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Sudden Death in Sows: Patterns Across Parity and Production Stages

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OUTLINE



Study goals



Why Sudden
Death in Sows
Matters



What the Data
Shows



Approach



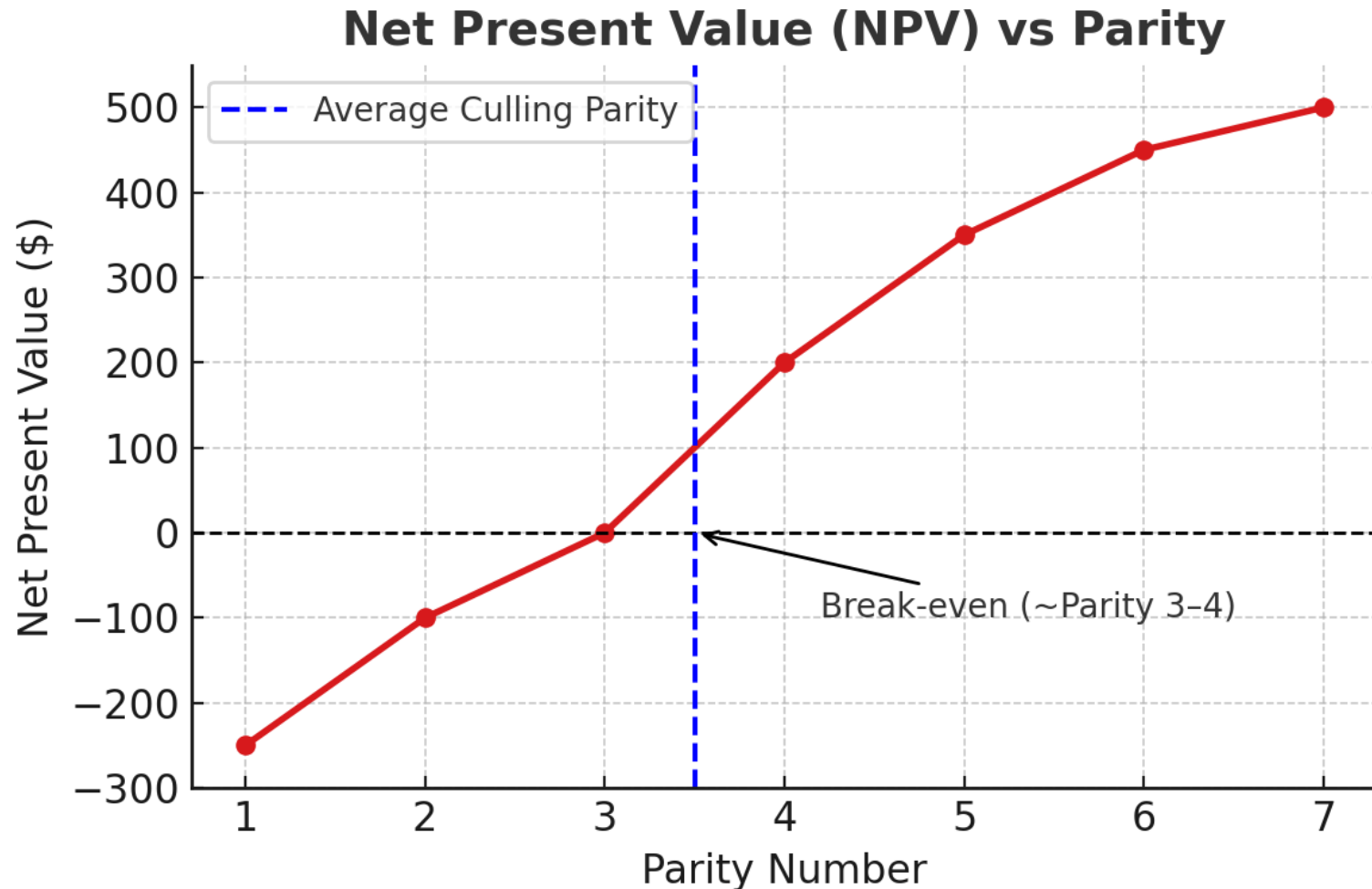
Take-Homes



Why Sudden Death in Sows Matters



- Sows don't break even until parity **3-4**
- Average culling parity in U.S. **3.5-4.0** → many leave just as they become profitable





Study goals

Reduce “unknown” sow deaths by identifying patterns and causes across parity and production stages, using consistent necropsy protocols and production records.

2023* Sow Removal by Reason	
Removal Reason	% of Total
Farrowing	5.5%
Gut	1.4%
Age/Parity	0.3%
Production	1.1%
Prolapse	22.6%
Structure/body Condition	23.5%
Other/Unknown	34.0%
General Health	11.6%



Source: U.S. Sow Mortality Trends Continue to Climb.
National Hog Farmer, MetaFarms Production Index. 2024.



Approach

The Improving Pig Survivability Project



Sudden deaths

- **Timeframe:**
- **Farms:**
- **Total necropsies:**
- **Data recorded per case:**

September 2024 – June 2025

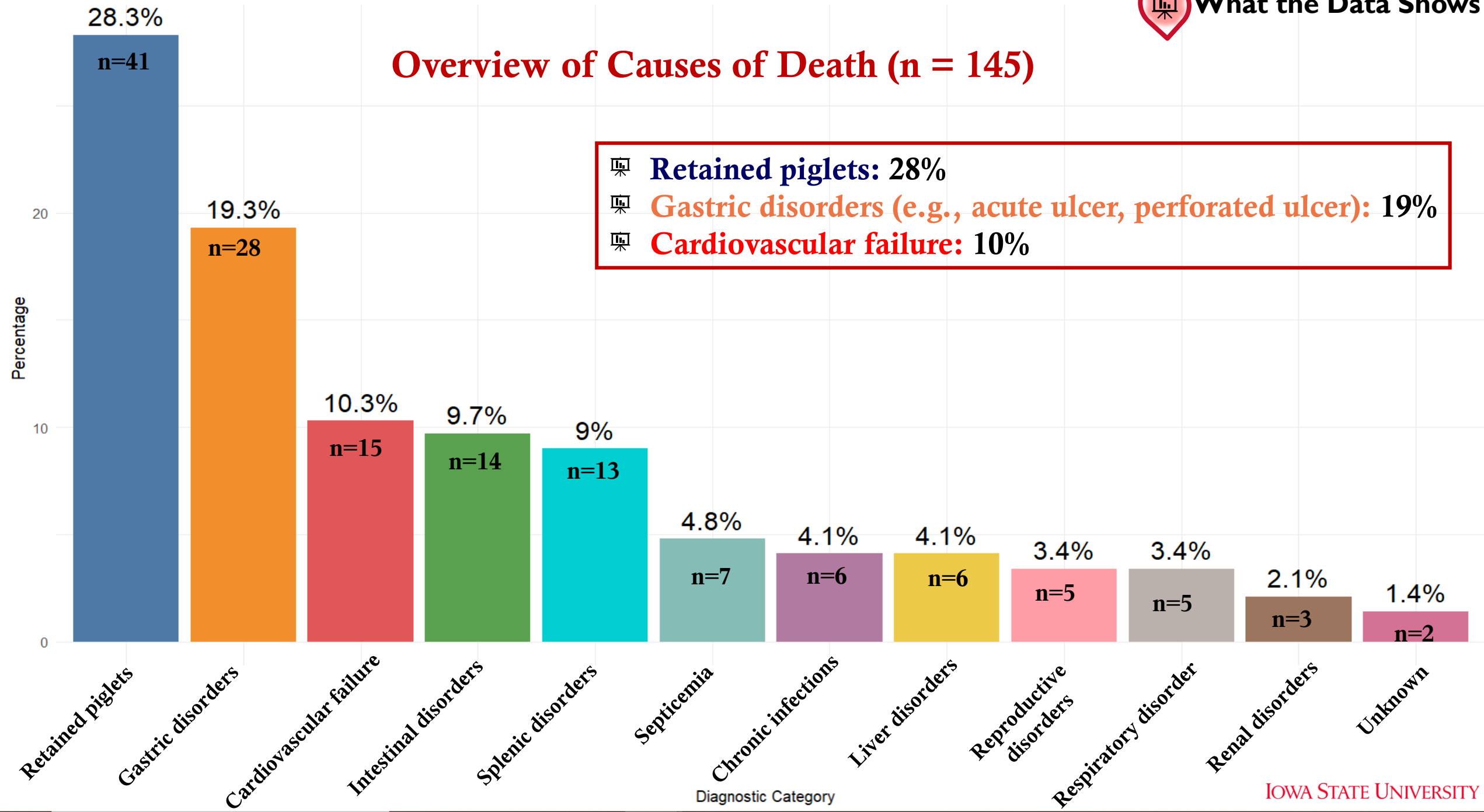
Two commercial sow farms (Midwest U.S.)

145

Production stage, Body condition score (BCS), Parity, Stillborn history, gestation length, Gross necropsy findings

Overview of Causes of Death (n = 145)

Percentage

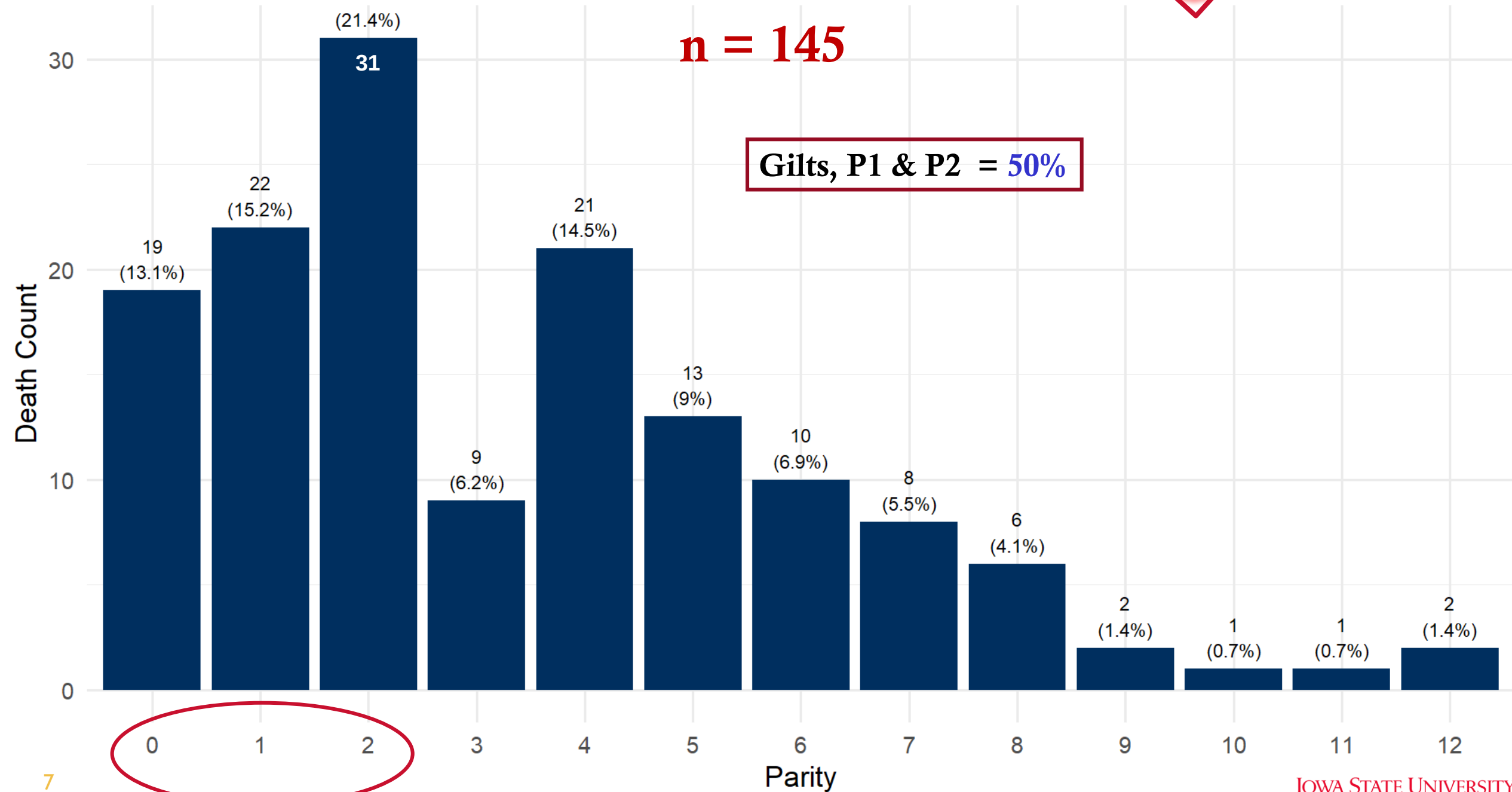


Sow Mortality by Parity Segregation

 **What the Data Shows**

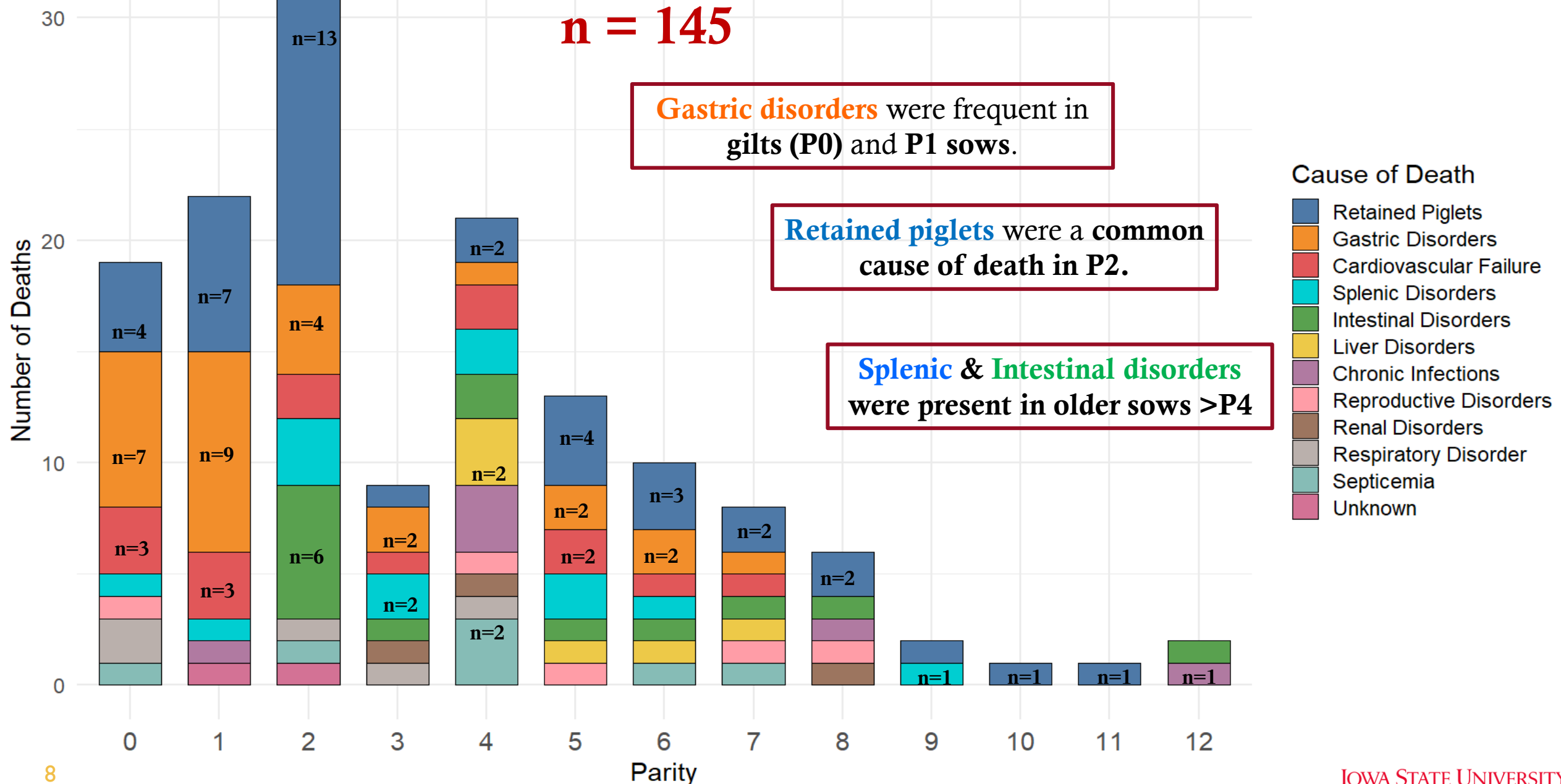
n = 145

Gilts, P1 & P2 = 50%



Sow Mortality by Parity: Distribution of Top Death Causes

 **What the Data Shows**



Proportion of Total Sow Mortality by Production Stage

 **What the Data Shows**

Breeding: (n = 145)

Weaned sows or gilts not yet pregnant, opportunity pigs, & culls.

Gestation:

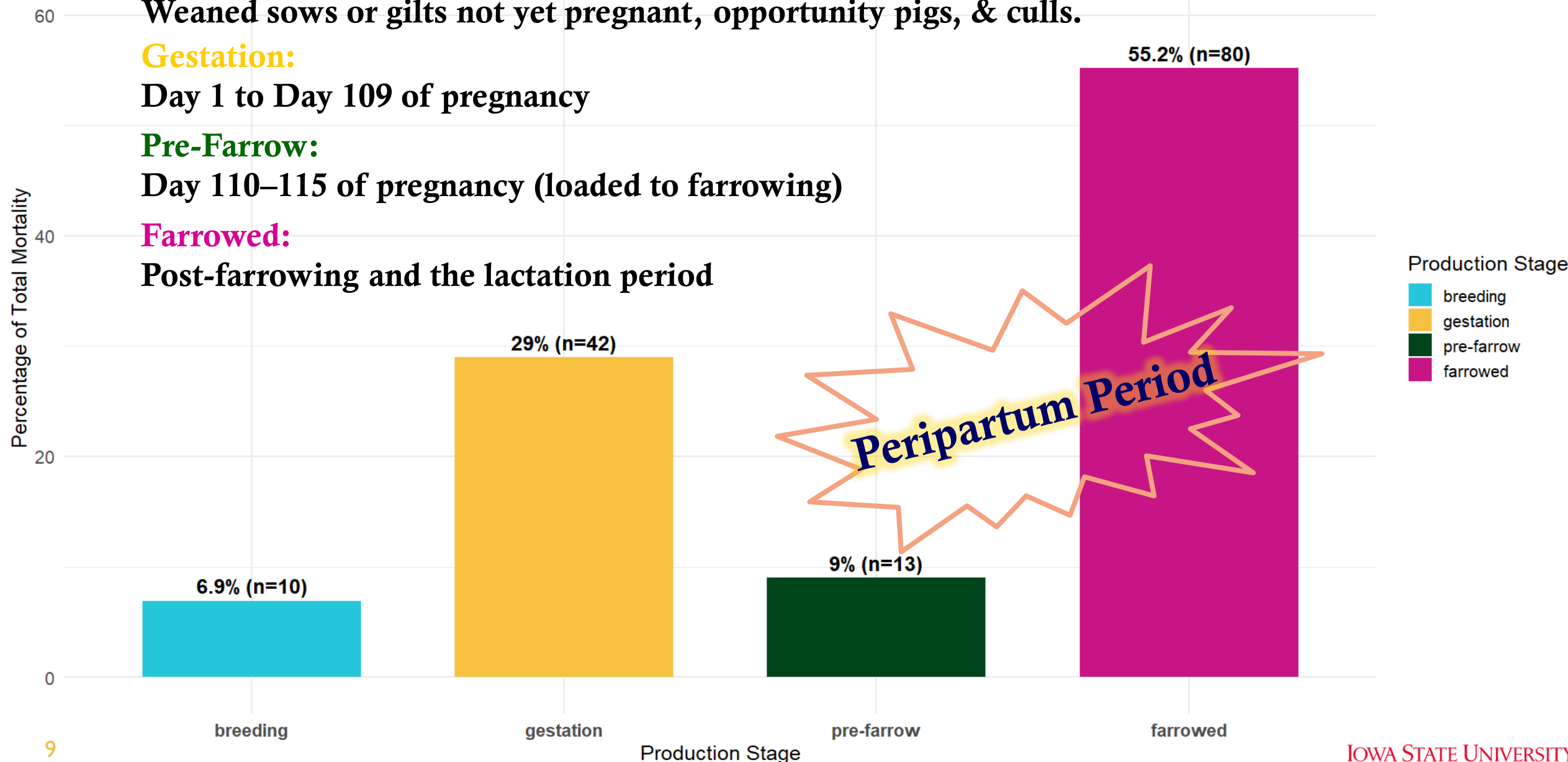
Day 1 to Day 109 of pregnancy

Pre-Farrow:

Day 110–115 of pregnancy (loaded to farrowing)

Farrowed:

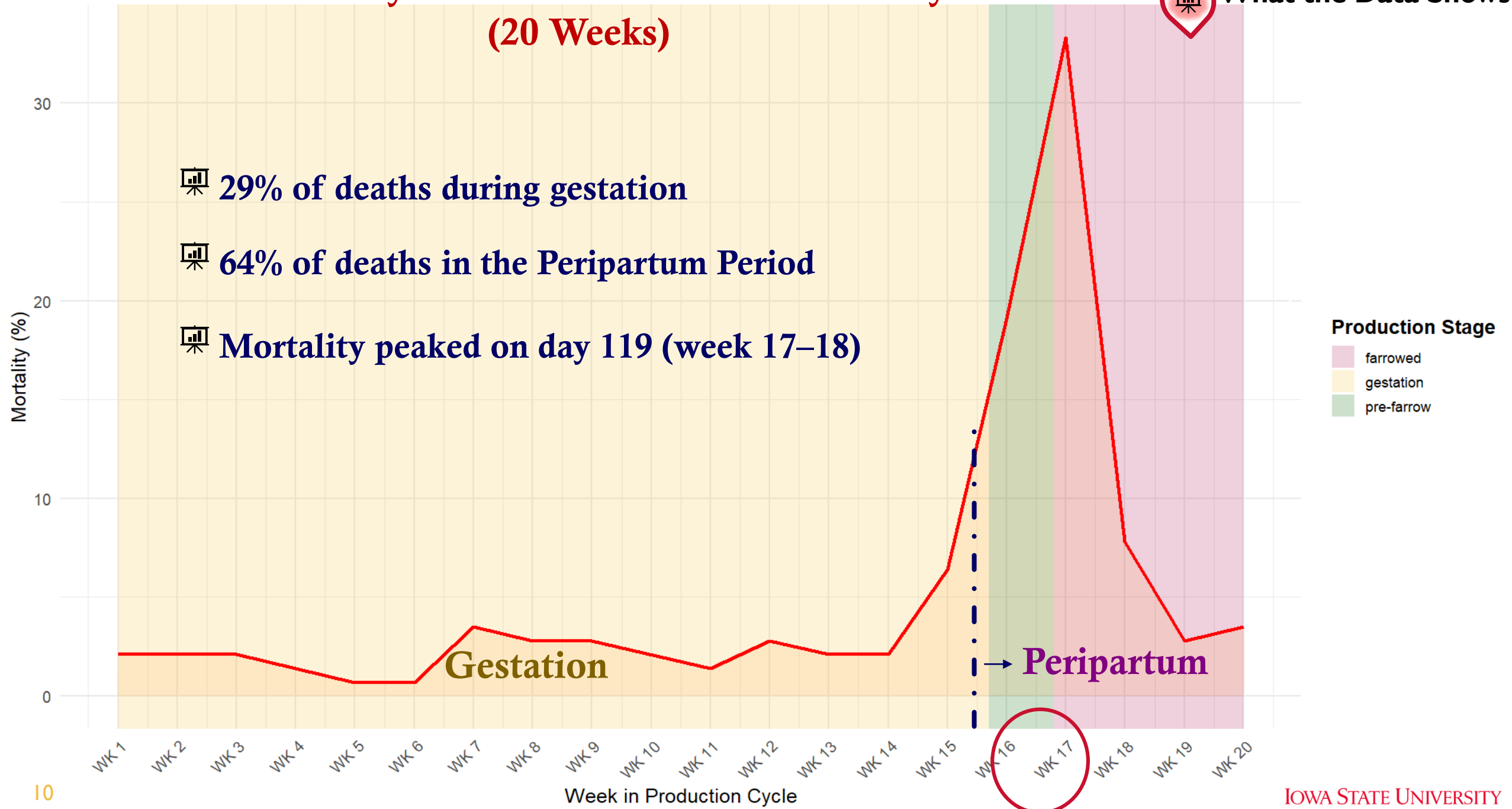
Post-farrowing and the lactation period



Sow Mortality Peaks Across the Production Cycle (20 Weeks)



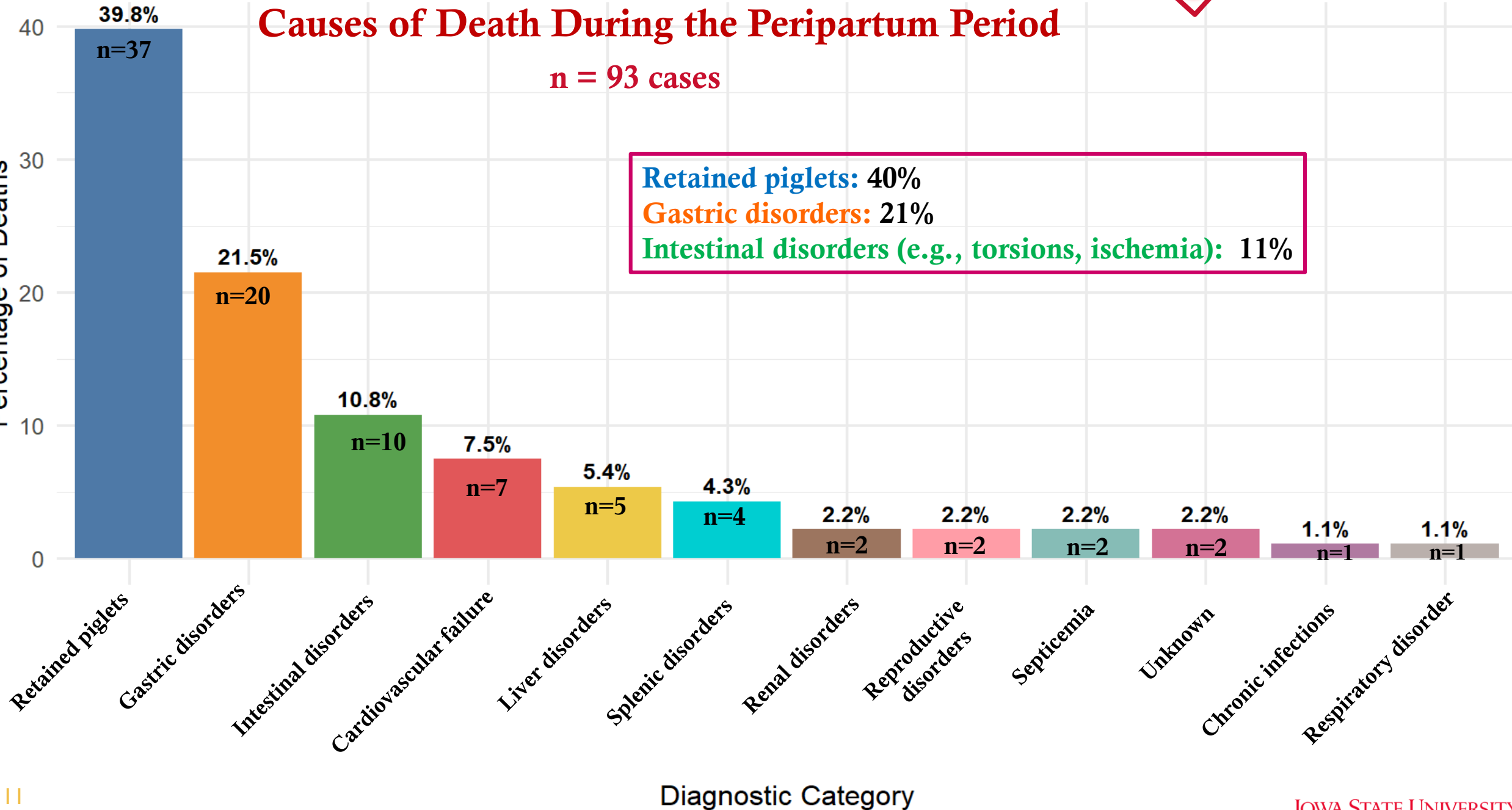
What the Data Shows



Causes of Death During the Peripartum Period

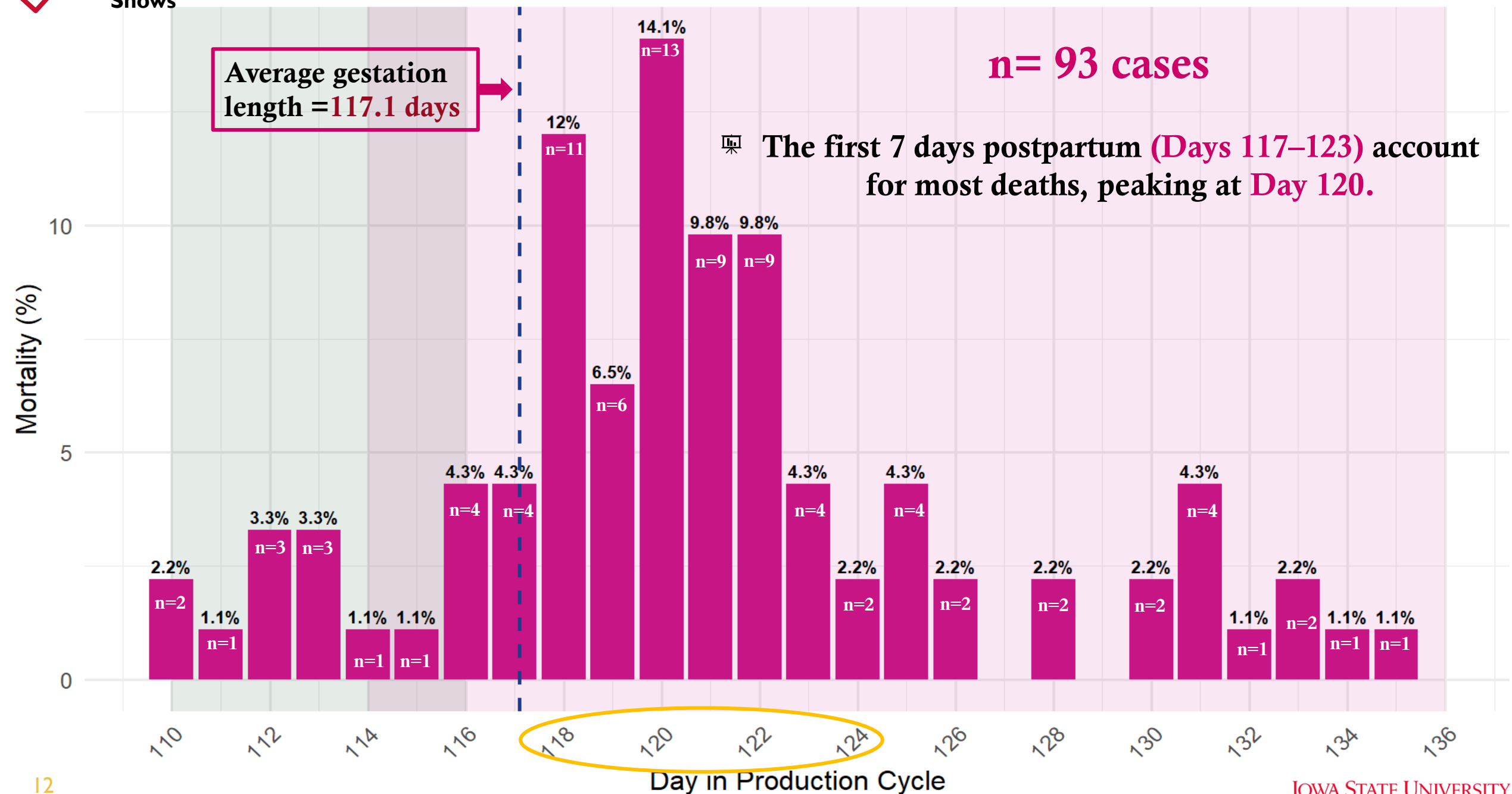
n = 93 cases

Percentage of Deaths



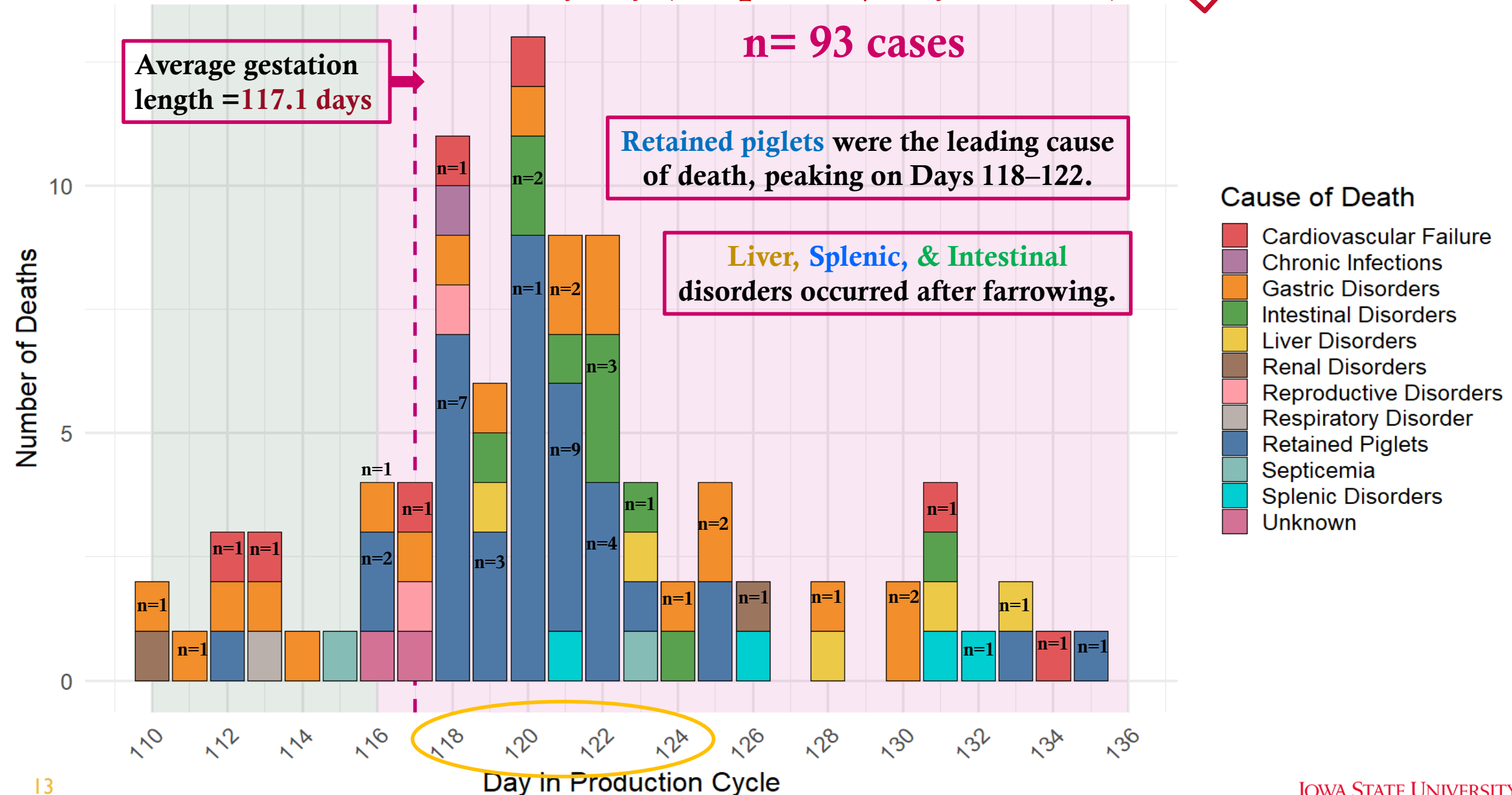


Sow Mortality (%) During the Peripartum Period (Days 110-136)



Death Causes by day (Peripartum, Days 110-136)

 **What the Data Shows**



Retained Piglets by Gestation Length and Parity

Number of Retained Piglets

Early Induction: 115 d

Avg Gestation Length: 117.7 d

n = 17 cases

 Retained piglet deaths may be associated with shorter gestation length

Summary: Number of Retained Piglets (n = 17)

Group	N	Min	Max	Mean	Median	Avg Gestation
Retained piglet deaths	17	1	17	4.71	4	117.72

Parity Group

- P1 (n=2)
- P2–P3 (n=9)
- P4–P5 (n=3)
- P6+ (n=3)

Gestation Length Summary					
Comparing All Cases vs Retained Piglet Deaths					
Group	n	Min	Max	Mean	Median
All cases with gestation data	93	113	121	117.19	117
Retained piglet deaths	36	113	121	117.42	117

15

10

5

Avg Retained Piglets: 4.7

113

114

115

116

117

118

119

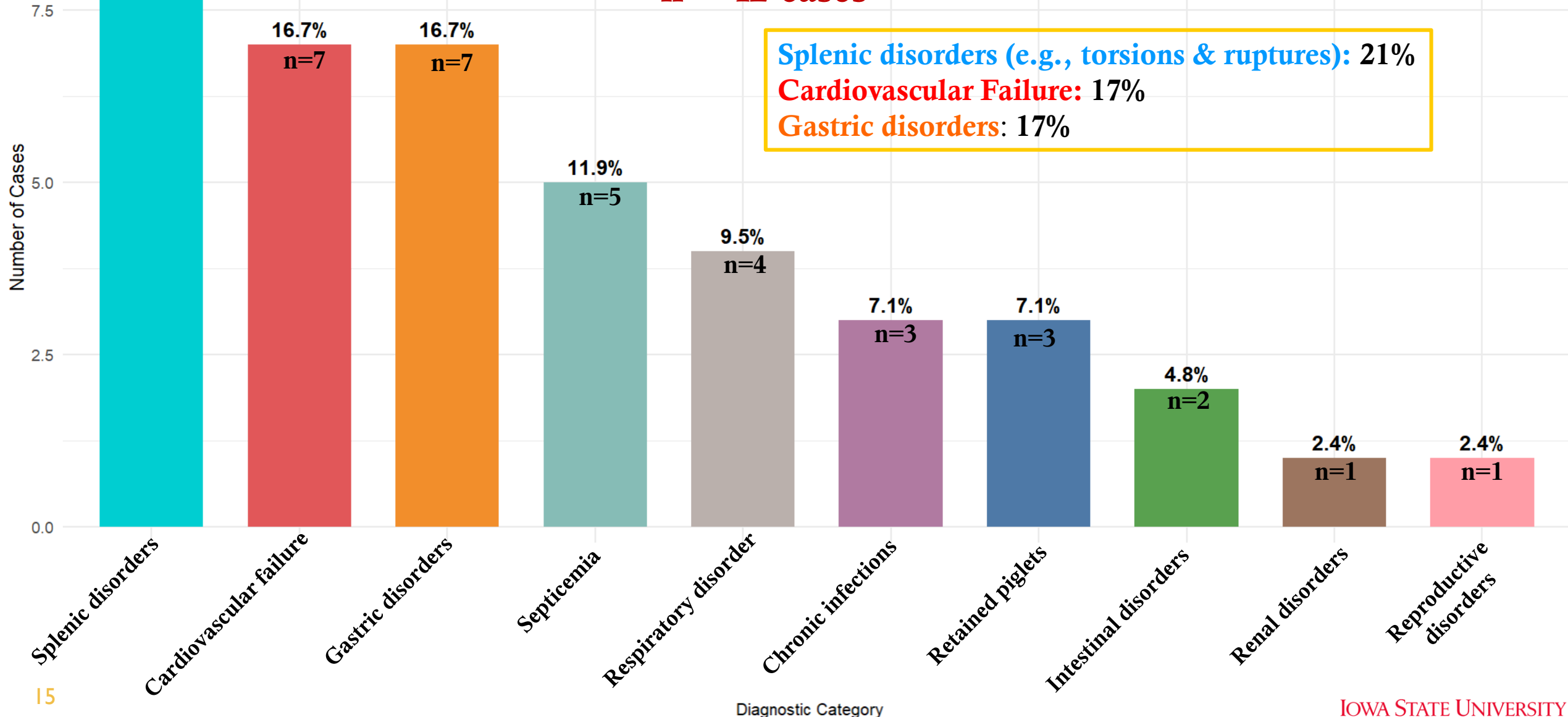
120

121

Gestation Length (days)

Gestation Stage: Combined Sow Mortality by Diagnostic Category

n = 42 cases



Sow Mortality During Gestation

n = 42 cases



What the Data Shows

- Early gestation (1–30 days): 26%
- Mid gestation (51–70 days): 29%
- Late gestation (81–109 days): 38%

Mortality (%)

15

10

5

0

1–10

11–20

21–30

31–40

41–50

51–60

61–70

71–80

81–90

91–100

101–109

Day of Gestation

9.5%

n=4

7.1%

n=3

9.5%

n=4

2.4%

n=1

0%

n=0

16.7%

n=7

11.9%

n=5

4.8%

n=2

9.5%

n=4

9.5%

n=4

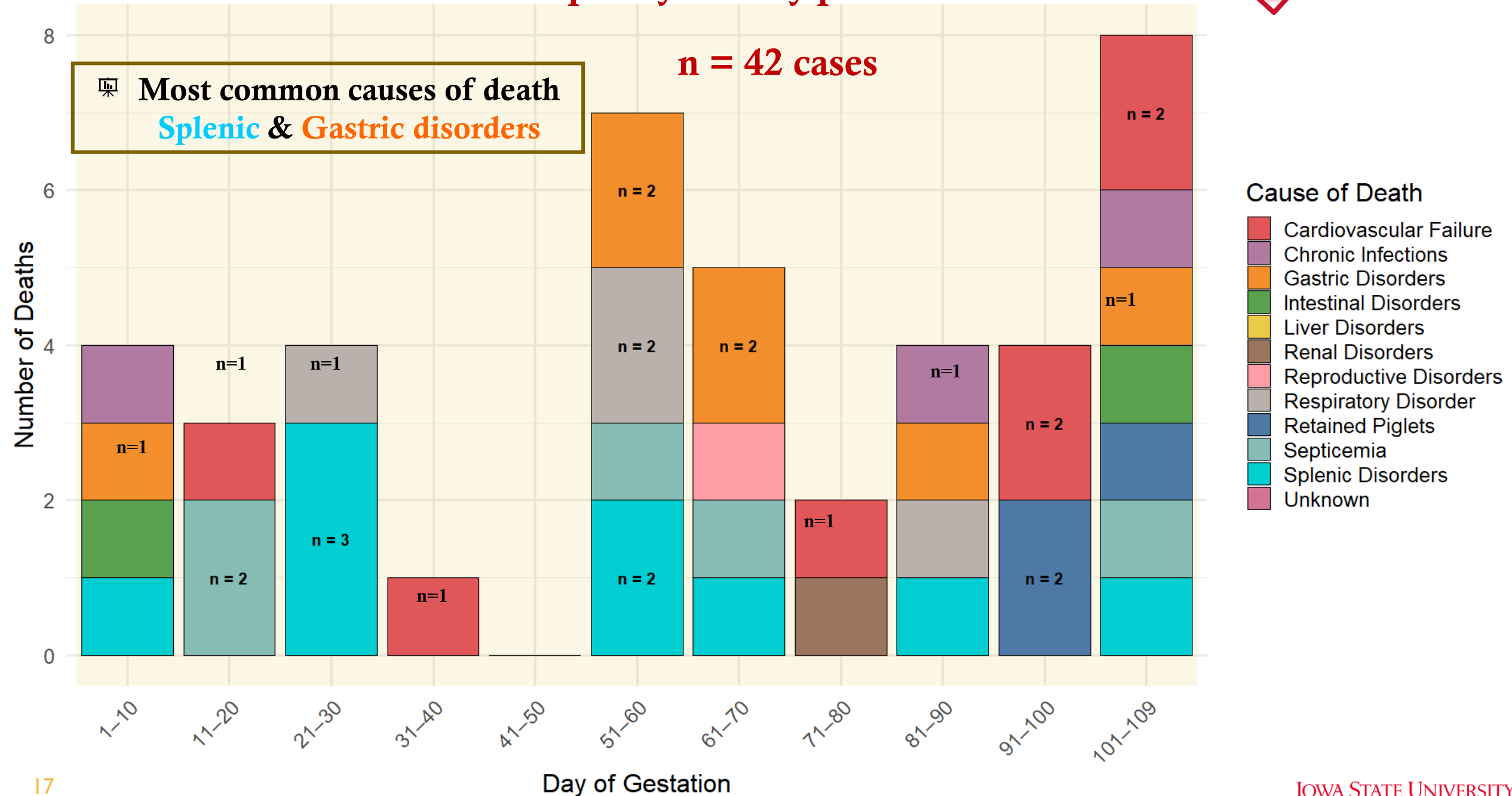
19%

n=8

Death Causes Grouped by 10-Day periods in Gestation



What the Data Shows



Breeding Mortality by Cause and Parity



What the Data Shows

n = 10 cases

Shows varied causes
Several cases were post-farrowing sows; timely treatment or proactive culling might have prevented death.

Diagnostic Category

- cardiovascular failure
- chronic infections
- gastric disorders
- intestinal disorders
- liver disorders
- reproductive disorders
- retained piglets

Number of Deaths

2.0
1.5
1.0
0.5
0.0

Gilt (P0)

P1

P2–P3
Parity

P4–P5

P6+

Reproductive disorders

Chronic infections

Gastric disorder

Retained piglets

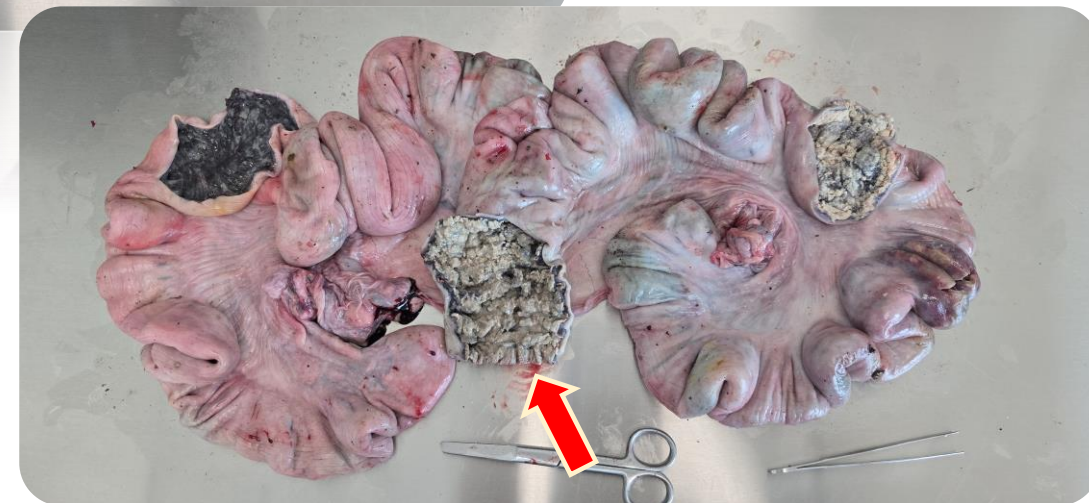
Intestinal disorders

Cardiovascular failure

Chronic infections

Reproductive disorders

Liver disorders

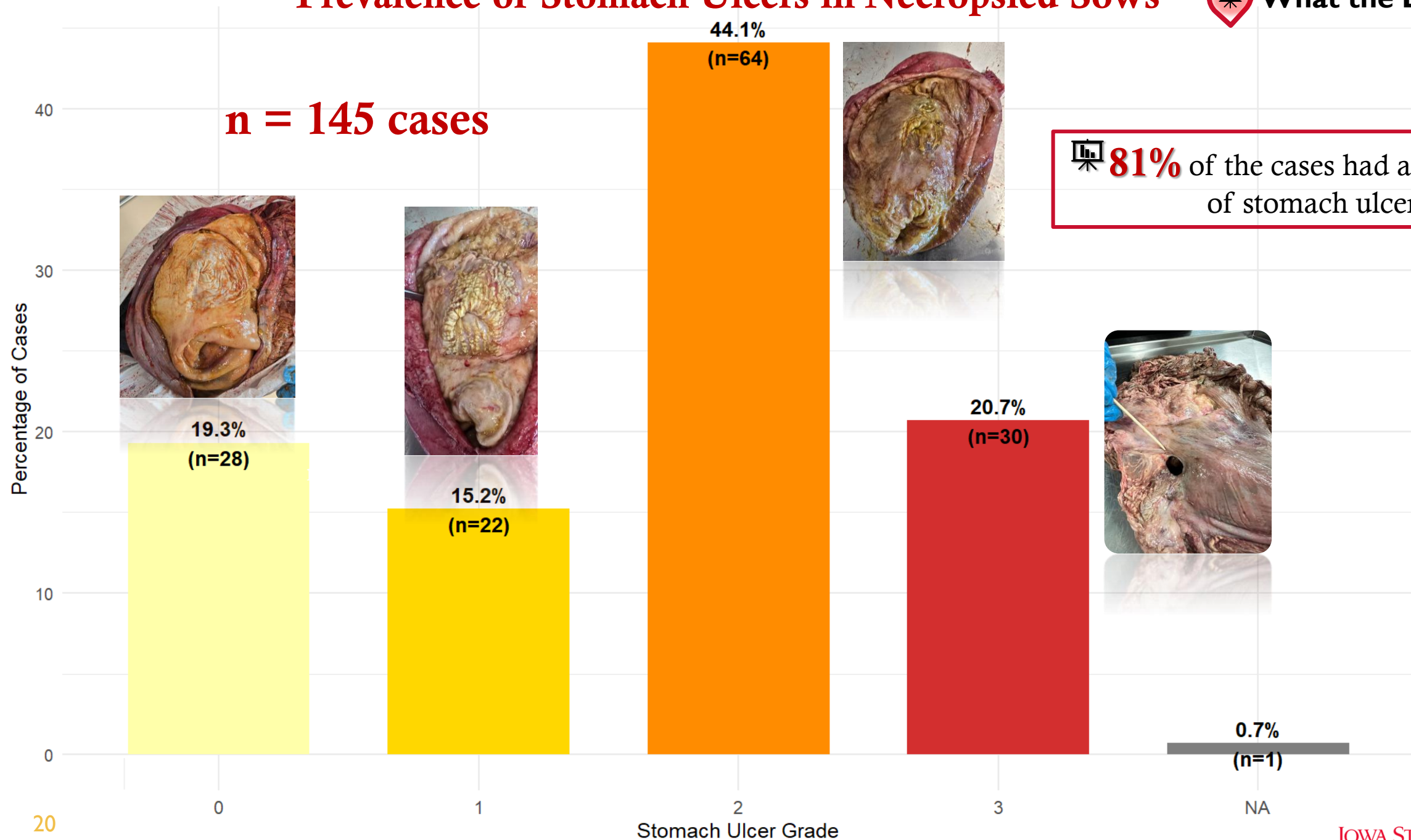


Pyometra

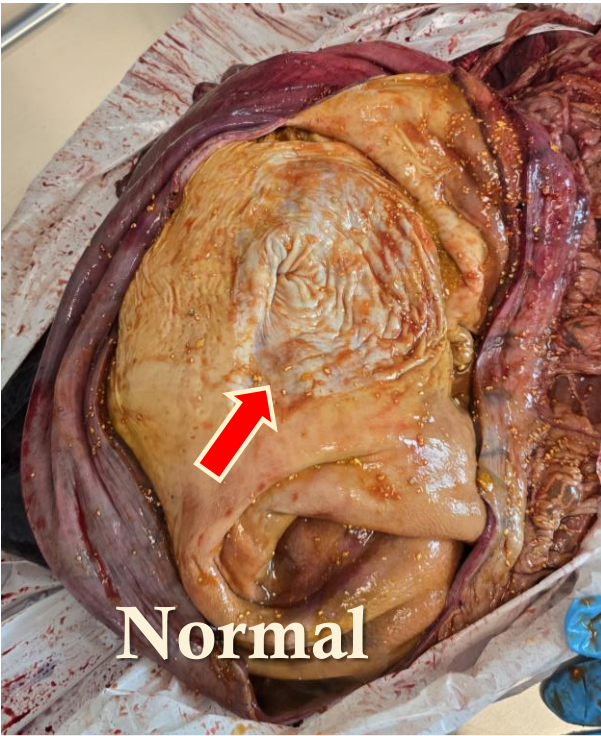
Prevalence of Stomach Ulcers in Necropsied Sows

 **What the Data Shows**

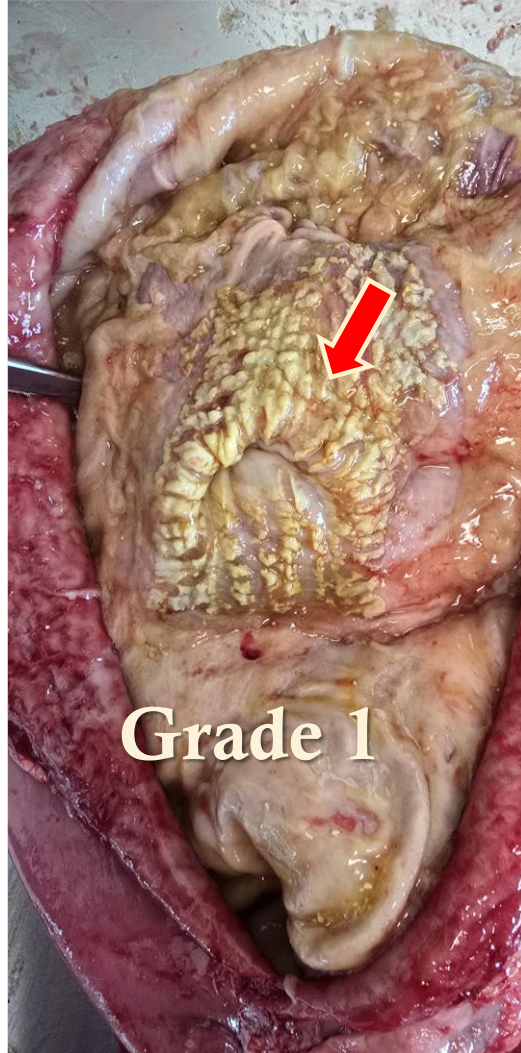
n = 145 cases



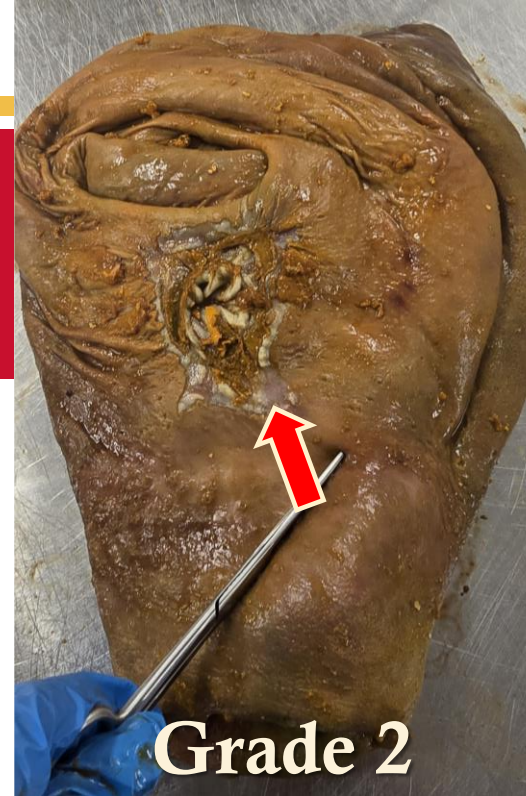
Paraesophageal ulcers by grade



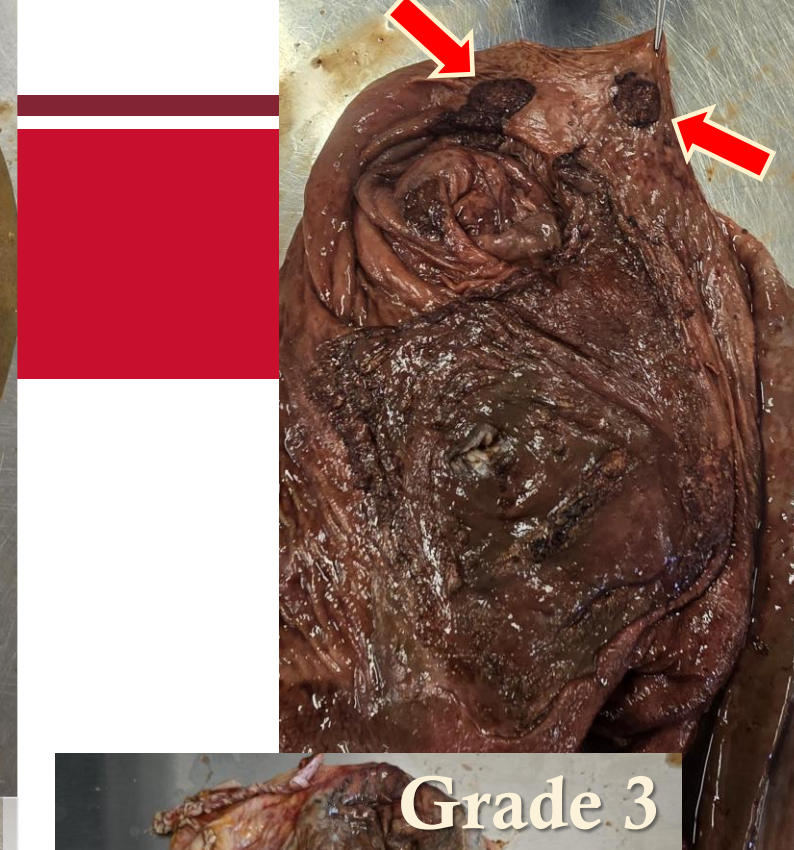
Normal



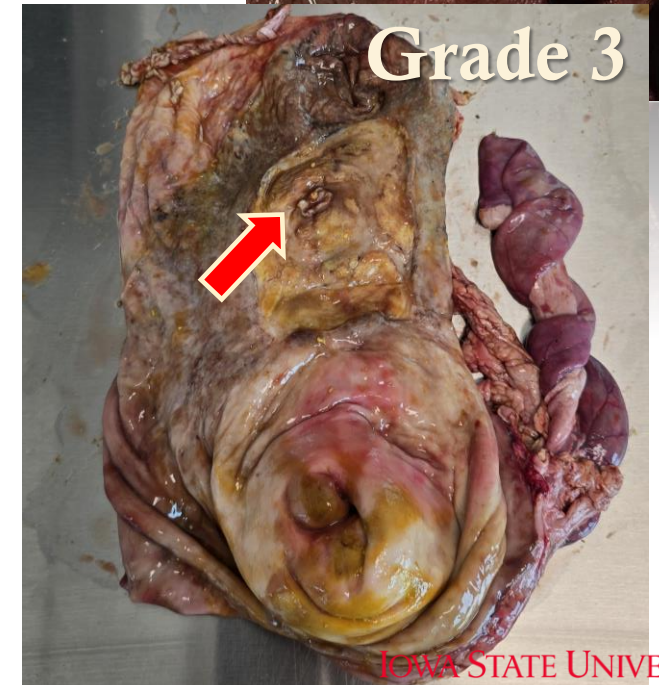
Grade 1



Grade 2



Grade 3





Take-Homes

- 🕒 **Peripartum = critical period**
64.2% of deaths occurred during this stage, especially within **7 days post-farrowing**.
- 💉 **Retained Piglets**
Most frequent cause of death; may be influenced by early induction (>2 days before herd average).
On average, **4.7 fetuses** remained in utero per case.
- 🐷 **Parity Trends** 🐷
50% deaths in gilts, **P1 & P2**.
Gastric disorders were common in **young**, and **Splenic and Intestinal disorders** in **older sows**.
- 🔍 **Gestation mortality (29% of the deaths)**
Highest risk in late gestation (81–109 d), likely stress-related.
- 🍷 **81% of sows had stomach ulcers.**
Calls for review of **feed management** and **stress reduction** to prevent ulcers.



Figure 1: Stomach with a grade 3 ulcer

Acknowledgments



Dr. Marcelo Almeida
Dr. Chris Rademacher
Dr. Cesar Moura
Dr. Gustavo S. Silva
Dr. Lucina Galina

Iowa Select Farms (Farm Managers, staff members)
Field services team
VDL team



www.piglivability.org

Acknowledgement statement: This project was supported by the National Pork Board (PR-005981) and the Foundation for Food and Agriculture Research.

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Extension and Outreach





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Thanks for your
attention!

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Questions?

