

# Weight Watchers

Insights from Ontario Sow Herds

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South West Vets





# Topics

- Why weights
- “Weight Watchers” program
- What are we learning





## Why Weights?

- Genetic evolution has prioritized lean and fast-growing animals





# Canadian Journal of Animal Science - 1964

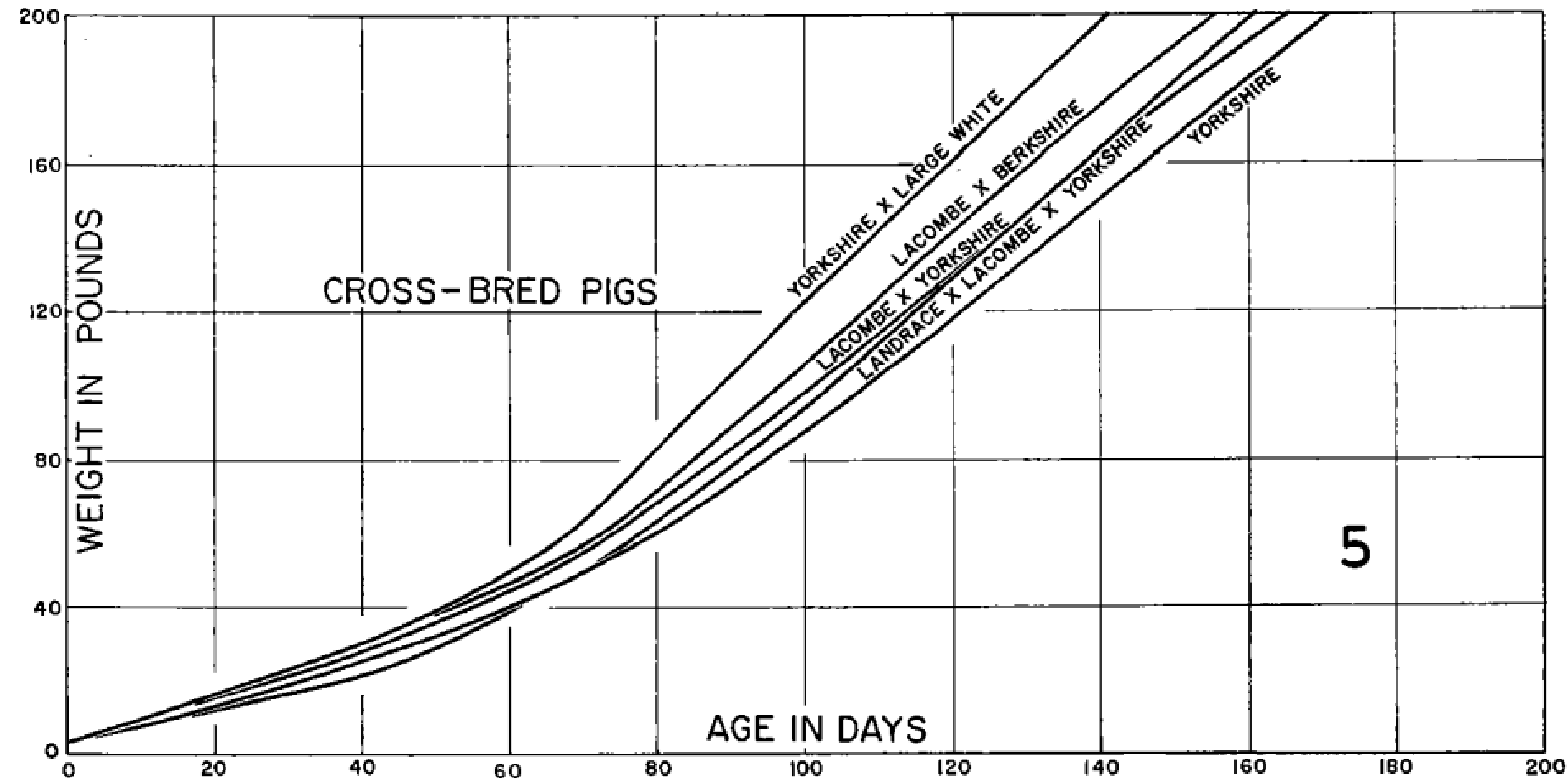
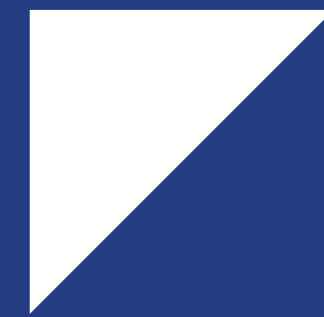


FIG. 5. Growth curves of several kinds of crossbred pigs compared with average Yorkshires.

## DISCUSSION AND CONCLUSIONS

The results of these studies of a cross-section of purebred and crossbred pigs in Canada provide evidence of significant increases in rate of growth compared with performance of pigs 25 years ago.



## Why Weights?

- Genetic evolution has prioritized lean and fast-growing animals
- Canadian producers are gradually moving towards group housing for gestation sows
- Higher feed costs → Opportunities to optimize feed efficiency

“Achieving desired body and physiologic targets is essential for maximizing lifetime productivity of the female”  
– Williams, Patterson, Foxcroft (2005)

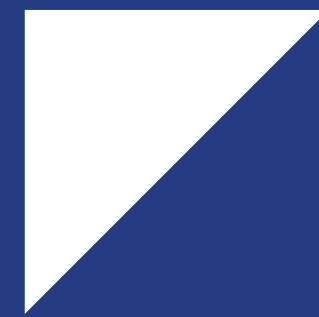
# Sow Body Condition – Summary of Problems

## Too heavy/fat

- Prolonged farrowing (stillbirths)
- Poor feed intake and higher weight loss during lactation
- Poor retention in the herd
- Higher risk of locomotion problems

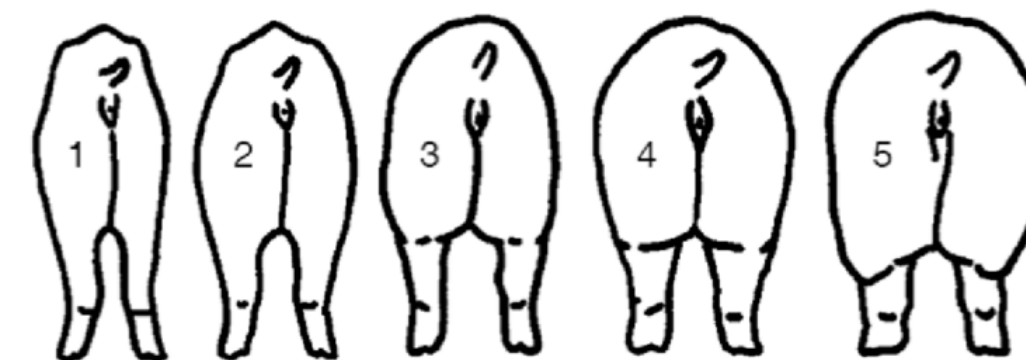
## Too light/thin

- Fewer total born, poor litter performance
- At risk for mortality
- Longer wean to service interval
- Poor future reproductive performance



Age at first service is easy and convenient to collect – but what about body condition?

Measuring Body Condition				
	Visual	Caliper/Tape	Backfat	Live Weight
Accuracy within user	+	++	+++	+++
Accuracy amongst users	+	+	+	+++
Low cost, low tech	+++	+++	++	+
Targets published (especially gilt targets)	+++	+	+++	+++





“Evaluation of body weights across common breeding lines in commercial settings is limited”





– Carrion-Lopez (2022)

# Collection of live weights in commercial herds

- Manual collection:
  - gilt weights upon entry/breeding



# Gilt Development Guidelines

Genetics	Age at first service (days)	Weight at first service	Backfat at first service (mm)	Growth rate
 DANBRED	210-250	150-165kg	13-15	900 (from 30kg)
 Hypor	240	145kg	15	600-700
 PIC	200-225	135-160kg	n/a	600-800
 Topigs Norsvin	210-240	150-170kg	11-13	650+

# Collection of live weights in commercial herds is increasing

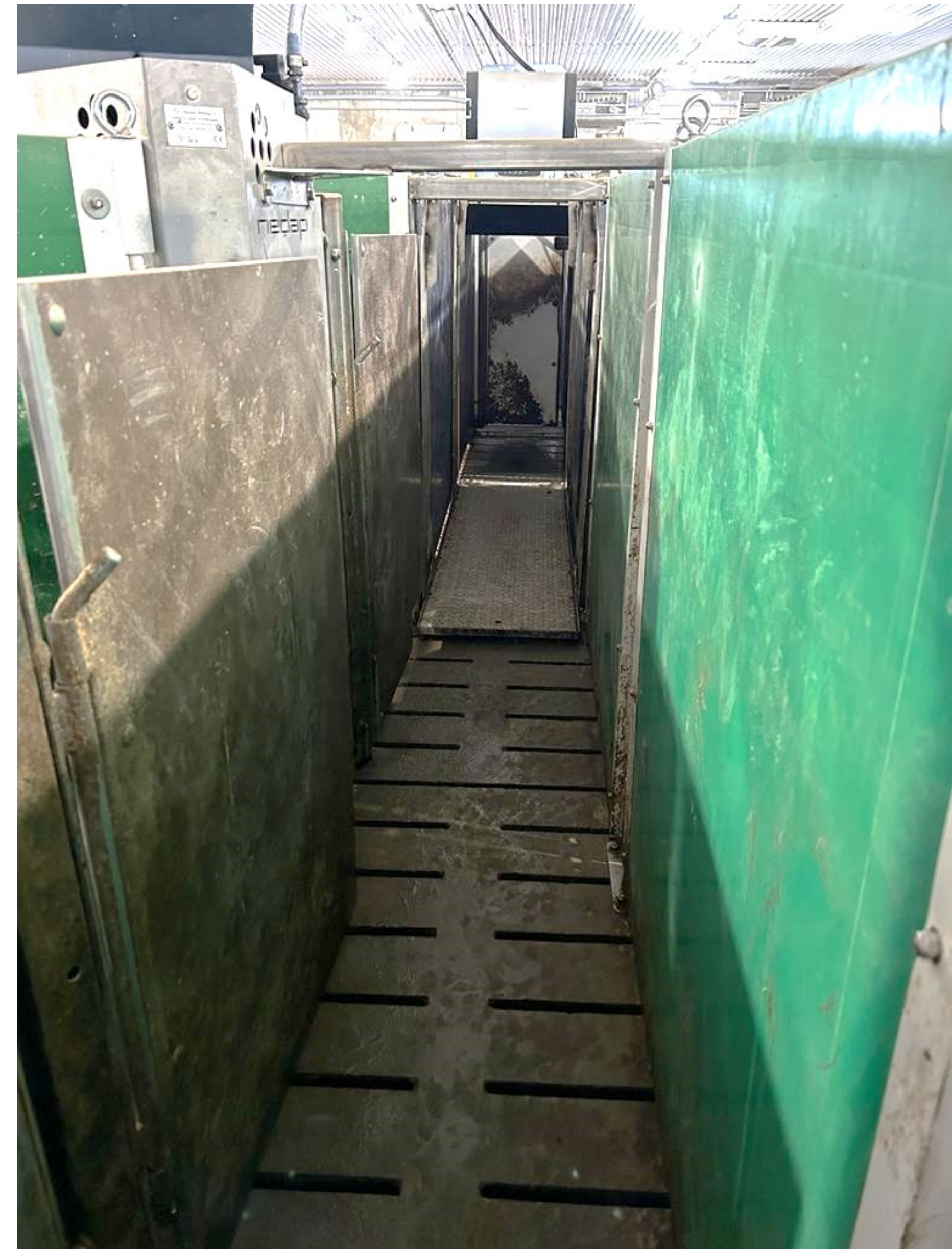
- Manual collection:
  - gilt weights upon entry/breeding
  - sow weights breeding, pre-farrow, and/ or weaning



# Collection of live weights in commercial herds is increasing

- Manual collection:
  - gilt weights upon entry/breeding
  - sow weights breeding, pre-farrow, and/ or weaning
- Automated collection:
  - sow weights in gestation pens weekly



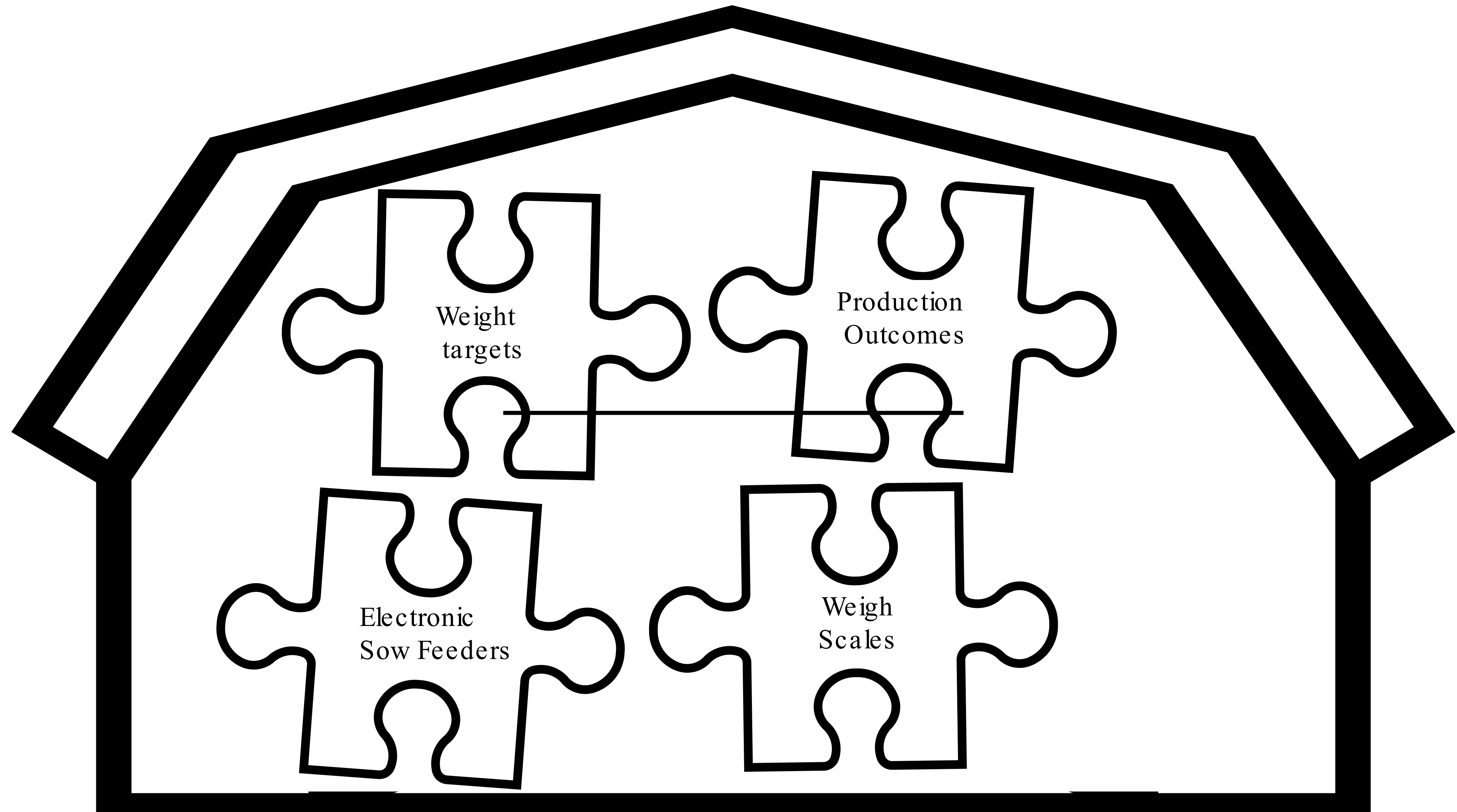




# Producer Questions – Fall 2023

- Are sows at the ideal weights and are the feed plans working?
- Am I seeing improvements in production outcomes?
- How can I make the most of the investment and data?

# Relevant Data Sources

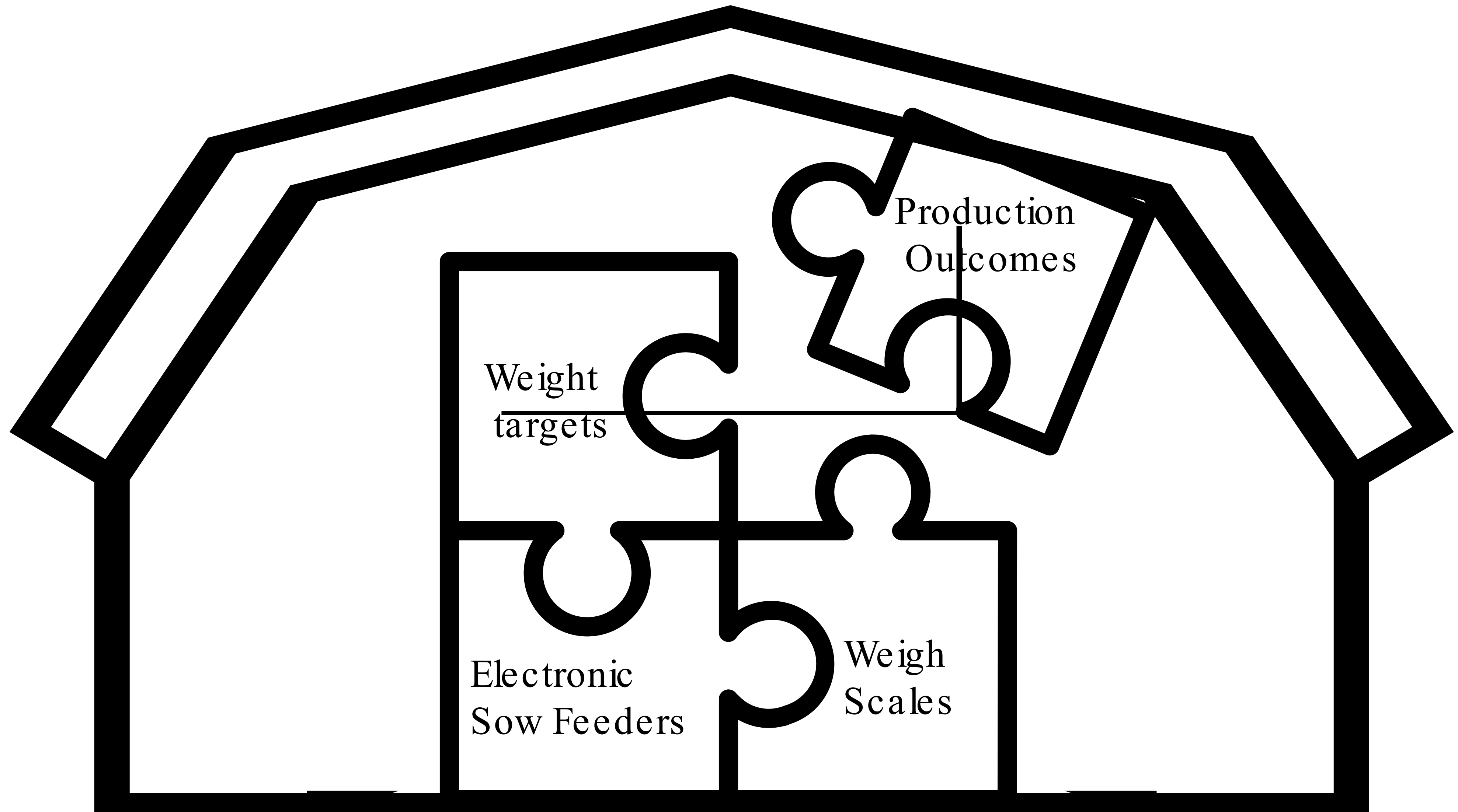




# Data Review – Findings

- Weights, targets and production outcome data are stored in separate software
- Weights are not stored long-term
- >40% of sows were on the wrong feed plan as prescribed by the genetic and/or nutrition team

# Need identified - Data Integration





## Project Goals:

Develop a program that can:

1. adjust feed plans in real-time
2. monitor weights throughout gestation
3. evaluate weight targets and production outcomes over time



# The “Weight Watchers” program



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# The program

- Data integration resulted in 4 “action-based” reports
  - Feed curve adjustment
  - Scale accuracy
  - Gilts
  - Sow condition
- Data uploads/ storage



# Feed curve adjustment report - weekly

- Identifies individual sows that need a feed plan adjustment
  - based on parity, week of gestation, an ideal weight target
  - specific to each farm
- Report is used to adjust feed plans in ESF for identified sows
- Goal is to maintain ideal body condition and prevent extreme's



# Scale accuracy report - weekly

- Report evaluates the number of animals in each pen versus number of animals scaled
- High % of missing animals could signal:
  - Animals missing ID tags
  - Incorrect inventory
  - Load cells not functioning
  - Scale software needs rebooted

# Gilt report - weekly

- Identifies gilts that:
  - are the correct age and weight for breeding or soon to be
    - specific to each farm
  - need attention
    - based on age, weight, slow growth, missing data

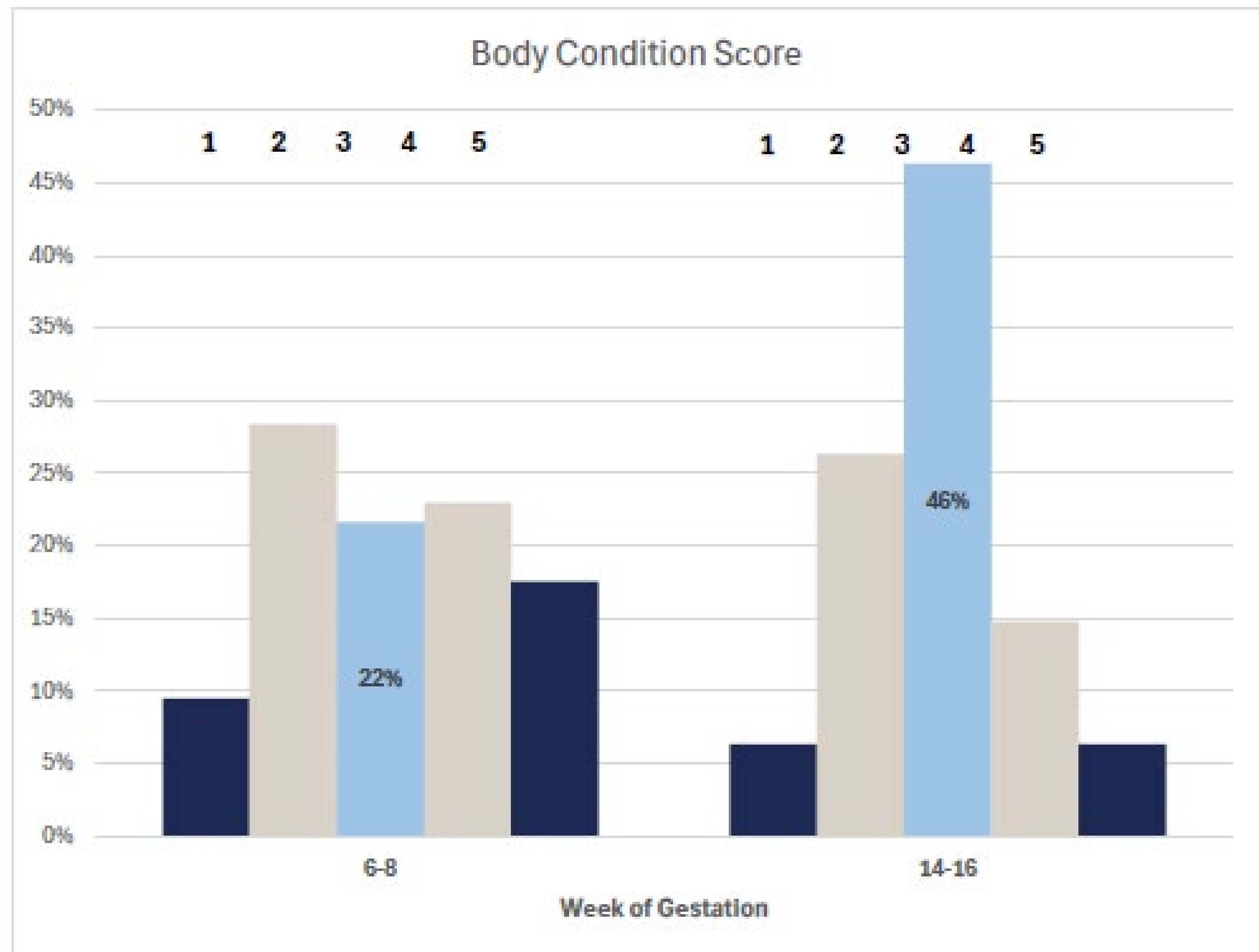


# Sow condition report - monthly

- Transfers body weights into body condition scores
- Monitors trends within the herd by parity and stage of gestation
  - Are we achieving ideal body condition for as many sows as possible?
    - What are the extreme weights? Are we narrowing the interval?
  - How do body condition categories correlate with production outcomes by parity in the herd?

# Sow Condition Snapshot

2024-12-02





# Data Uploads & Storage

- Evaluation of ideal weight and production outcomes requires storage of weight data
  - Program uploads week 2 and 15 gestational weights into production software
- Weekly weight data and dates of feed plans implemented are stored in producer's client file

# Timeline of Program Development

## Spring 2024

- SCAP Funding awarded to pilot and demonstrate the program



## Fall 2023 – Winter 2024

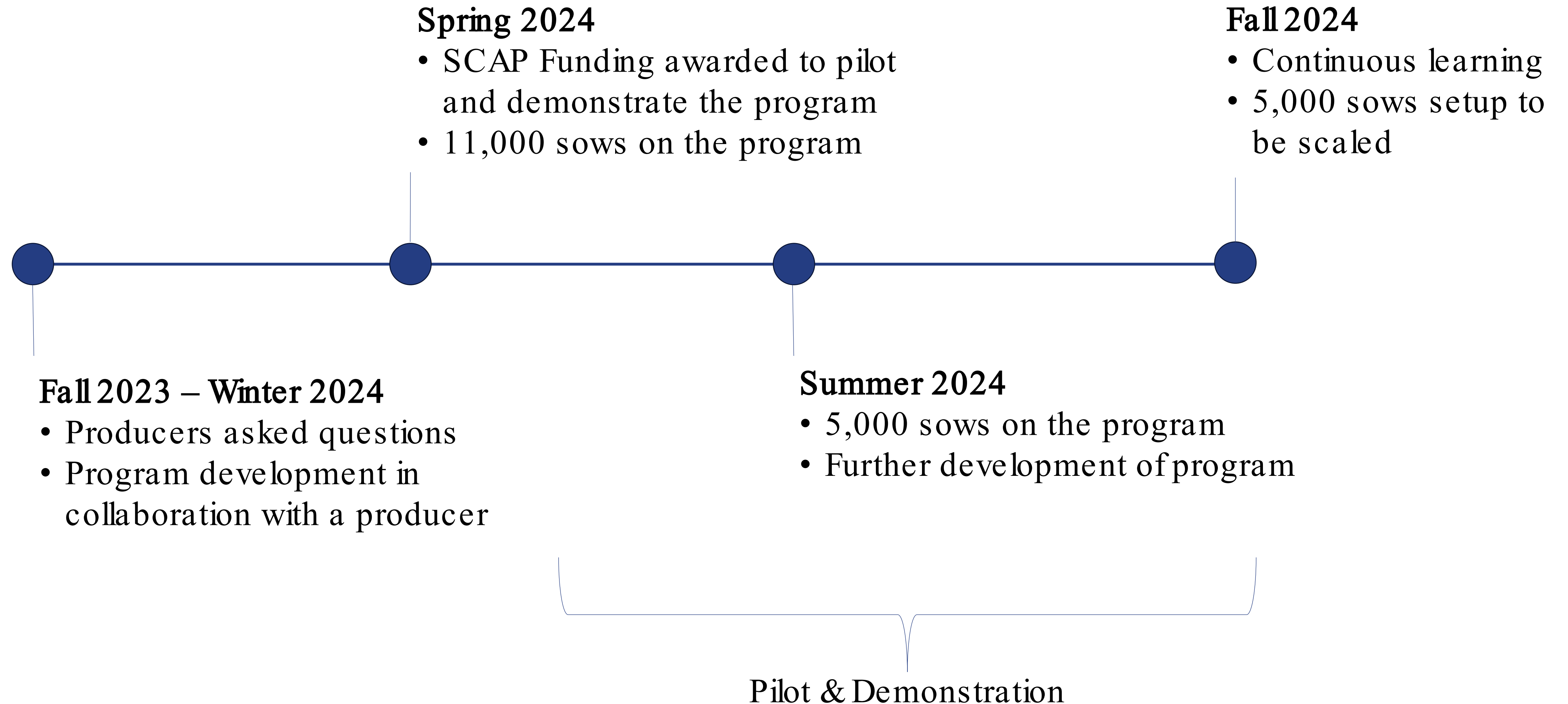
- Producers asked questions
- Program development in collaboration with a producer

This project is funded in part by the Governments of Canada and Ontario under the Sustainable Canadian Agricultural Partnership (Sustainable CAP), a 5-year federal-provincial-territorial initiative.

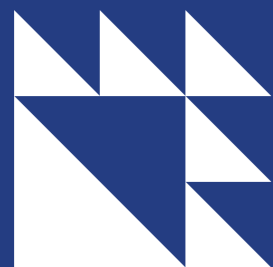




# Timeline of Program Development



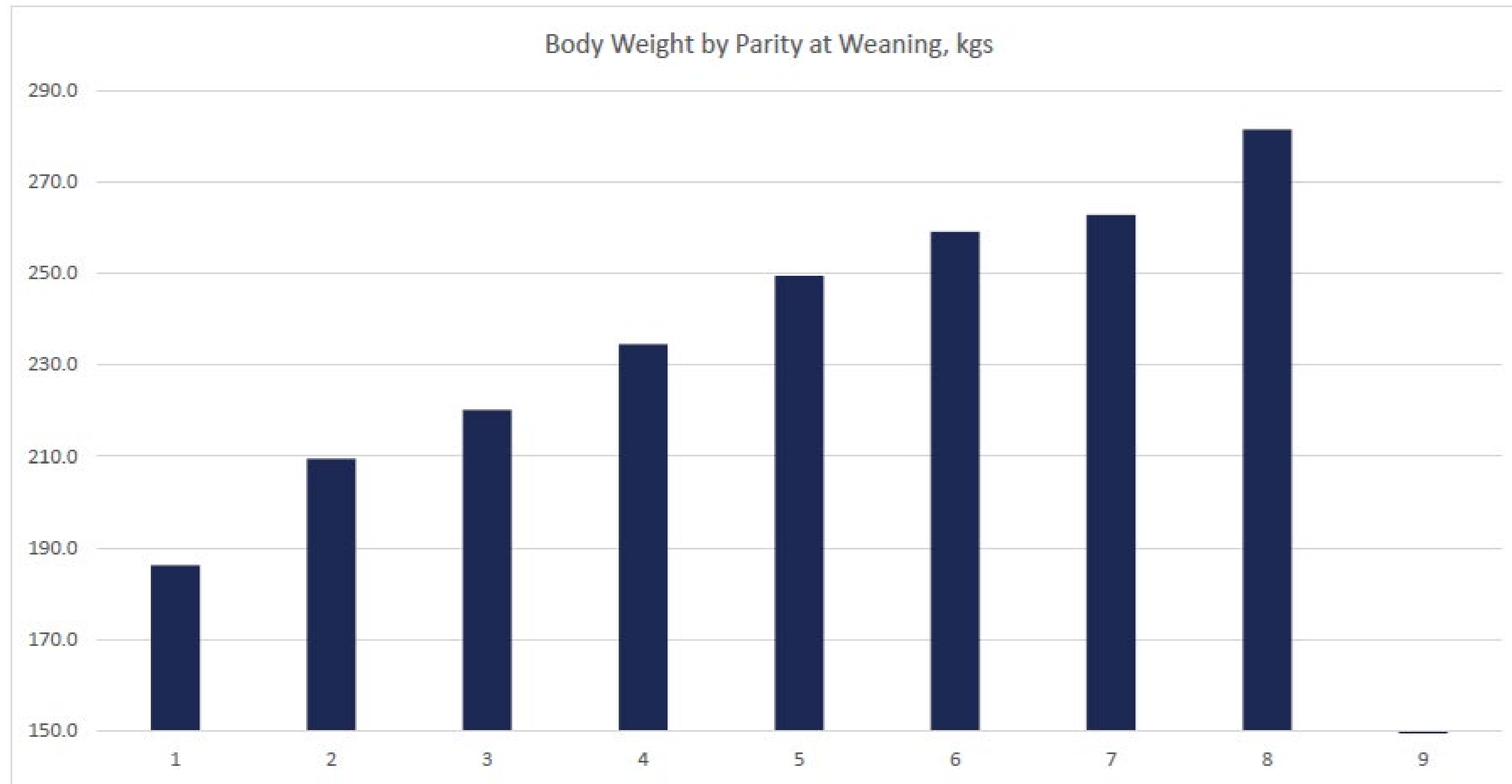
What are we learning?



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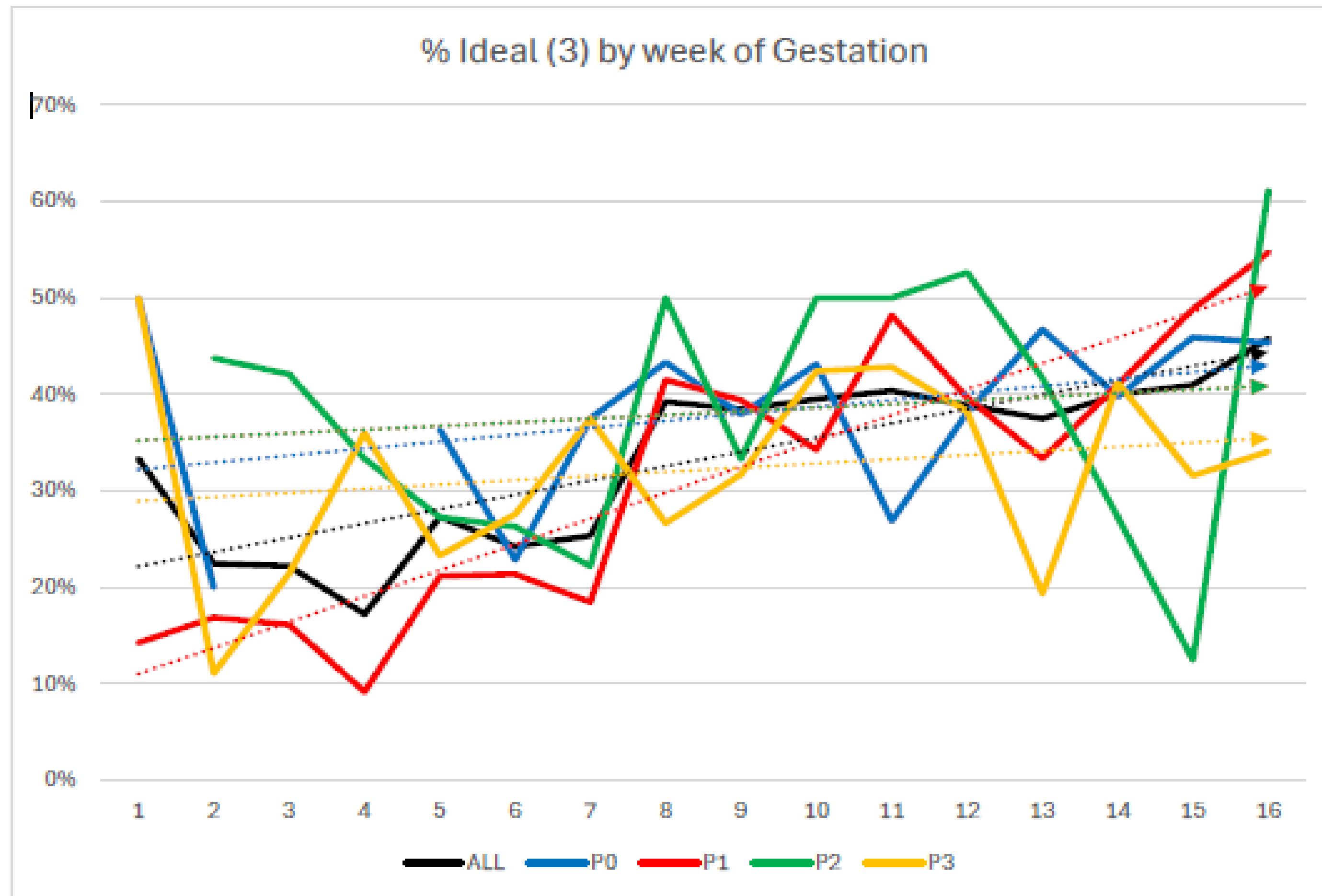


# Sows still grow past parity 3





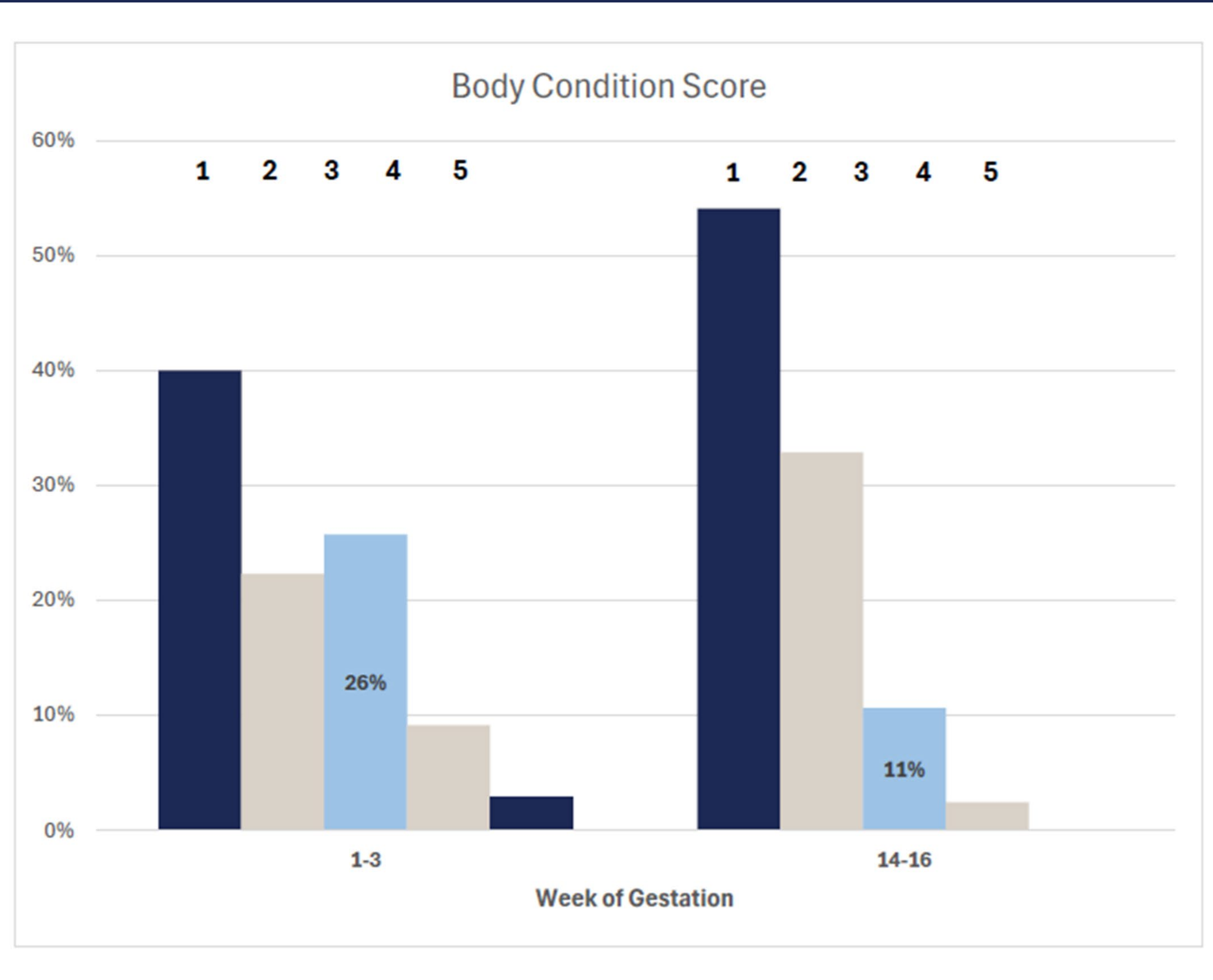
# Growth is dynamic by parity and gestation week





## Monitoring weights as a tool

- Outliers are costly
- Low ADG sows can be a focus
- Decreasing variability requires patience and monitoring



## Evaluation of performance outcomes will take time

- Starts with the gilt
- Every farm is managed differently
  - Adjustments to ideal weights and feed plans will be farm specific
- Evaluation will be farm specific
- Opportunity to combine data and evaluate genetic potential long term





# Growth Trends – Farm A

		Parity								
		1	2	3	4	5	6	7	8	9
<b>Count</b>										
Farrow	kgs	192.9	216.6	227.5	240.8	253.5	259.5	263.7	268.8	
	lbs	425.2	477.4	501.5	530.8	558.8	572.0	581.3	592.6	
Wean	kgs	186.2	209.5	220.2	234.6	249.4	259.1	262.8	281.4	
	lbs	410.5	461.8	485.4	517.1	549.8	571.2	579.3	620.3	
Lactation Loss	kgs	-6.7	-7.1	-7.3	-6.2	-4.1	-0.4	-0.9	12.6	
Parity Gain	kgs		23.7	10.9	13.3	12.7	6.0	4.2	5.1	
Gestation Gain	kgs		30.4	18.0	20.6	18.9	10.1	4.6	6.0	

# Growth Trends – Farm B

		Parity								
		1	2	3	4	5	6	7	8	9
Farrow	kgs	205.2	219.4	234.1	248.4	259.6	268.2	270.4	273.0	272.5
	lbs	452.4	483.7	516.1	547.7	572.2	591.3	596.1	601.9	600.8
Wean	kgs	193.1	212.7	230.4	244.2	256.0	265.9	272.3	274.8	276.6
	lbs	425.7	468.8	507.8	538.4	564.3	586.2	600.4	605.8	609.7
Lactation Loss	kgs	-12.1	-6.8	-3.7	-4.2	-3.6	-2.3	1.9	1.8	4.0
Parity Gain	kgs		14.2	14.7	14.3	11.1	8.7	2.2	2.6	-0.5
Gestation Gain	kgs		26.3	21.4	18.1	15.4	12.3	4.5	0.7	-2.3

# Lactation loss impacts wean-to-service interval

	Lactation Weight Loss, kgs										
	> 20	20	10	0	-10	-20	-30	-40	-50	-60	<
Parity	Wean-Service-Interval, days										
1	7.2	5.6	7.7	7.3	6.5	7.4	9.7	8.8	7.6	8.2	
2	5.7	5.4	5.5	5.1	5.3	5.2	4.7	5.4	7.6	4.6	
3	5.7	5.8	6.1	5.6	5.5	5.0	6.1	6.0	4.5	6.2	
4	5.2	5.2	4.8	5.4	4.9	5.9	6.1	4.9	4.0	5.4	
5	6.1	5.5	6.1	4.7	4.9	6.0	4.9	5.1	10.5	6.1	
6	5.8	4.8	5.1	5.2	4.8	5.0	5.4	6.7	3.0	5.0	
7	5.3	4.2	4.6	4.7	4.1	4.2	4.2	4.3	5.5	4.3	
8	3.5	4.2	3.9	5.8	4.3	4.1	4.0				
9	4.7	3.8	6.4	4.6	4.3	4.0	4.0	5.0			
	5.8	5.3	5.9	5.7	5.6	6.0	7.3	6.7	6.6	5.9	



Parity	Farrowing Weight	Totalborn	Liveborn	Stillborn	Mummies	Weaned	W1SI	Removed	
1	<	200	13.7	12.7			13.5	8.8	4%
	200	205	13.6	12.8	4.2%	1.2%	13.5	6.9	4%
	205	210	14.0	13.2	4.7%	0.8%	13.7	7.4	3%
	210	215	14.6	13.7	5.0%	1.3%	13.5	7.2	4%
	215	220	15.2	14.3	4.6%	1.3%	13.6	7.6	5%
	220	225	15.4	14.4	5.2%	1.2%	13.5	8.0	7%
	225	230	16.0	15.0	5.0%	1.3%	13.2	7.3	7%
	230	235	16.1	15.0	5.2%	1.6%	13.6	8.2	8%
	235	240	15.9	15.0	4.2%	1.4%	13.4	7.8	9%
	240	245	16.8	15.4	6.8%	1.4%	13.6	5.7	4%
	245	250	15.5	14.3	6.9%	0.9%	12.8	4.5	20%
	250	<	16.3	14.9	6.2%	2.5%	13.3	7.8	6%

Parity	Farrowing Weight	Totalborn	Liveborn	Stillborn	Mummies	Weaned	W1SI	Removed	
2	<	220	12.7	12.2			13.8	7.6	0%
	220	225	12.5	11.9	3.9%	0.4%	13.0	5.8	7%
	225	230	13.6	12.8	4.6%	1.2%	13.3	4.8	6%
	230	235	14.6	13.7	4.6%	1.4%	13.7	5.8	5%
	235	240	15.0	14.2	4.1%	1.1%	13.6	5.5	5%
	240	245	15.5	14.5	5.4%	1.2%	13.5	5.1	6%
	245	250	15.7	14.6	5.5%	1.7%	13.3	5.4	8%
	250	255	16.4	15.3	5.1%	1.2%	13.5	5.3	7%
	255	260	16.1	14.9	5.3%	2.1%	13.4	5.6	11%
	260	265	17.2	15.7	6.0%	3.0%	13.3	7.1	15%
	265	270	17.4	16.2	5.1%	2.0%	13.2	6.2	9%
	270	<	17.7	15.7	10.3%	1.2%	12.6	5.2	26%

# External diagnostics are highly valuable

- SOPs created for scale owners
  - Bi-weekly/ monthly cleaning under the scales and calibration to ensure accuracy
    - The impact of scales not reporting a proper weight is huge
      - No adjustment of feed plans
      - Incorrect adjustment of feed plan from a false weight
    - Faulty load cell or connection needs to be rebooted

What are we learning – gilts?



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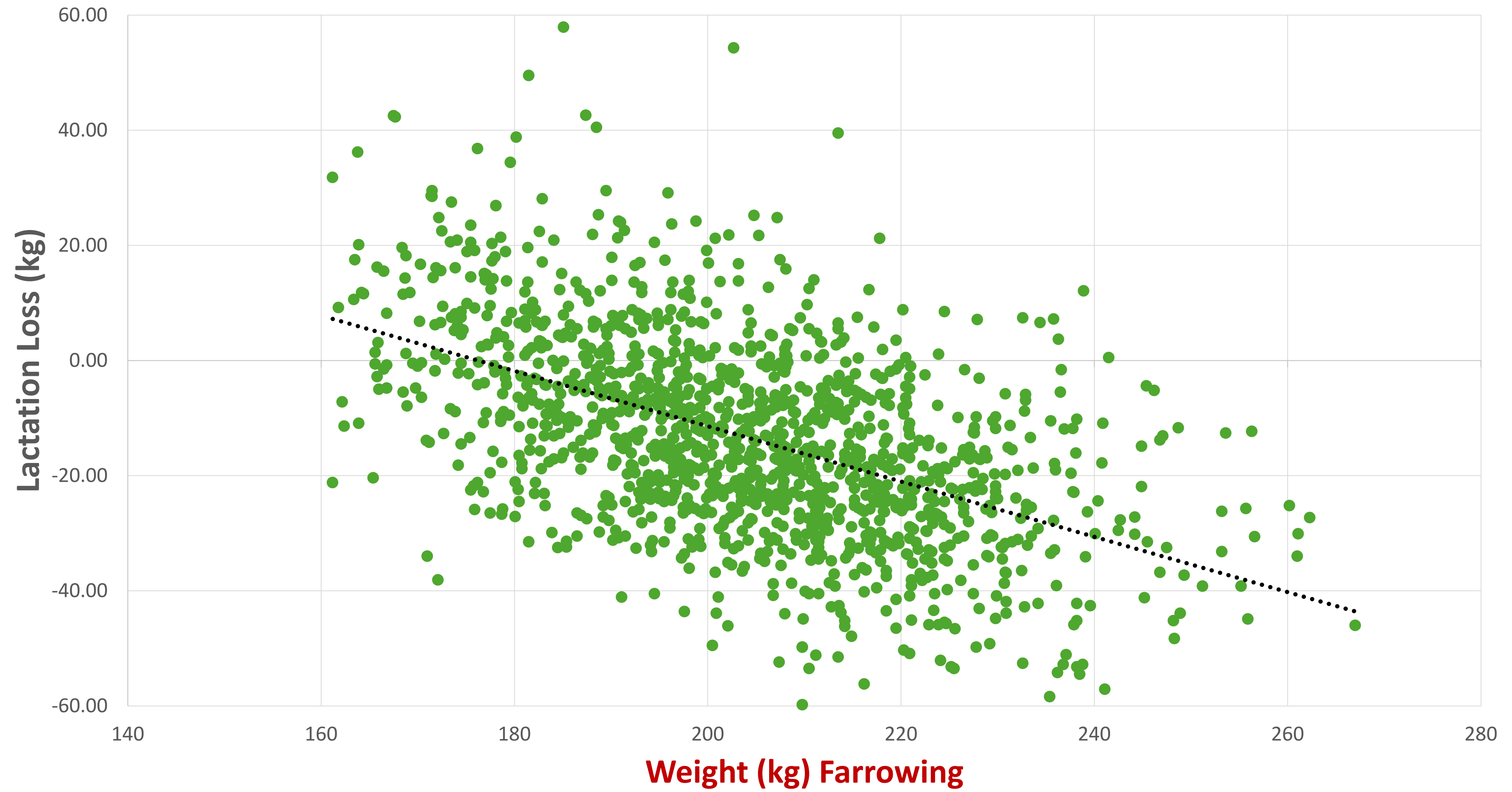




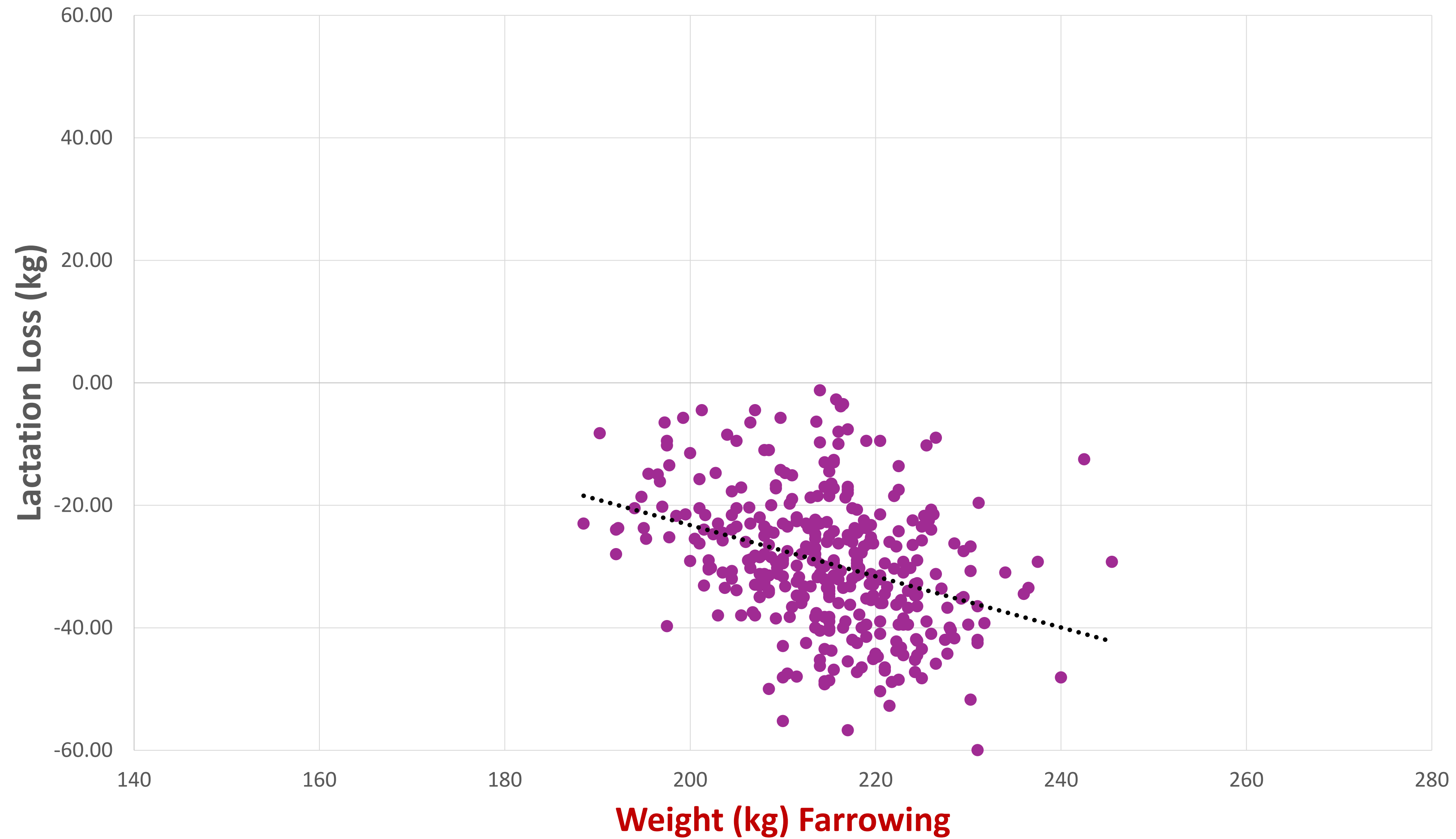
# Monitoring Gilt Growth Targets

- The largest group of females in a herd (~20%)
- Program provides a tool for producers to identify gilts
  - Bred within a very specific weight window rather than just age
  - Identify gilts with a low ADG

# Low focus on gilt weight at breeding



# High focus on gilt weight at breeding





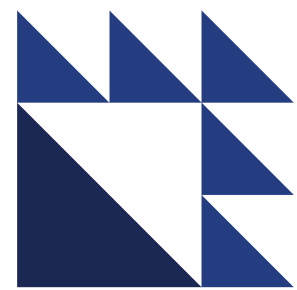
# Next steps

- Explore automating pieces of the program
  - Human interpretation remains important
- Continue to evaluate optimal weight targets for producers
- Explore running the program with manual weights



# Thank You

Contact Paul Ferreira from South West Vets to learn more about the program:  
[pferreira@southwestvets.ca](mailto:pferreira@southwestvets.ca)



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