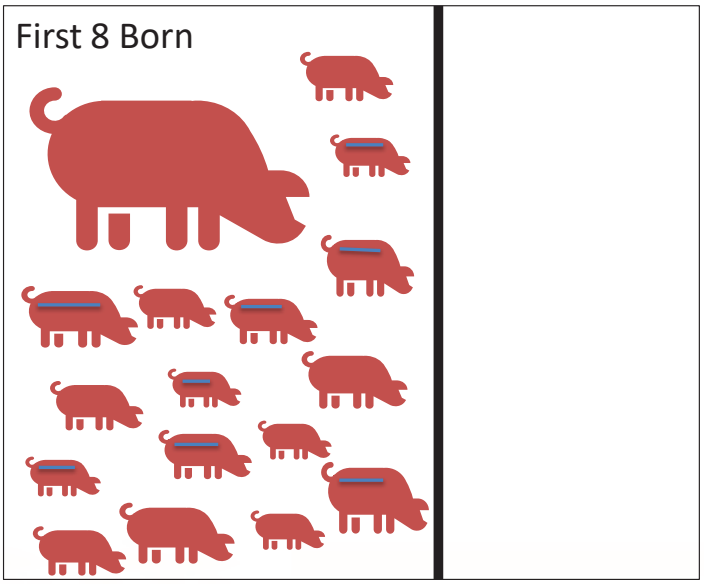
K-STATE Research and Extension

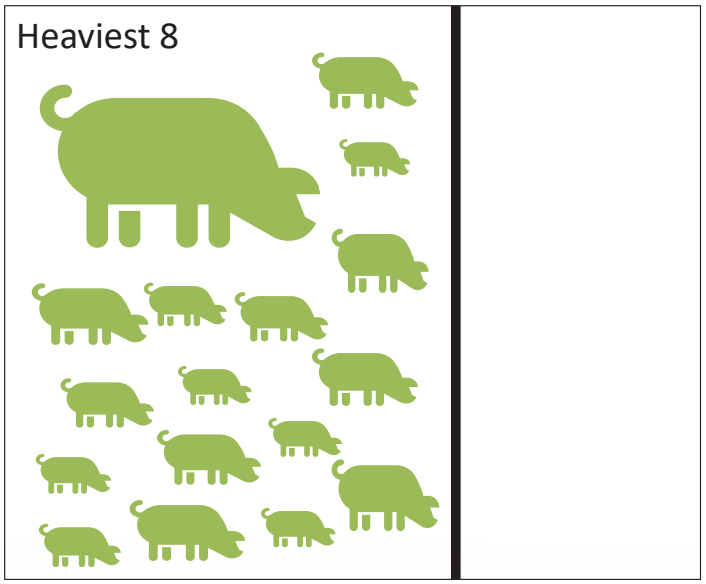
Materials and Methods

- 1,513 mixed parity sows (DNA 241; avg parity = 3.6) and their litters (22,800 piglets)
- Allotted based on parity to 1 of 3 treatments:
  1. **Control:** No split suckling
  2. **First 8 Born**: First 8 pigs born were removed for 45 minutes and then swapped with pigs remaining on the sow born later in the birth order for 45 minutes
  3. **Heaviest 8**: Heaviest 8 pigs removed for 1.5 hours
- Cross fostering occurred within treatment after split suckling and within 24 hours after birth of the first pig

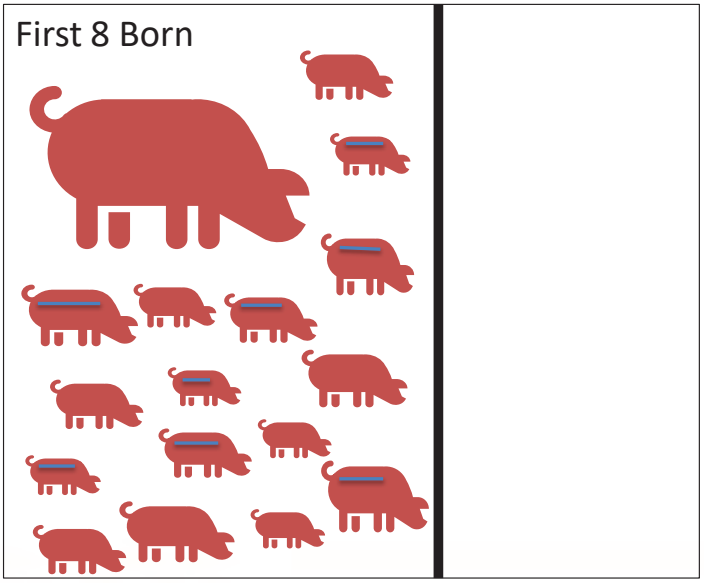
Spinler et al., 2025

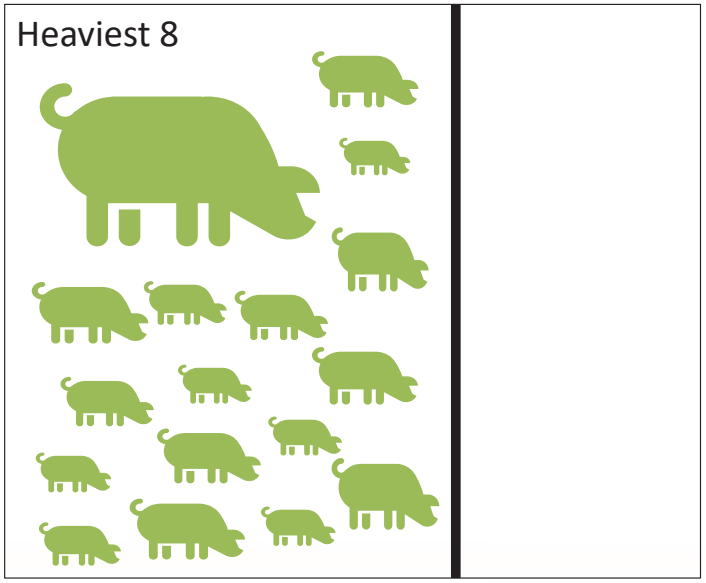
Split Suckle Treatment





Split Suckle Treatment



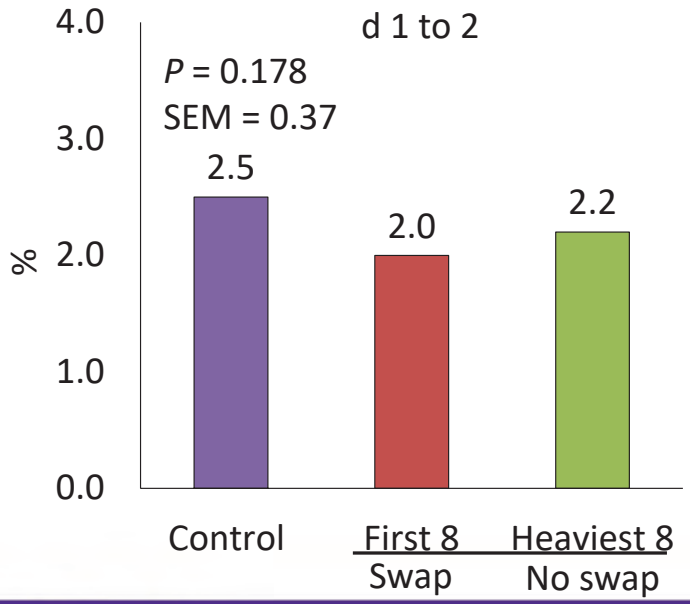


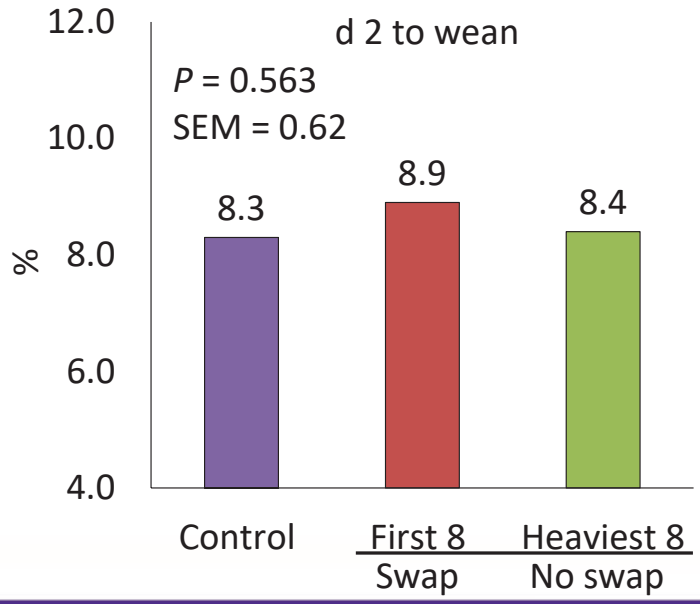
Measurements

- Individual pig weight at d 1 and weaning
- Subset of litters: blood sample and weight ~24 hours after birth
  - Immunocrit ratio
- Mortality: recorded pig ID, date, and reason
- Fallback pigs: recorded date and weight when placed on nurse sows
- Subset of pigs: followed into nursery and finisher to track growth performance and mortality

Spinler et al., 2025

Split suckle strategy on pre-wean mortality

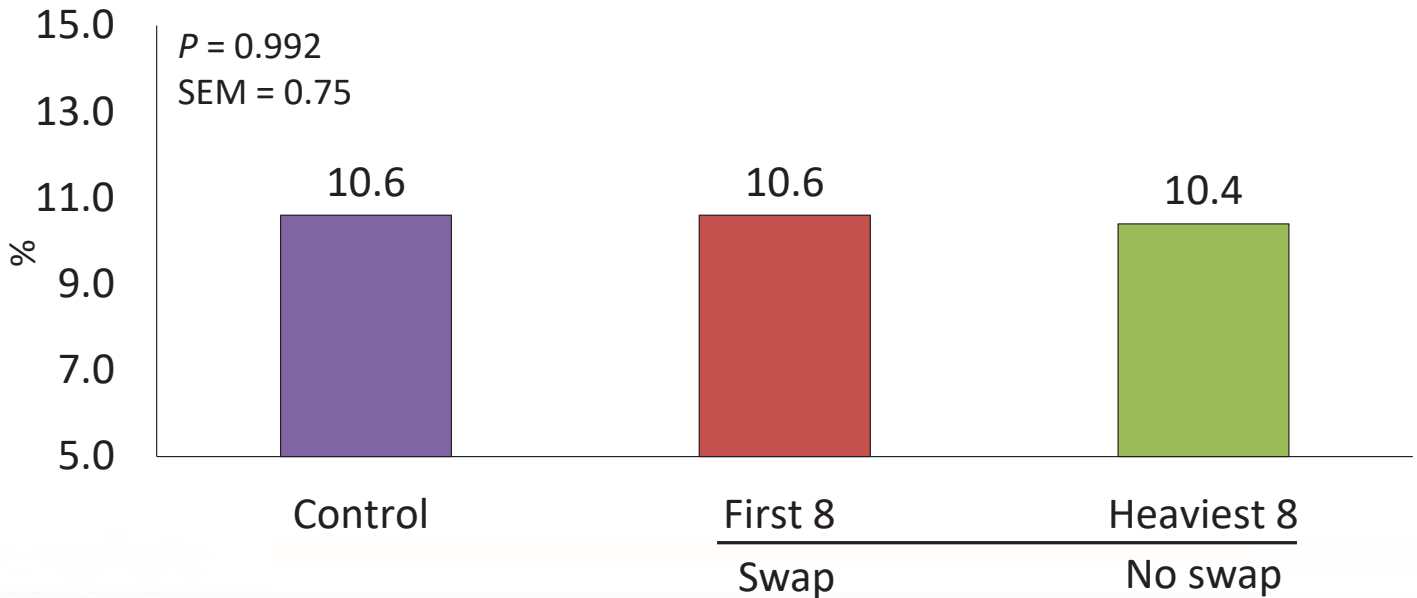




K·STATE Research and Extension

Spinler et al., 2025

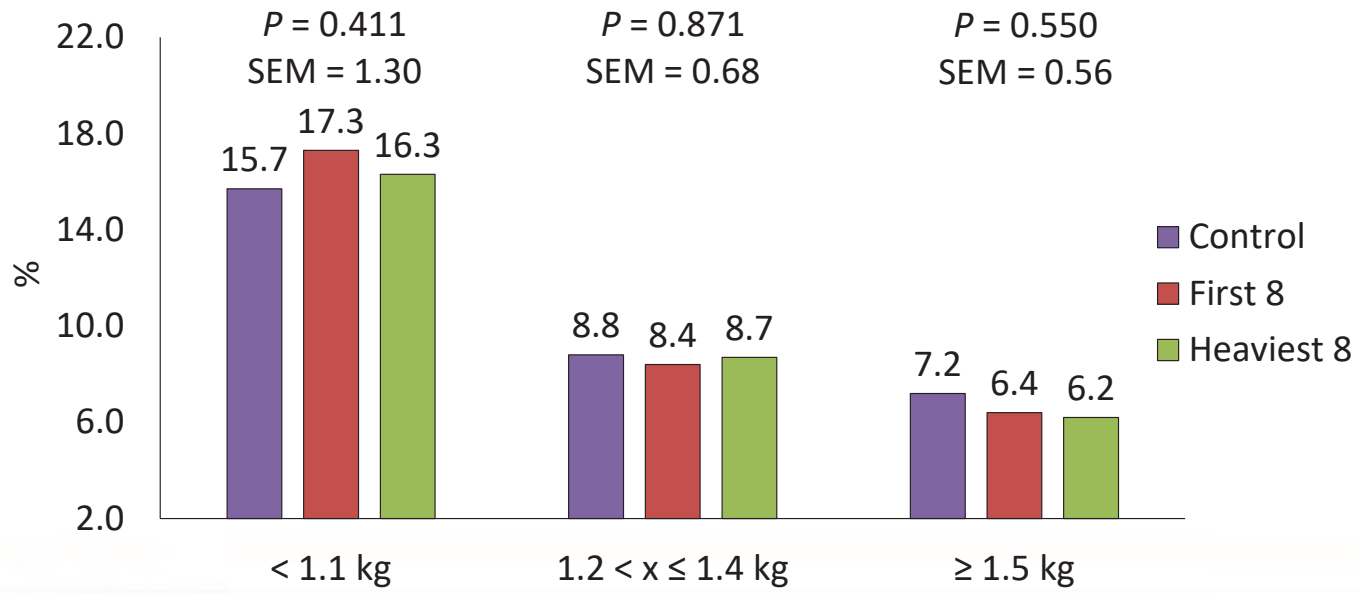
Split suckle strategy on total pre-wean mortality



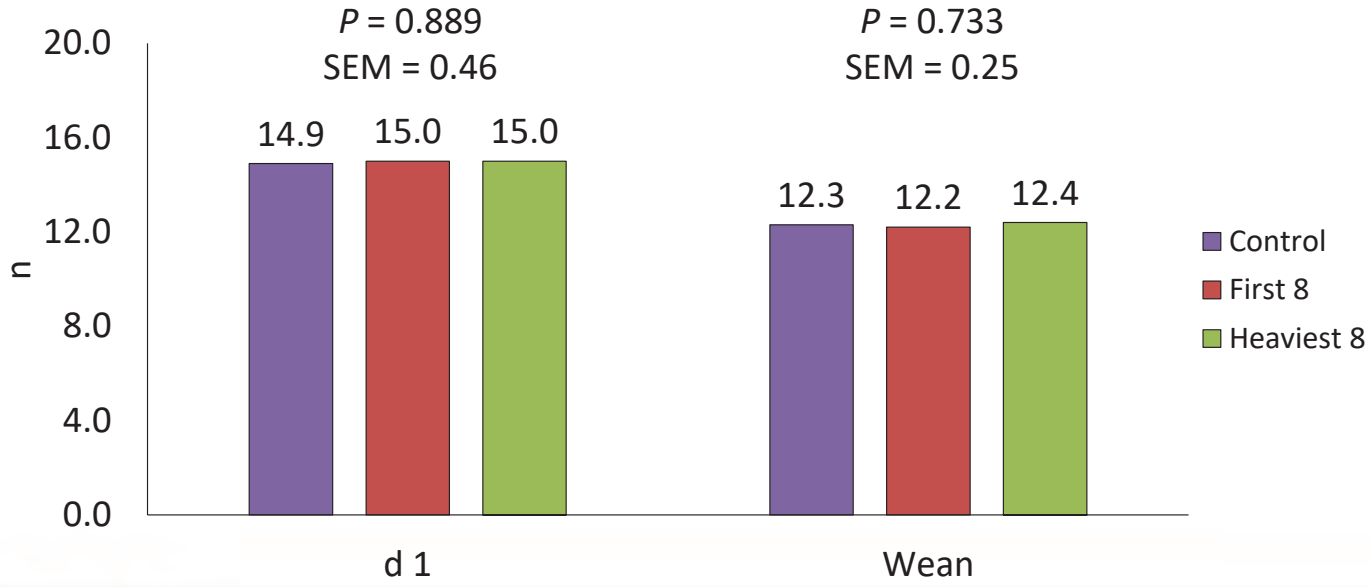
K·STATE Research and Extension

Spinler et al., 2025

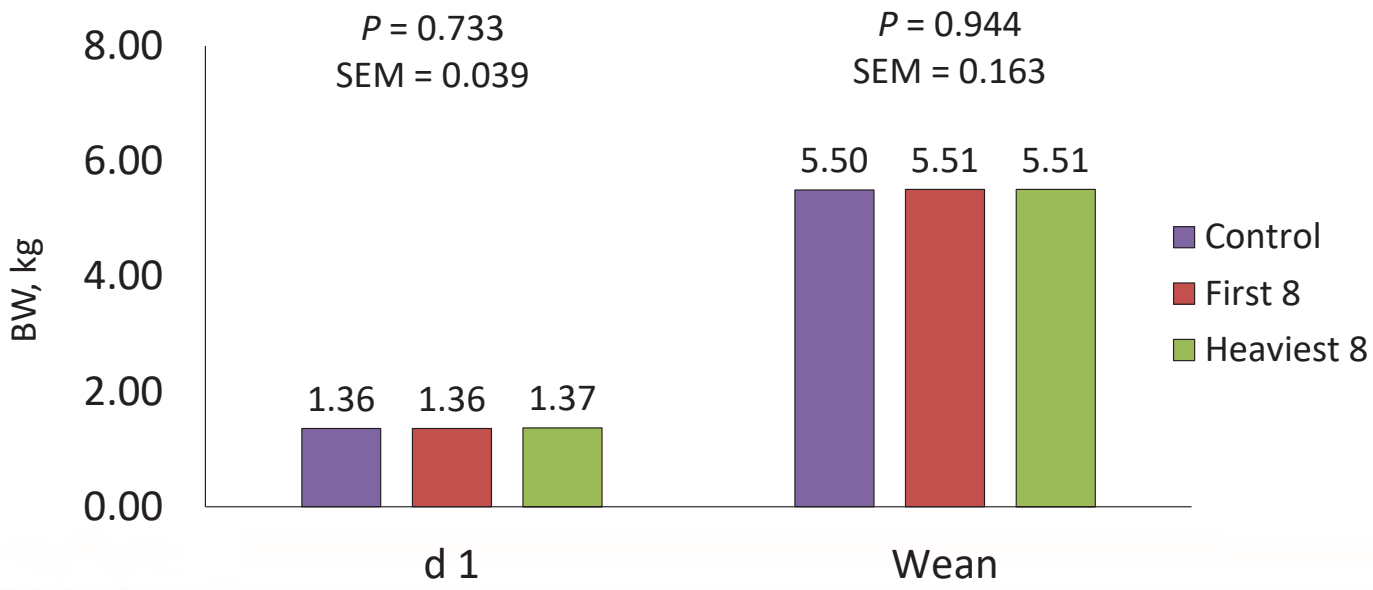
Split suckle strategy on pre-wean mortality by BW



Split suckle strategy on litter size



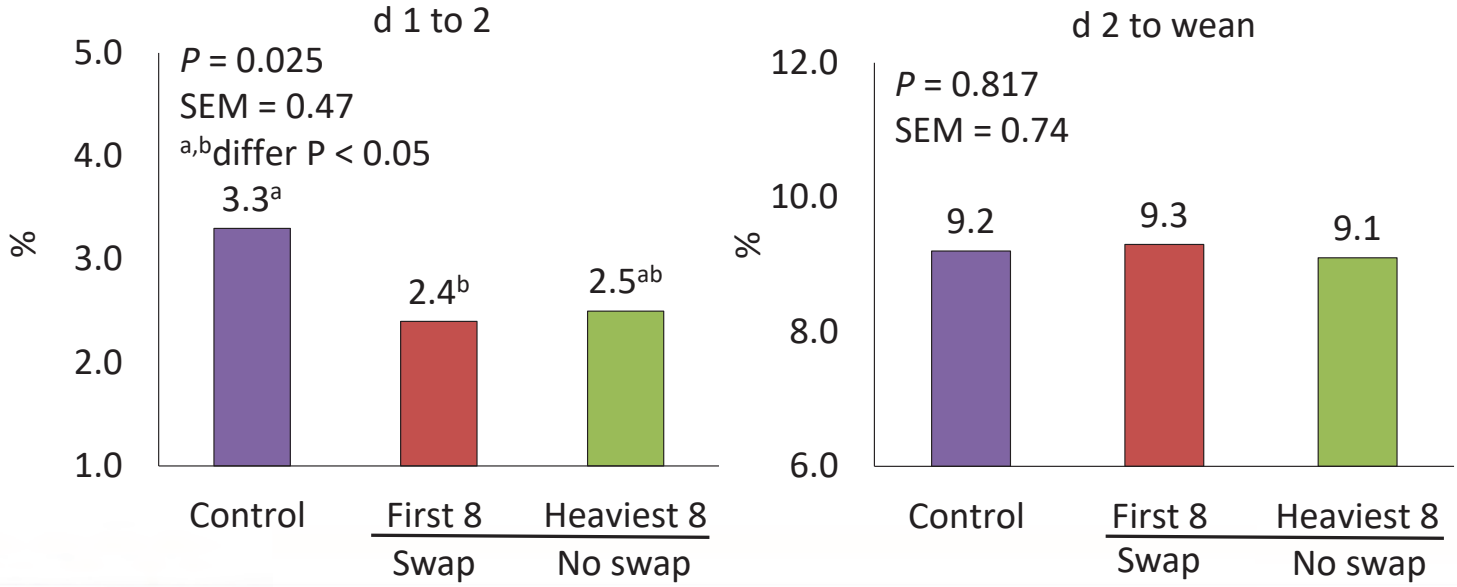
Split suckle strategy on pig weight



K·STATE Research and Extension

Spinler et al., 2025

Split suckle strategy on PWM: Pig count d 1 greater than teat count



K·STATE Research and Extension

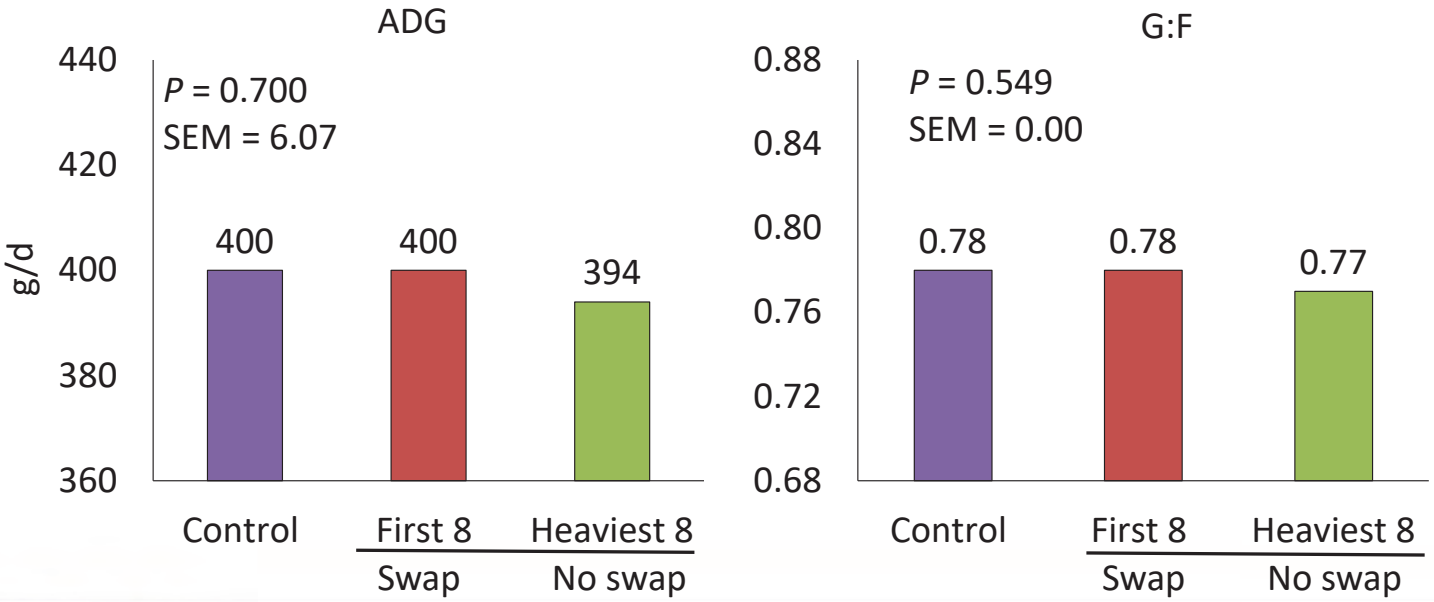
Control- n = 252; First 8- n = 253; Heaviest 8- n = 240

Spinler et al., 2025

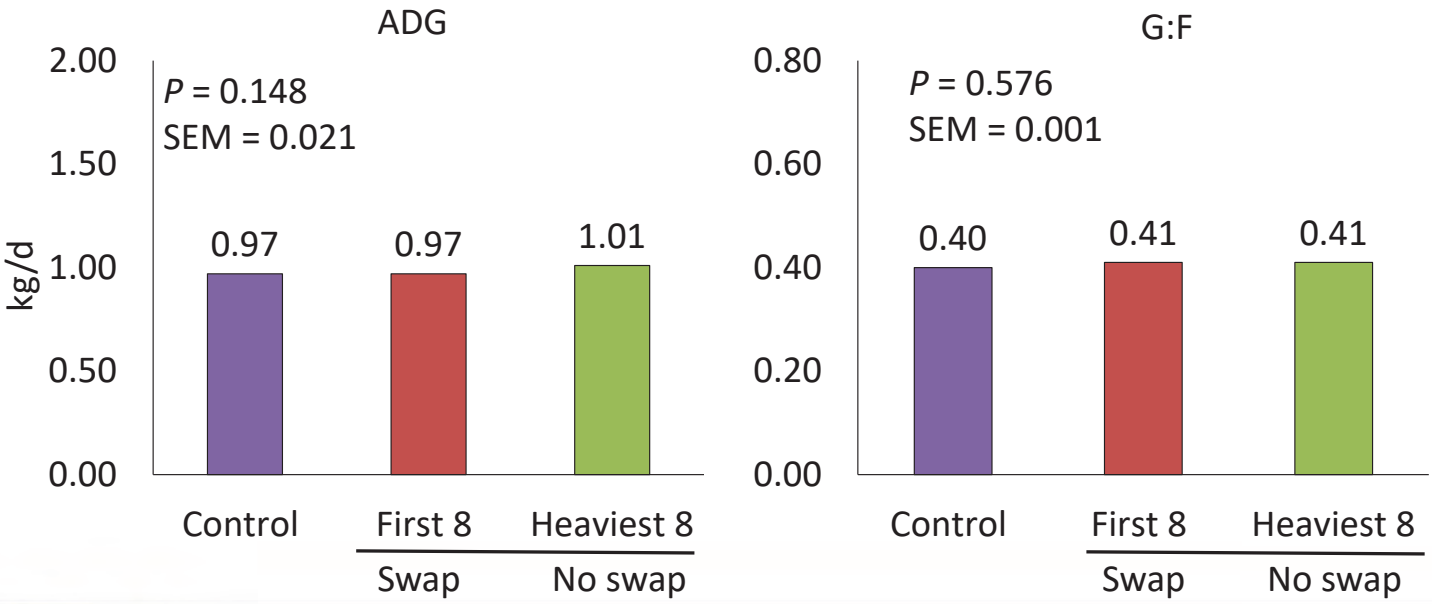
Post-weaning performance

- Nursery:
  - 2,208 pigs equally split across treatments
  - Measured feed intake, ADG, and G/F
  - Weights at end of nursery
- Finisher:
  - 882 pigs equally split across treatments
  - Measured feed intake, ADG, and G/F
  - Weights before first marketing event

Split suckle strategy on nursery performance



Split suckle strategy on finisher performance



Additional Analysis

- Treatment × parity interaction
  - No interaction
- Treatment × split suckle time- same day vs the next day
  - No interaction
- Treatment × teat count- 14 or less vs 15 or more
  - No interaction

Conclusion

- The split suckling strategies investigated in this trial did not result in any differences in pre- or post-weaning growth performance or mortality.
- **Are there better ways to invest time spent split suckling to generate more revenue for farms?**

K-STATE Research and Extension

Spinler et al., 2025

DNA GENETICS

Assessing the influence of sow loading strategy, functional teat number, and parity on litter performance

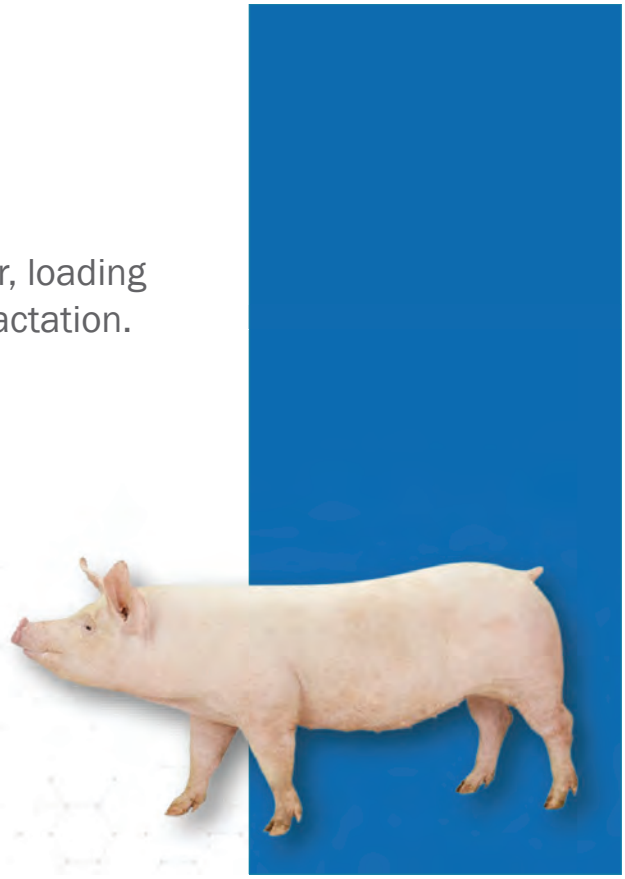
Elizabeth M. Due[1], Brady McNeil[2], Amanda Cross[2], and Ashley Hartman[2]

[1]Department of Animal Science, Iowa State University, Ames, IA 50011

[2]DNA Genetics, Columbus, NE 68601

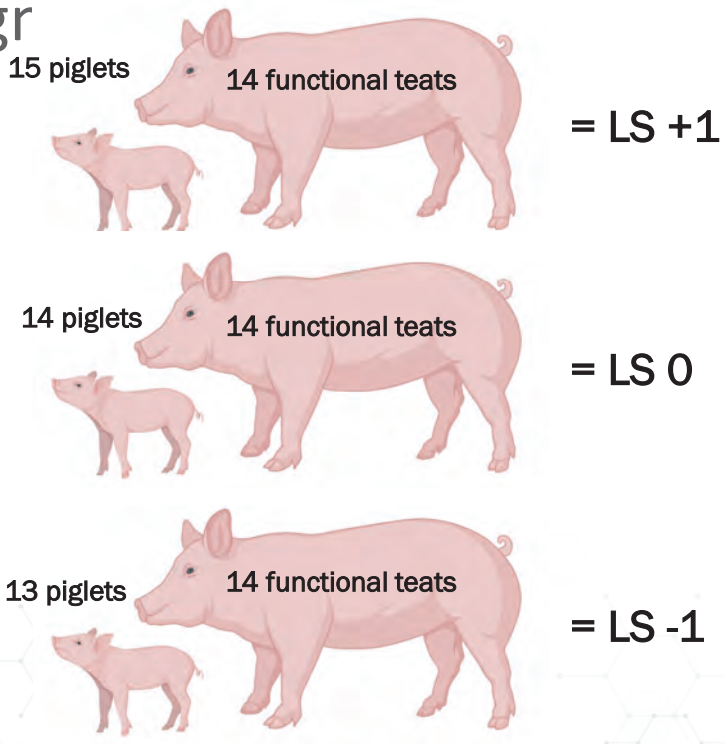
objective

To investigate the impact of functional teat number, loading strategy, and parity on litter performance during lactation.

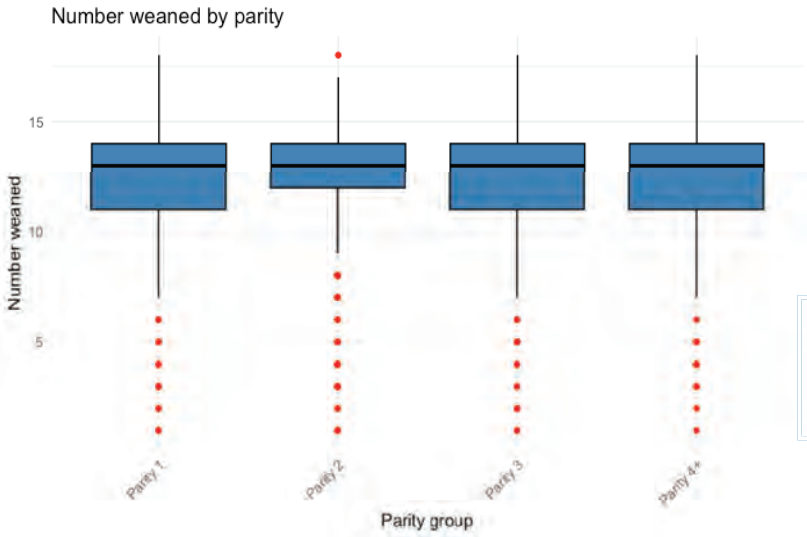


Experimental desigr

- 1,261 multiparous F1 sows
  - DNA L241, DNA Genetics, Columbus, NE
  - Batch farm
    - Only healthy batches were included in the data set
    - Retrospective analysis
- Sow traits:
  - Parity (1, 2, 3, 4+)
  - Functional teat count (FTC)
  - Loading strategy (LS)
    - LS = # of piglets 24-hr after birth – FTC



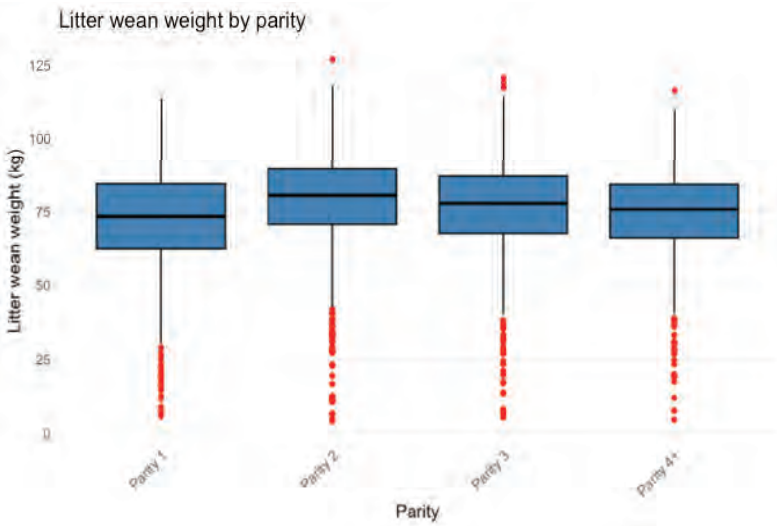
Number Weaned and parity



Parity	Average weaned	SEM
1	12.0	0.09
2	12.7	0.11
3	12.5	0.13
4+	12.5	0.11

Contrasts	Pigs weaned	SEM	*P*-Value
Parity 1 vs. 2	-0.71	0.017	**<0.0001**
Parity 1 vs. 3	-0.43	0.155	**0.026**
Parity 1 vs. 4+	-0.49	0.139	**0.003**
Parity 2 vs. 3	0.28	0.164	0.321
Parity 2 vs. 4+	0.23	0.149	0.424
Parity 3 vs. 4+	-0.05	0.164	0.989

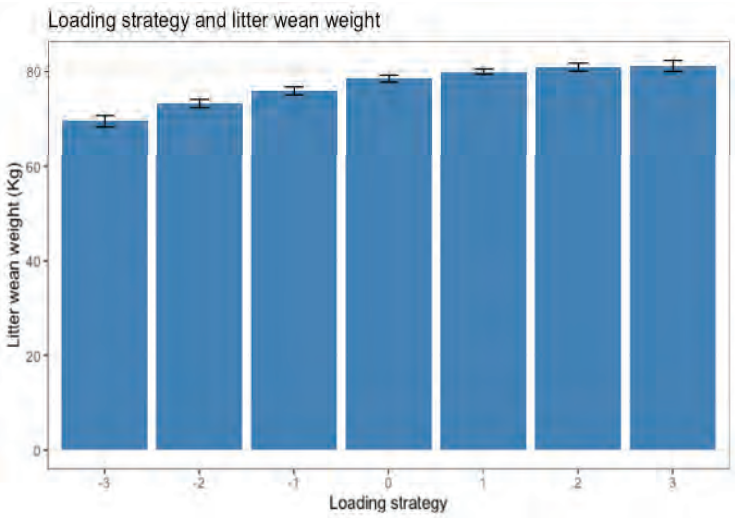
Litter wean weight and parity



Parity	Average wean weight (Kg)	SEM
1	71.4	0.59
2	77.7	0.70
3	75.2	0.83
4+	74.1	0.70

Contrasts	Wean weight (Kg)	SEM	*P*-Value
Parity 1 vs. 2	-6.30	0.902	**<0.0001**
Parity 1 vs. 3	-3.85	1.013	**<0.001**
Parity 1 vs. 4+	-2.72	0.908	**0.015**
Parity 2 vs. 3	2.44	1.074	0.104
Parity 2 vs. 4+	3.58	0.975	**0.001**
Parity 3 vs 4+	1.14	1.072	0.713

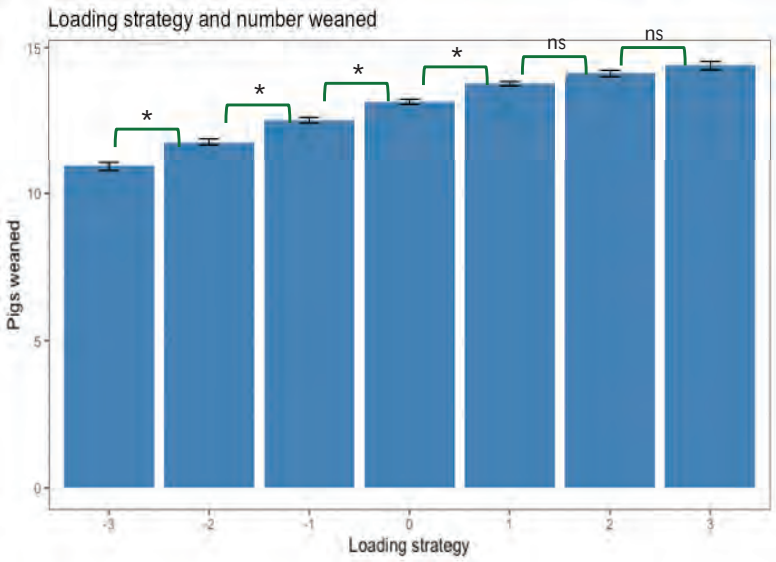
Loading strategy and Wean weight



Comparison	Wean weight (Kg)	SEM	*P*Value
LS -3 vs. LS 0	-8.57	1.281	**<0.0001**
LS -2 vs. LS 0	-4.95	1.110	**0.0002**
LS -1 vs. LS 0	-2.24	1.057	0.340
LS +1 vs. LS 0	1.49	0.915	0.668
LS +2 vs. LS 0	2.19	1.163	0.494
LS +3 vs. LS 0	2.33	1.405	0.646

Compared to LS 0, WW is lower at LS -3 and -2, with no differences between LS 0 and LS -1, +1, +2, or +3

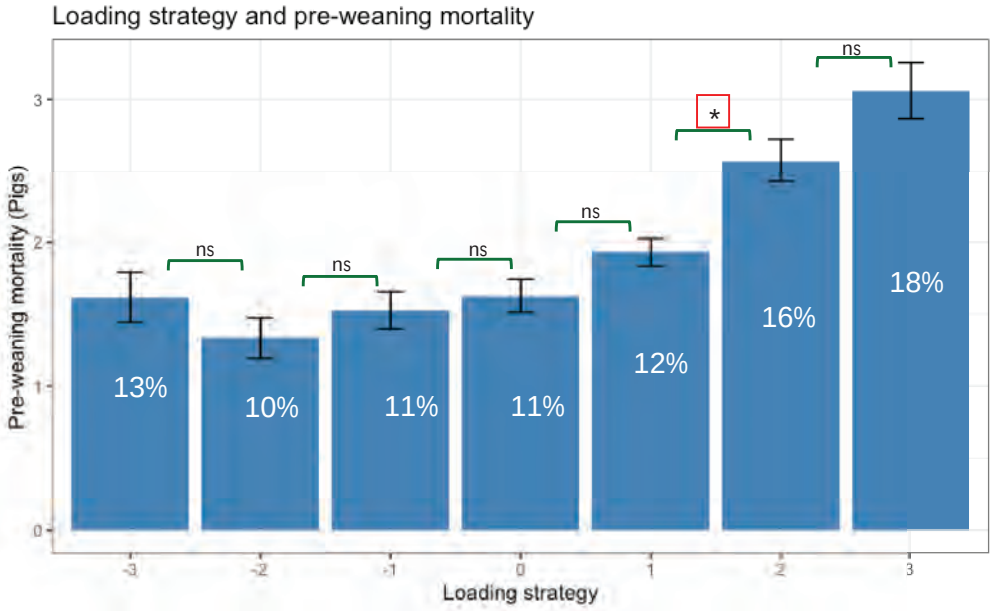
Loading strategy and number weaned: incremental



Comparison	Pigs weaned	SEM	*P*Value
LS -2 vs. LS -3	0.88	0.227	**<0.0001**
LS -1 vs. LS -2	0.73	0.194	**<0.0001**
LS 0 vs. LS -1	0.62	0.177	**<0.0001**
LS +1 vs. LS 0	0.61	0.153	**<0.0001**
LS +2 vs. LS +1	0.35	0.184	0.097
LS +3 vs. LS +2	0.27	0.251	0.725

As LS increased from -3 to +1, number of pigs weaned significantly increased.

Loading strategy and pre-weaning mortality: Incremental



When increasing LS incrementally by 1, PWM from LS -3 to +1 did not differ.

PWM increased by 0.64 pigs from LS +1 to +2.

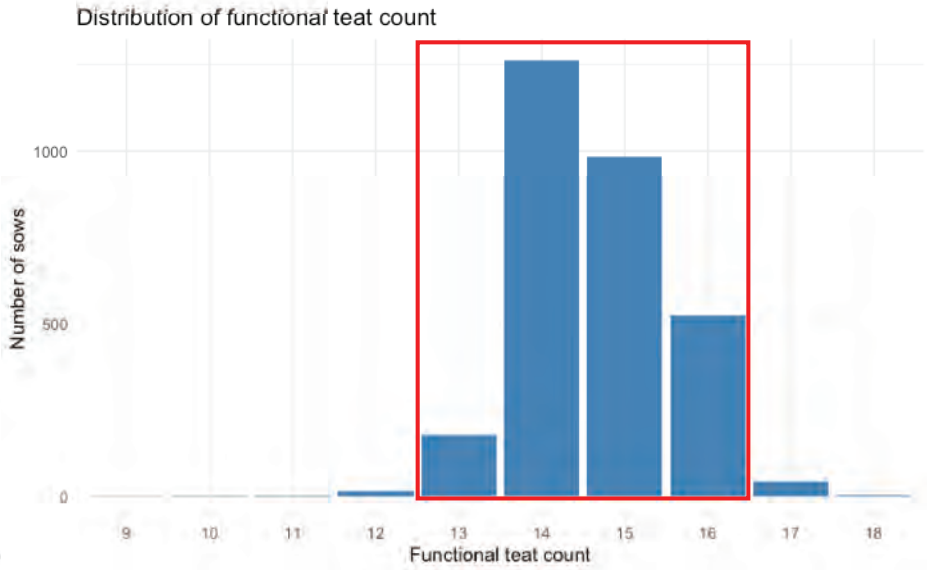
Loading Strategy: Variation

Loading Strategy	% Under 3.6 kg	Average of Weaned	Average Wean Weight	Total Litter Weight	Standard Deviation of WW
-3	1.8%	11.2	14.0	156.7	2.9
-2	2.4%	11.9	13.7	162.7	2.8
-1	3.4%	12.6	13.3	167.8	2.8
0	3.3%	13.2	13.1	173.7	2.8
1	4.3%	13.8	12.8	176.9	2.8
2	5.1%	14.2	12.6	179.1	2.8
3	6.3%	14.3	12.5	178.8	2.9

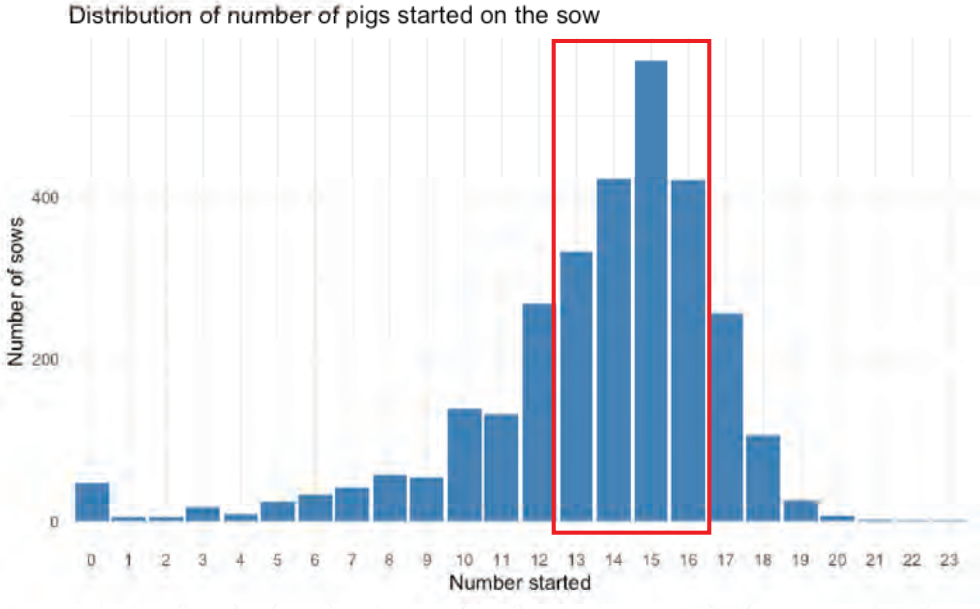
As the average of the weaning weight distribution decreases, pigs under 3.6 kg (8 lbs.) increase.

No difference in the variation of weaning weights by loading strategy.

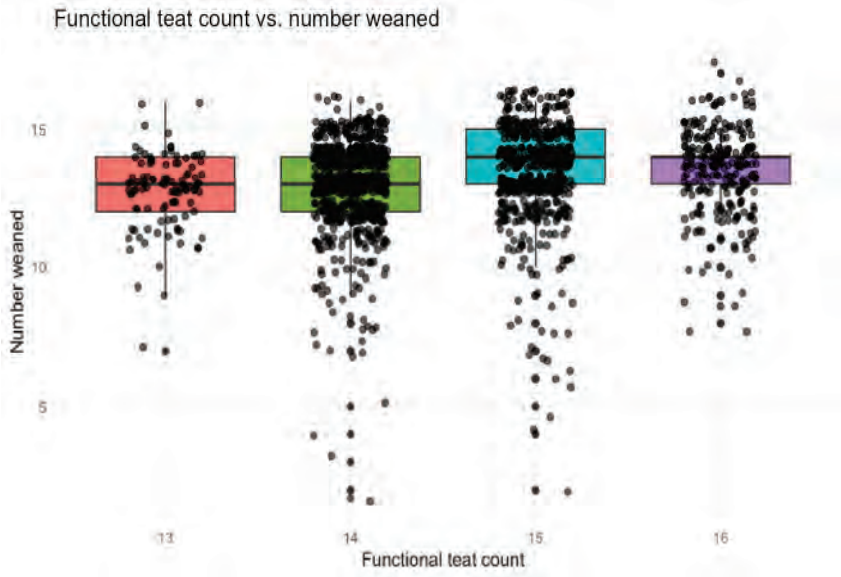
Distribution of functional teat count



Distribution of number started



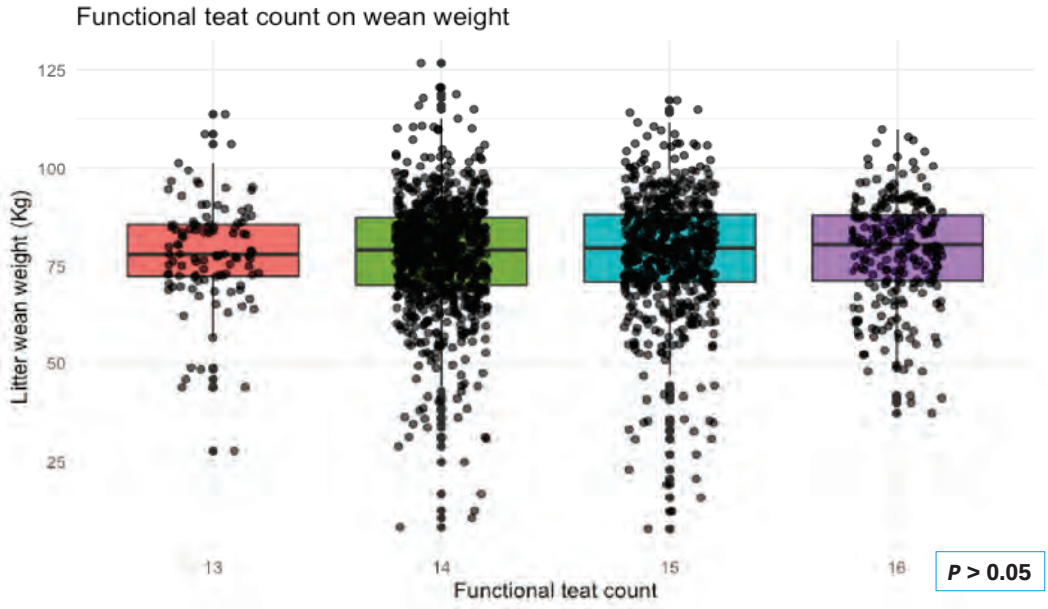
functional teat count and number weaned



FTC Comparison	Pigs weaned	SEM	*P*-Value
14 vs. 13	0.31	0.184	0.326
15 vs. 14	0.37	0.098	**0.001**
16 vs. 15	0.03	0.134	0.995

- Increase in the number of pigs weaned from 14 FTC to 15 FTC.

functional teat count and litter wean weight

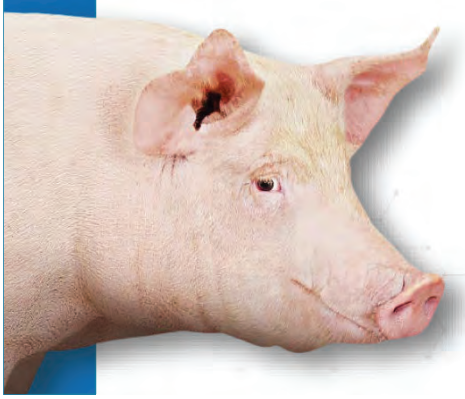


***P* > 0.05**

- 13, 14, 15, or 16 FTC did not impact litter wean weight when 13-16 pigs were started

Conclusions

- An increase from 14 to 15 functional teats increased number of pigs weaned but did not impact litter wean weight
- Loading strategies above -1 had no effect on wean weight (WW)
- Number weaned significantly increased from LS -3 to +1, with no difference in PWM across this range

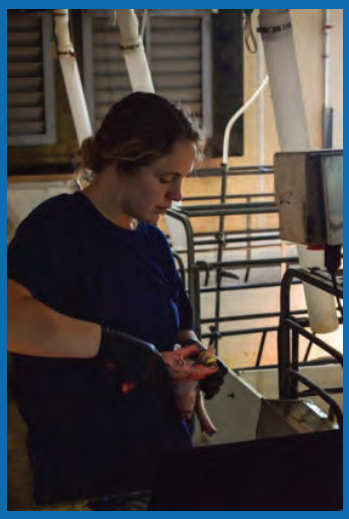


Effect of Utilizing Nurse Sows Compared to No Nurse Sows on Farrowing House Productivity

Larissa Meier*[1], Kacey Allen[2], Amanda Cross[2], Emily Mauch-Swinford[2], Ethan Stephenson[3], John Sonderman[2] and Brady McNeil[2]

[1]University of Nebraska, Lincoln, NE
[2]DNA Swine Genetics, Columbus, NE
[3]Pillen Family Farms, Columbus, NE

definitions



- Cross-fostering
  - Pig movement is done within the first 24 hours of birth
- Nurse Sow
  - Pig movement is done after 3 days of birth
- Functional Teat
  - Teats with mammary gland development and milk production at the time of farrowing

Materials and Methods

- DNA L241 sows were assigned to farrowing rooms based on farrow date (n = 618)
- All pigs (n = 9109) were individually tagged and weighed at birth, death and weaning
- Cross-fostering was allowed for both treatments
  - Limited for sows with born alive between 13 and 15
  - Maximize functional teats

Materials and Methods

- Nurse Treatment
  - Left one crate open per farrowing room (14 crates per room), which was a 7% nurse sow rate
  - Fall-behind pigs were identified, weighed, and moved to the nurse sow at 3 to 5 days of age
  - Littermates were also weighed
- NoNurse Treatment
  - No open farrowing crates
  - Fall-behind pigs were identified, weighed, but remained on their original dam
  - Littermates were also weighed

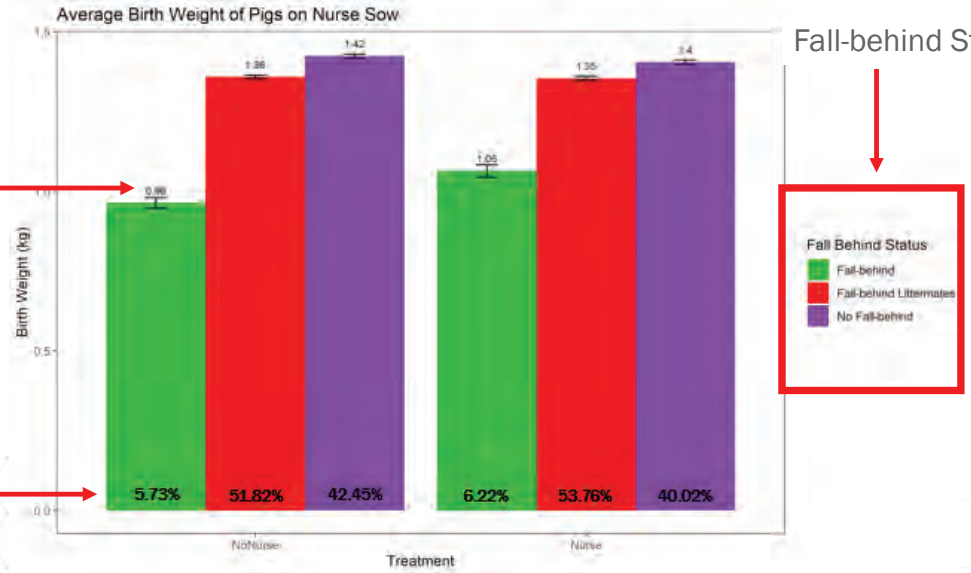
Summary Statistics

	NoNurse	Nurse
Sow Count	316	302
Average Parity	2.64	2.48
Number Born Alive	14.56	14.80
Functional Teat Count	14.46	14.52
Cross-foster (%)	5.49	5.67
Fall-behind (%)	5.73	6.22

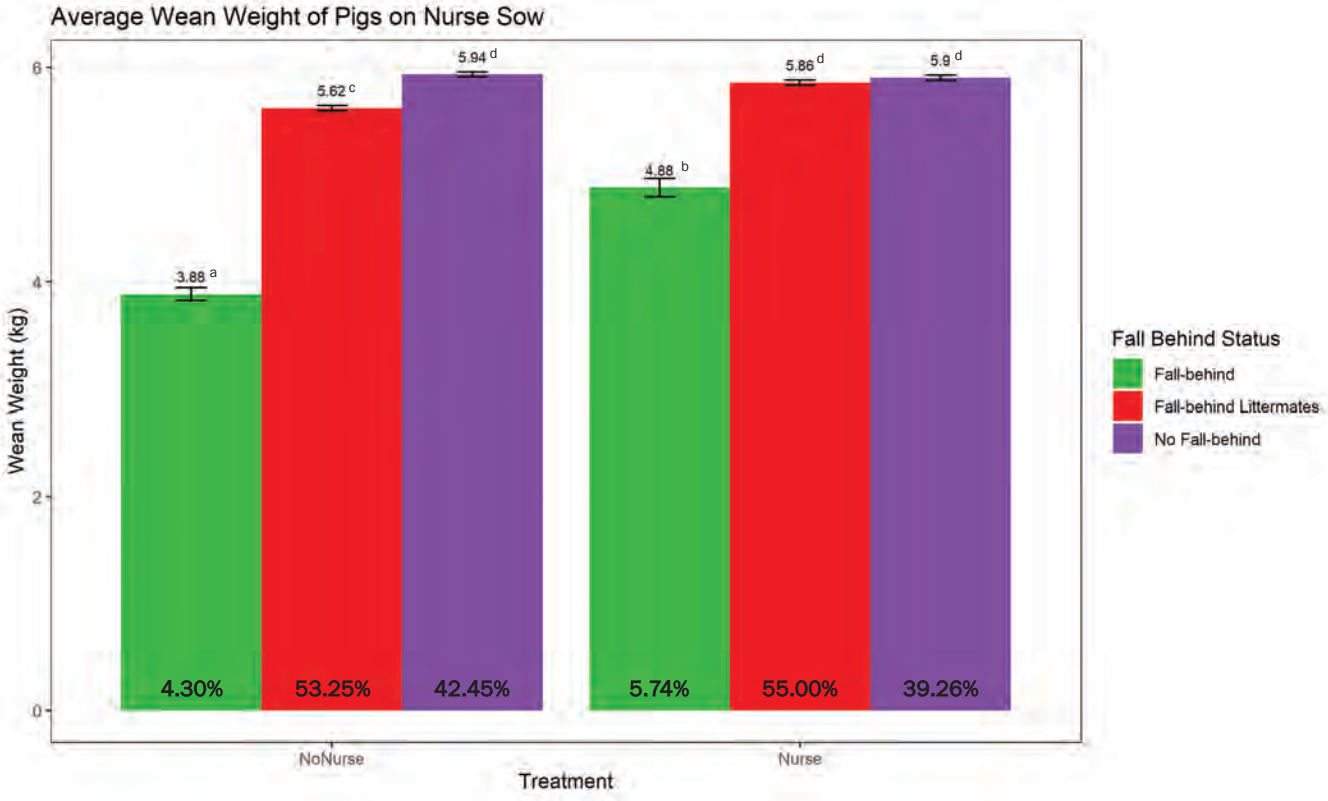
Example graphs

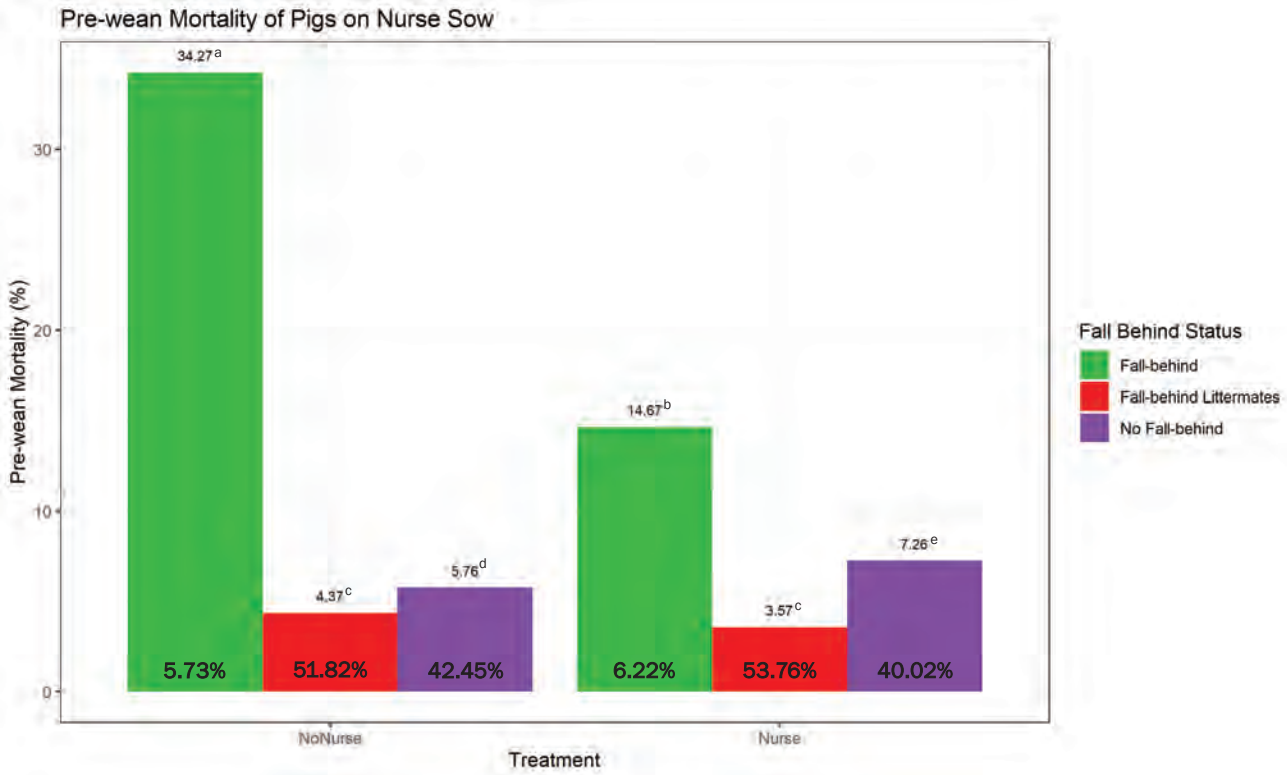
Variable of interest based off fall-behind status

Percentage of the population within treatment



Fall-behind Status



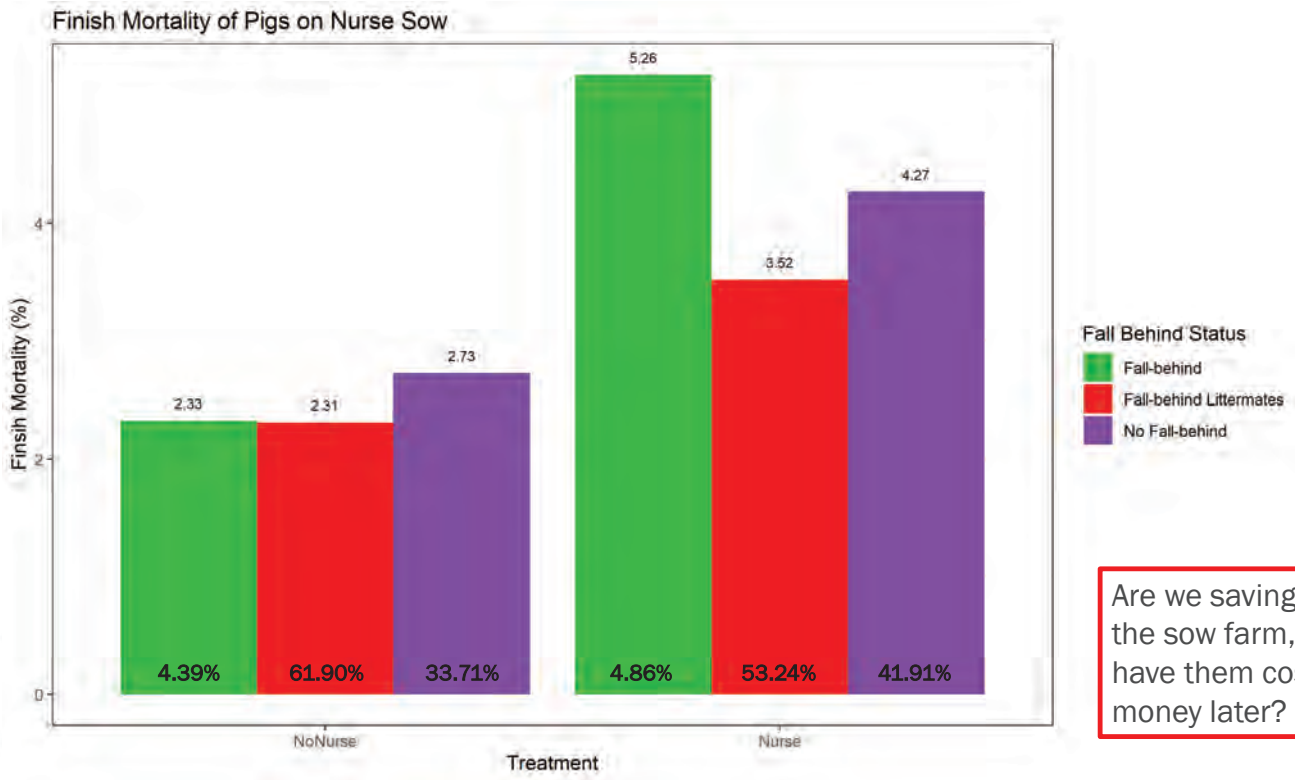


Results

	NoNurse	Nurse	P-value
Birth Weight (kg)	1.37[a]	1.36[a]	0.413
Wean Weight (kg)	5.70[a]	5.83[b]	< 0.001
Pre-wean Mortality (%)	12.75[a]	12.27[a]	0.484
Number Weaned per Sow Weaned	12.89[a]	12.15[b]	< 0.001

Mortality

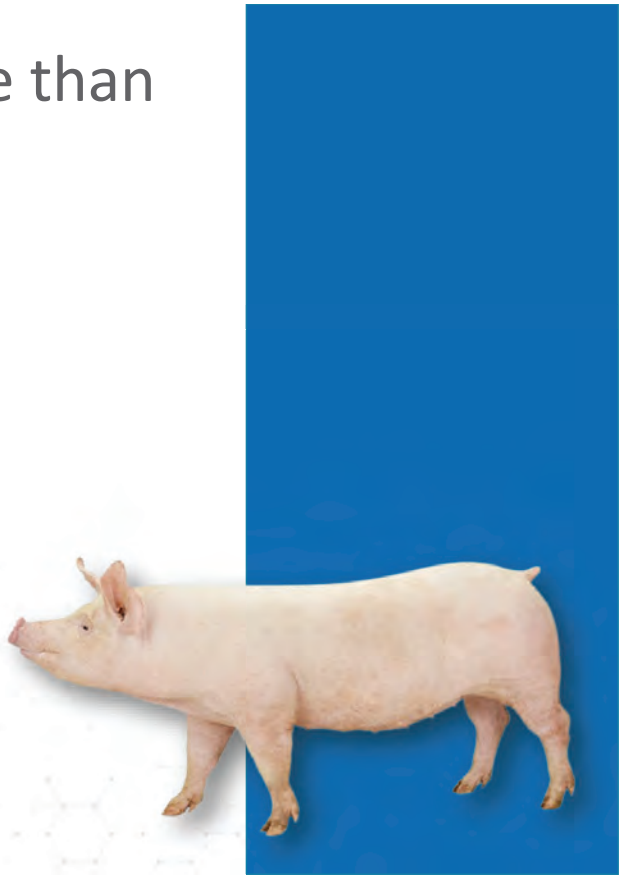
	NoNurse	Nurse	P-value
Pre-wean Mortality (%)	12.75[a]	12.27[a]	0.484
Nursery Mortality (%)	2.34[a]	2.64[a]	0.388
Finish Mortality (%)	2.45[a]	3.92[a]	0.058



Are we saving pigs in the sow farm, only to have them cost us money later?

Are sows able to handle more than we think?

- Previous thought: Split suckling required
  - *Now: No Split Suckling, labor savings*
- Previous thought: Sows can not be loaded over teat count
  - *Now: Sows can handle +1, resulting in less pig movement being needed*
- Previous thought: Nurse sows are needed
  - *Now: Nurse sows can hurt downstream performance*



DNA GENETICS

Questions?

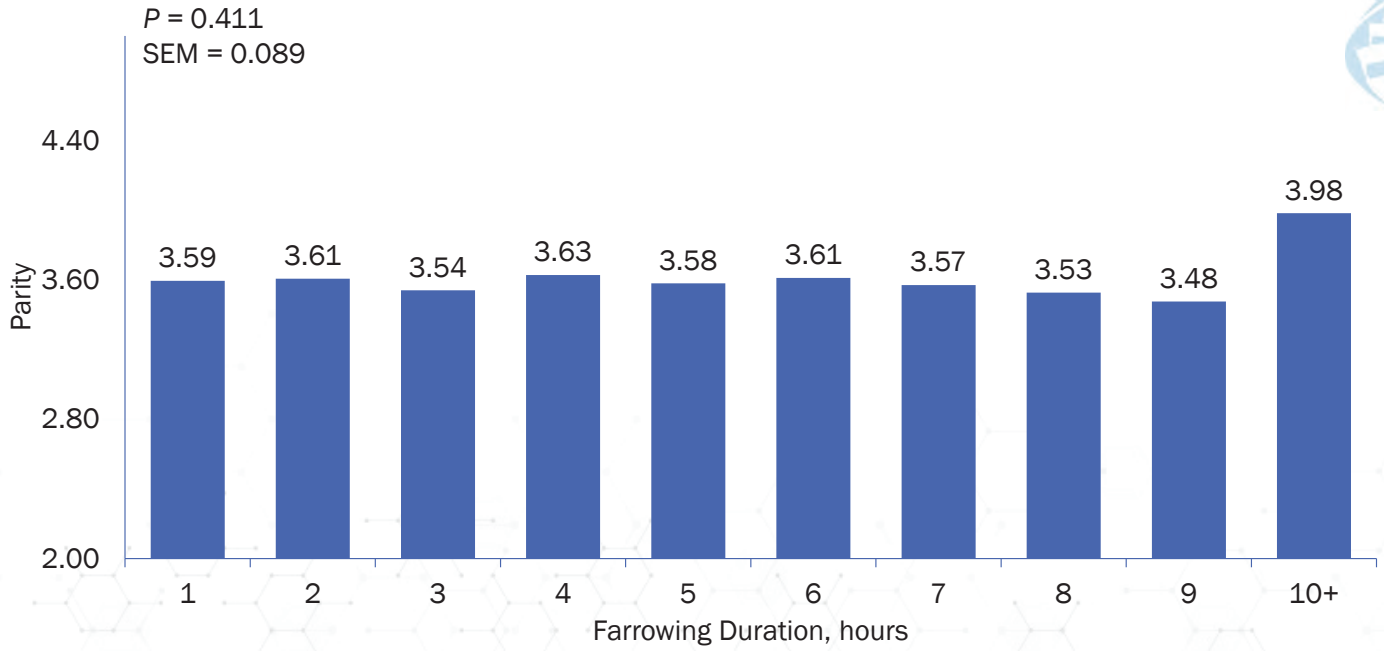
Brady McNeil
DNA Genetics
402-910-4702
bmcneil@dnaswinegenetics.com

Farrowing Duration in a Herd Utilizing Induction and Resulting Performance

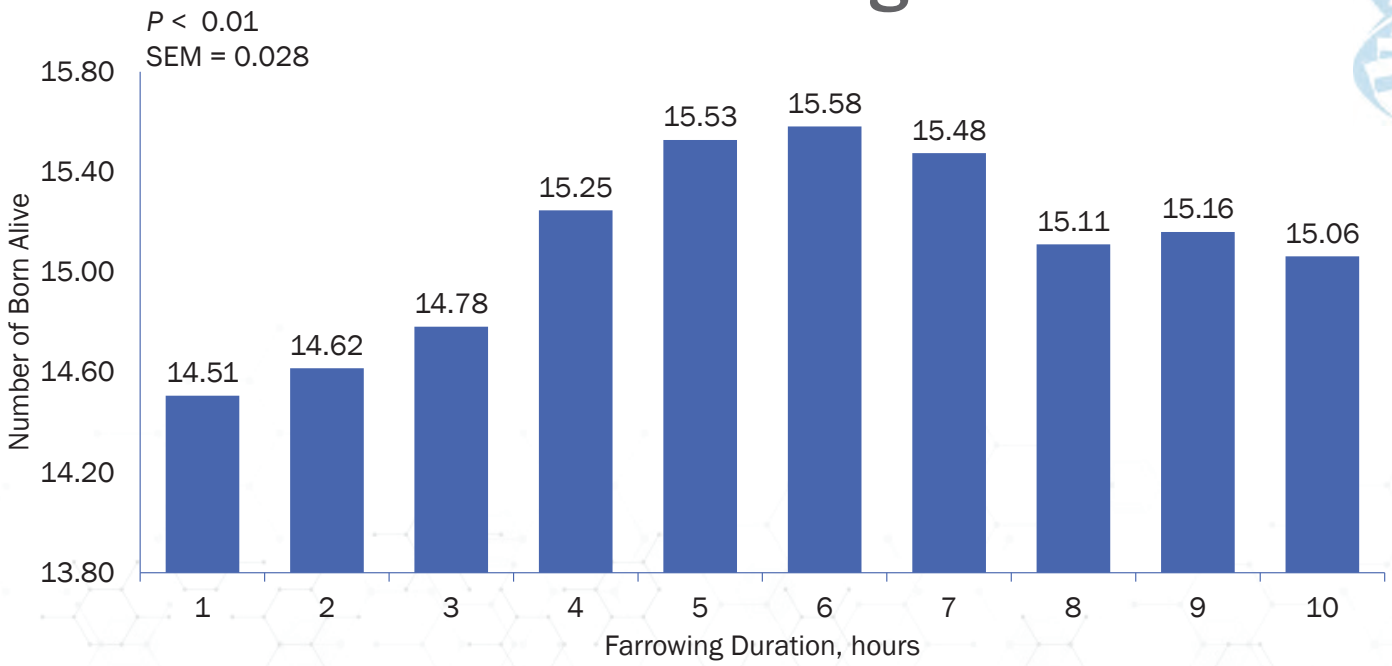
Samantha Swanson[1], Amanda Cross[2], Steve Kitt[3], Ashley Hartman[2], and Brady McNeil[2]

[1]Kansas State University, Manhattan, KS, [2]DNA Genetics, Columbus, NE, [3]Pillen Family Farms, Columbus, NE

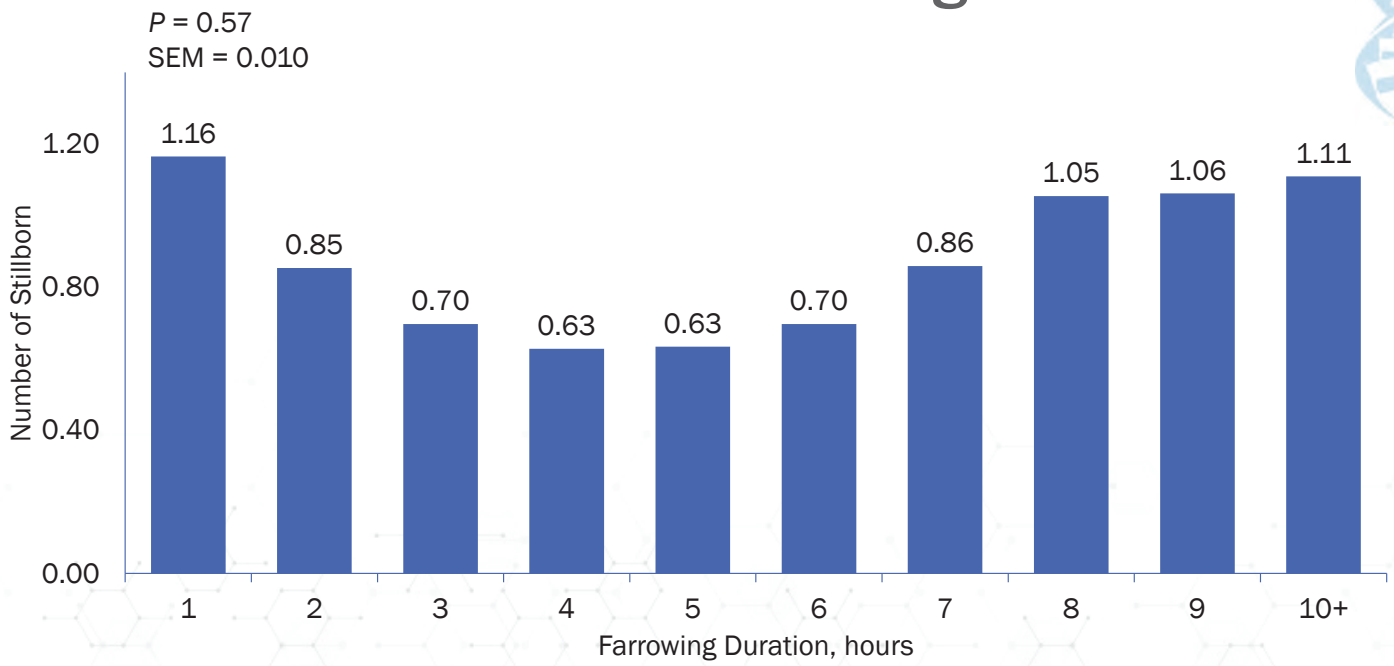
Average Parity



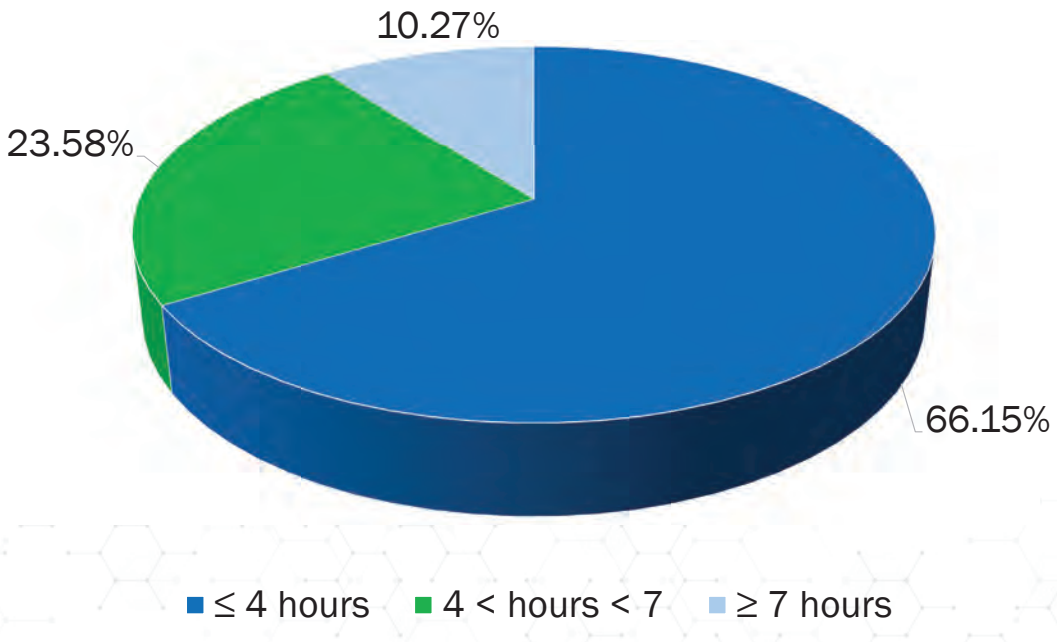
Average Born Alive



Average Stillbirths



Sow Herd Distribution of Farrowing Duration



Sow Mortality Within 21 d Post Farrowing