Sow Mortality Update

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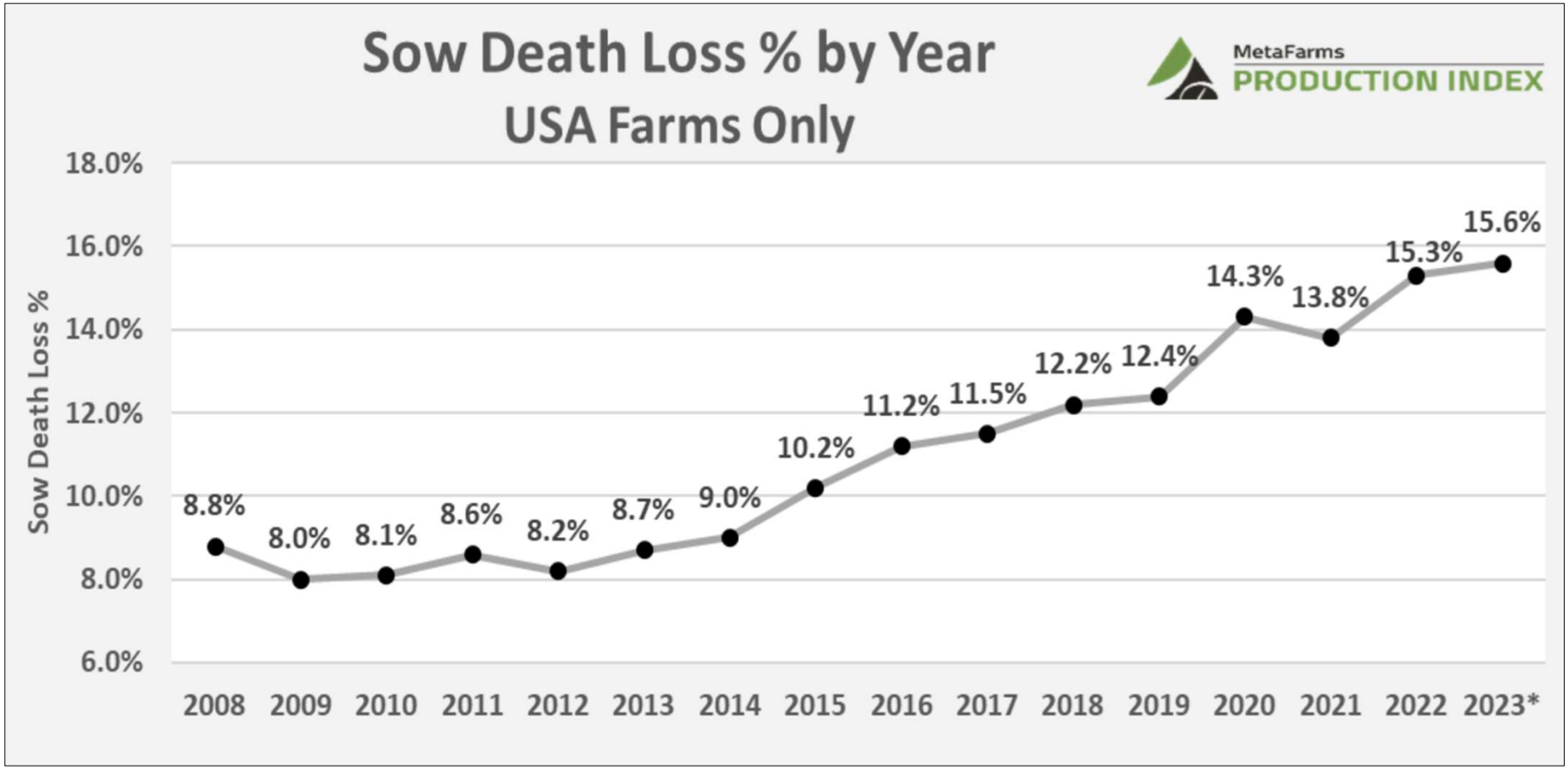
BIG BUG DAY 2023

December 6, 2023

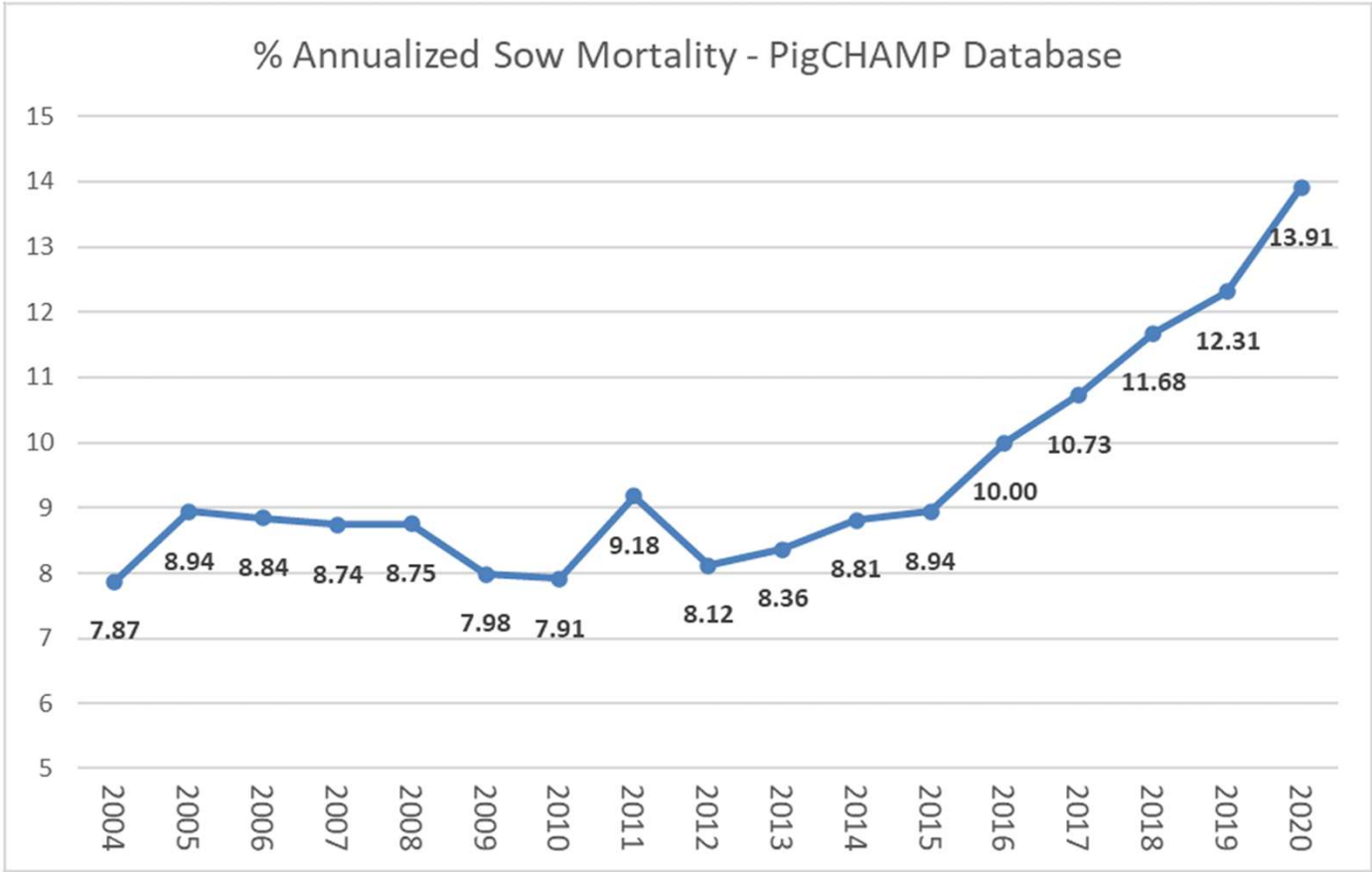
South West Vets

Topics

- Sow Mortality Trends in Pig Production
- Focus on Lameness
- Focus on Pelvic Organ Prolapse


Sow Death Loss % by Year
USA Farms Only
MetaFarms
PRODUCTION INDEX
Sow Death Loss %
18.0%
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
8.8%
8.0%
8.1%
8.6%
8.2%
8.7%
9.0%
10.2%
11.2%
11.5%
12.2%
12.4%
14.3%
13.8%
15.3%
15.6%
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023*

Sow Mortality (2004-2020)



PigCHAMP › Benchmarking

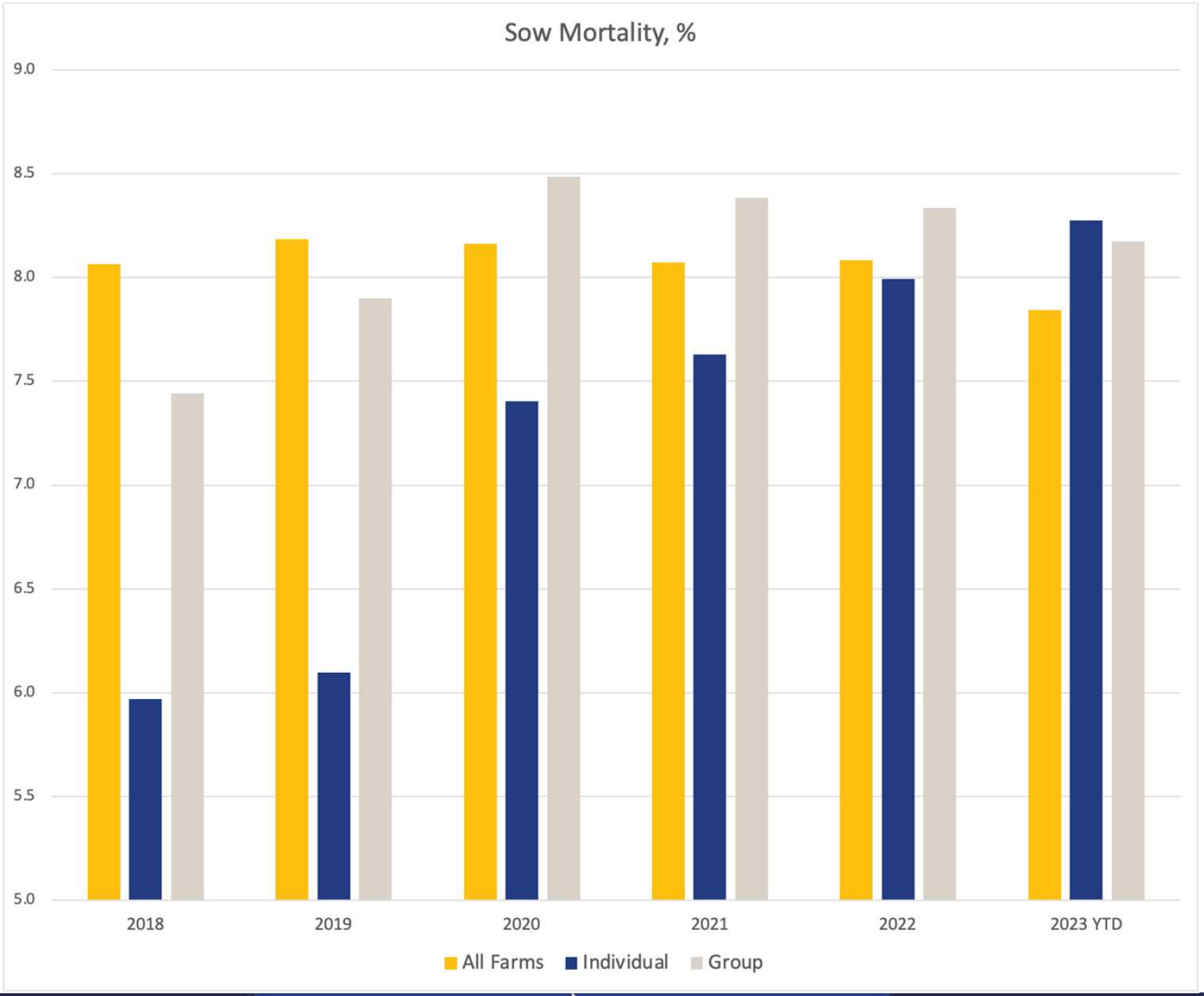
~ 350 farms

~685,000 sows

South West Data

- Anonymous client data
- Pig Knows data bureau
- Approx 25% of farms removed due to:
  - Incomplete data
  - Ontario farms only
  - Changes in inventory during time period (new herd, depop-repop, expansion)

Five Year Trend for Sow Mortality in Ontario



All Farms		2018		2019		2020		2021		2022		2023 YTD	
# of Sows		#	%	#	%	#	%	#	%	#	%	#	%
<	100	24	**9.7**	18	**10.8**	16	**9.1**	12	**8.2**	14	**7.7**	16	**6.7**
101	200	21	**8.6**	31	**9.1**	27	**7.4**	27	**7.3**	29	**7.4**	26	**6.2**
201	400	31	**7.2**	29	**6.8**	29	**7.0**	33	**7.1**	28	**6.9**	28	**6.6**
401	600	13	**7.8**	13	**6.7**	19	**7.5**	15	**7.5**	18	**7.0**	14	**7.5**
601	1000	18	**7.5**	18	**6.9**	17	**7.7**	21	**7.8**	19	**7.7**	21	**7.8**
1001	1500	17	**8.0**	19	**7.7**	20	**8.8**	18	**8.6**	17	**9.0**	17	**9.1**
1501	3000	21	**7.6**	21	**8.7**	23	**9.4**	27	**9.7**	27	**9.8**	28	**9.8**
3001	>	5	**7.0**	7	**9.7**	7	**9.0**	6	**7.2**	7	**11.4**	7	**8.0**
	0	150	**8.1**	156	**8.2**	158	**8.2**	159	**8.1**	159	**8.1**	157	**7.8**

Causes of Mortality - Lameness

Rarely a cause of death; often euthanasia
#1, #2, or #3 on most farms

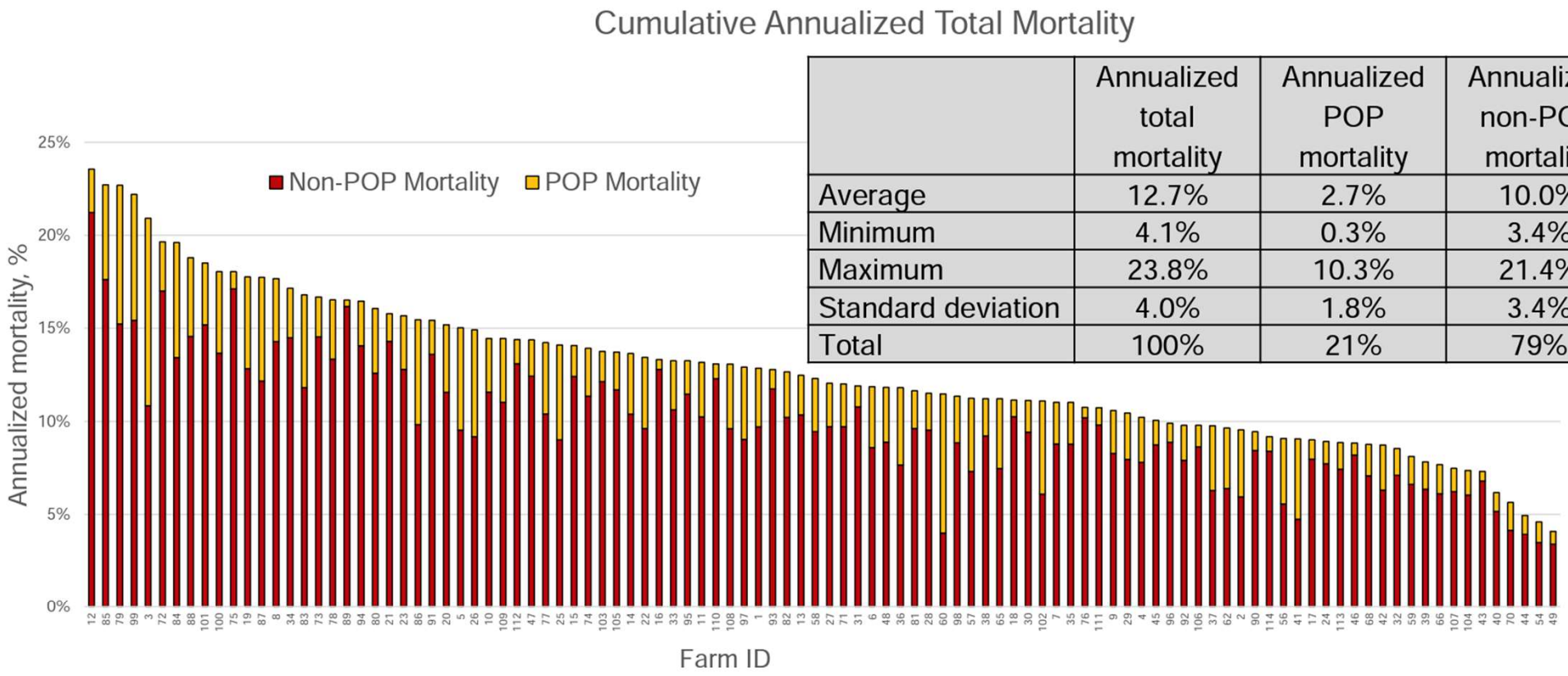
- Infectious causes
- Trauma
- Degenerative/developmental

Sows with poor locomotion moving from dry sow barn to farrowing barn:

- Higher chance of not farrowing
- Higher SB
- Higher PWM
- Higher risk of culling prior to weaning

Lameness focus

Average Mortality for 104 Farms



	Annualized total mortality	Annualized POP mortality	Annualized non-POP mortality
Average	12.7%	2.7%	10.0%
Minimum	4.1%	0.3%	3.4%
Maximum	23.8%	10.3%	21.4%
Standard deviation	4.0%	1.8%	3.4%
Total	100%	21%	79%

Herd size, induction protocol, sleeving protocol, tail length, hygiene, particle size

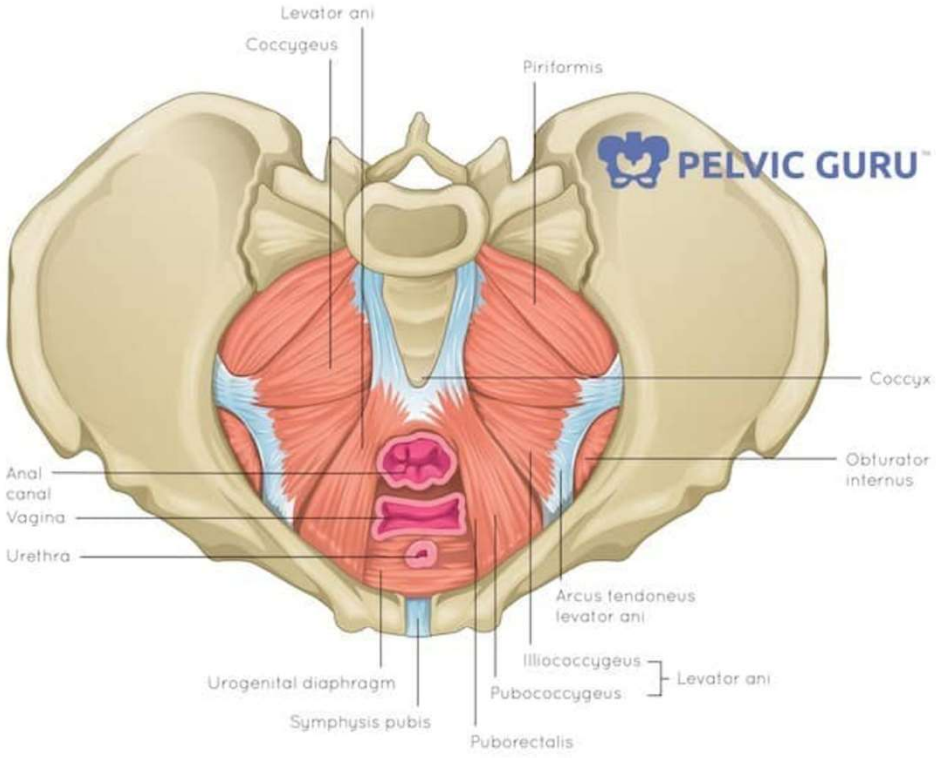
Geographical region, sow housing, laxatives, mycotoxins, health status and disease outbreaks, nutrition, genetics, antibiotic usage

Water quality, body condition, bump feeding strategy, perineal score

Pelvic Organ Prolapse in Other Mammals (People)

- **Chronic constipation** and straining
- Difficult labour & delivery
- High number of deliveries (parity)
- Family history
- Weak pelvic floor muscles and/or connective tissue
    - Heritable
    - Low estrogen
    - Low fitness
- Spinal cord or nerve injury

Pelvic Organ Prolapse



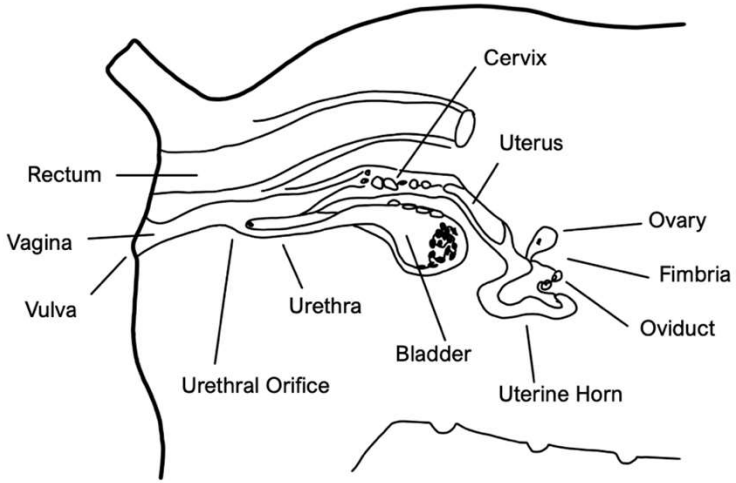
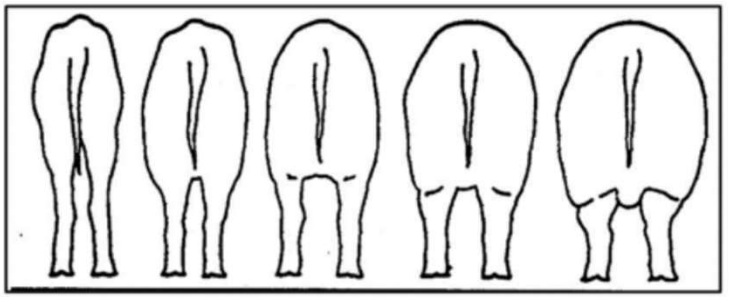


Figure 1. Body Condition Score Chart



Score	1	2	3	4	5
Backfat Depth, mm	≤10	11-15	16-22	23-29	≥30

POP – Best Practices

- Prevent body condition changes and prevent skinny sows at farrowing time
- Do not underfeed high BCS gilt (pelvic floor is a set of muscles)
- ID and cull Perineal Score 3
- Prevent chronic water intake suppression
    - Up to 35L/day (fill trough 6-10 times per day)
- Prevent chronic constipation
- Treatment of suspects
- Eliminate POP sows from PB herd (heritability)

Pelvic Organ Prolapse Treatment Protocol

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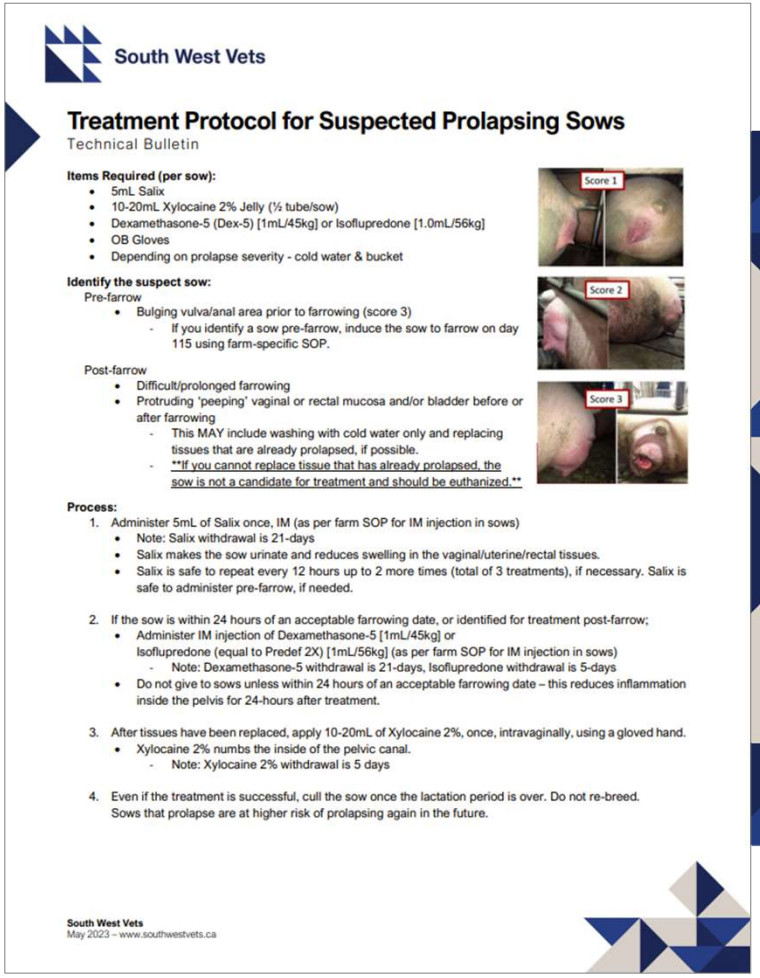
Applied Research Services

Rationale behind protocol

- Surgical treatment not desirable or effective
- Anesthesia of the pelvis
  - reduces the sensation of pain within pelvis that leads to pushing (reflex abdominal straining)
- Use of a diuretic to reduce swelling
  - reduces swelling in pelvic organ tissue via diuresis



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Treatment Protocol for Suspected Prolapsing Sows

Technical Bulletin

Items Required (per sow):

- 5mL Salix
- 10-20mL Xylocaine 2% Jelly (⅓ tube/sow)
- Dexamethasone-5 (Dex-5) [1mL/45kg] or Isoflupredone [1.0mL/56kg]
- OB Gloves
- Depending on prolapse severity - cold water & bucket

Identify the suspect sow:

Pre-farrow

- Bulging vulva/anal area prior to farrowing (score 3)
  - If you identify a sow pre-farrow, induce the sow to farrow on day 115 using farm-specific SOP.

Post-farrow

- Difficult/prolonged farrowing
- Protruding 'peeping' vaginal or rectal mucosa and/or bladder before or after farrowing
  - This MAY include washing with cold water only and replacing tissues that are already prolapsed, if possible.
  - **If you cannot replace tissue that has already prolapsed, the sow is not a candidate for treatment and should be euthanized.**

Process:

1. Administer 5mL of Salix once, IM (as per farm SOP for IM injection in sows)
   - Note: Salix withdrawal is 21-days
   - Salix makes the sow urinate and reduces swelling in the vaginal/uterine/rectal tissues.
   - Salix is safe to repeat every 12 hours up to 2 more times (total of 3 treatments), if necessary. Salix is safe to administer pre-farrow, if needed.
2. If the sow is within 24 hours of an acceptable farrowing date, or identified for treatment post-farrow;
   - Administer IM injection of Dexamethasone-5 [1mL/45kg] or Isoflupredone (equal to Predef 2X) [1mL/56kg] (as per farm SOP for IM injection in sows)
     - Note: Dexamethasone-5 withdrawal is 21-days, Isoflupredone withdrawal is 5-days
   - Do not give to sows unless within 24 hours of an acceptable farrowing date – this reduces inflammation inside the pelvis for 24-hours after treatment.
3. After tissues have been replaced, apply 10-20mL of Xylocaine 2%, once, intravaginally, using a gloved hand.
   - Xylocaine 2% numbs the inside of the pelvic canal.
     - Note: Xylocaine 2% withdrawal is 5 days
4. Even if the treatment is successful, cull the sow once the lactation period is over. Do not re-breed. Sows that prolapse are at higher risk of prolapsing again in the future.

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May 2023 – www.southwestvets.ca

Treatment Protocol for Suspected Prolapsing Sows

*for sows with perineal score 3 (PS3)

Identify the suspect sow

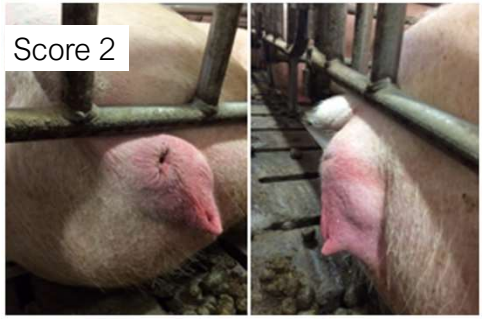
Pre-farrow: bulging vulva/anal area prior to farrowing (PS3), induce day 115

Post-farrow: difficult/prolonged farrowing, protruding 'peeping' vaginal or rectal mucosa and/or bladder before or after farrowing

https://piglivability.org/pelvic-organ-prolapse

Perineal region scoring to identify sows with a potential risk for POP

*all sows in figure are week 14 of gestation



Presumed LOW risk of POP

- No protrusion, no vulva swelling, no swelling of perineal region

Presumed MODERATE risk of POP

Some evidence of **some, not all** of the following:

- Protrusion, moderate vulva swelling, swelling of perineal region

Presumed HIGH risk of POP

Evidence of **all** of the following:

- Protrusion, moderate to severe vulva swelling, swelling of perineal region, may have beginnings of POP

Treatment Protocol for Suspected Prolapsing Sows

*for sows with perineal score 3 (PS3)

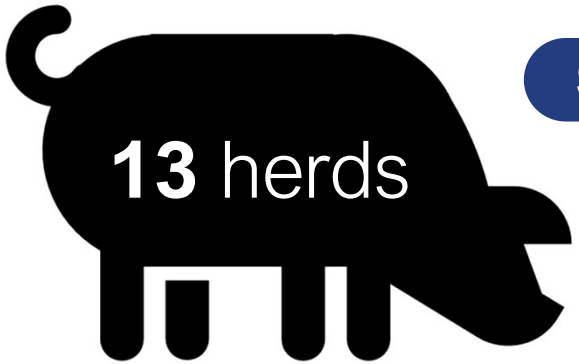
Identify the suspect sow

Pre-farrow: bulging vulva/anal area prior to farrowing (PS3), induce day 115

Post-farrow: difficult/prolonged farrowing, protruding 'peeping' vaginal or rectal mucosa and/or bladder before or after farrowing

1. Wash tissue with cold water, replace prolapsed tissues (if possible)
2. Apply 10-20mL of Xylocaine 2% intravaginally, once
3. Administer 5mL of Salix® IM (repeat every 12hrs up to 2 more times)
4. Administer Dexamethasone-5 (1mL/45kg) IM, once
5. If successful, cull after lactation period. If unsuccessful, euthanize.

Herds with a POP prevalence of 2% or higher varying in:



Size	550 to 5300 sows
Housing	Loose & stalled
Genetics	Various companies

69 sows
received at least 1 step of the treatment protocol June - Aug

65% success rate
for the treatment protocol June -Aug

Animals treated

Characteristic		Treatment Outcome	
		Not Recovered (*n* = 24)	**Recovered** (*n* = 45)
Average parity (range)		3.1 (0-8)	3.3 (0-9)
Body condition score	Thin	0%	7%
	Average	88%	84%
	Fat	13%	9%
Time of treatment (range)	Before Farrowing	36% (1-6 days)	49% (1-2 days)
	Day of Farrowing	50%	36%
	After Farrowing	14% (1-3 days)	16% (1-2 days)
Livability, average days (range)		2 day (0-8)	21 days (5-41)

		Treatment Outcome	
	Total treated	**Not Recovered** (*n* = 24)	**Recovered** (*n* = 45)
Farm 1	4	-	100%
Farm 2	1	100%	-
Farm 3	5	20%	80%
Farm 4	5	40%	60%
Farm 5	3	66%	33%
Farm 6	7	72%	28%
Farm 7	7	57%	43%
Farm 8	8	38%	62%
Farm 9	5	20%	80%
Farm 10	2	100%	-
Farm 11	2	50%	50%
Farm 12	4	-	100%
Farm 13	1	-	100%
Farm 14	4	25%	75%
Farm 15	11	10%	90%

Sow Mortality - Summary

- We've got a great story to tell about sow health and welfare in Ontario!
  - Bucking the trend
  - Engaged owner-operators and well-trained staff
  - Adaptation to loose housing
  - Starting to answer some questions around POP

- Ongoing challenges:
  - Sudden deaths
  - Deep-dive on gilt rearing and development

Thank You

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South West clients

Courtney Werth
Gillian Greaves
Natasha Klaver
Paul Ferreira
Shalimar Martin
Bettina Hershey
South West vet team