

A person wearing a blue work jacket is holding a small, light-colored piglet. The background is a blurred indoor setting, likely a farm or laboratory.

 Never Stop Improving

# P1 Development Strategies for Peak Performance

Prairie Swine Centre Meeting 2024

[Kendall.weger@genusplc.com](mailto:Kendall.weger@genusplc.com)

PIC<sup>®</sup>

# Understanding Industry Challenges

P1 to P2 retention is the biggest opportunity

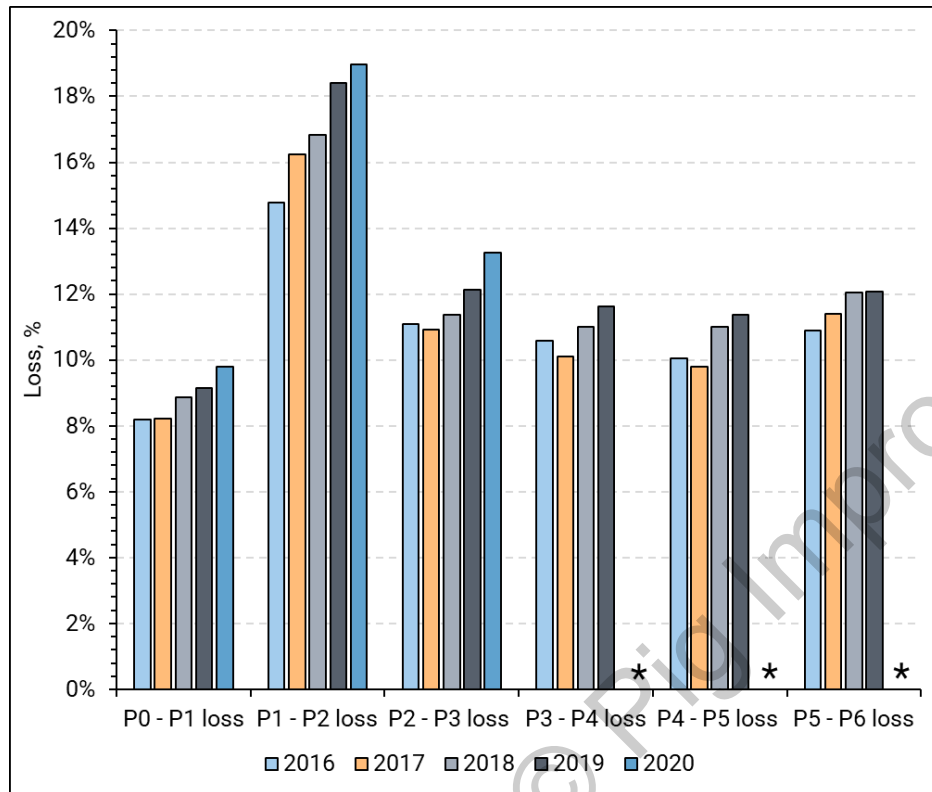


Figure 2. Percent loss of females between parities classified by year of entry into the sow herd. \*Data for gilts entered in 2020 were not included because they did not have enough time to reach later parities. Insert illustrates retention from gilt first-service (Srv) to farrowing at sixth parity (P1-P6).

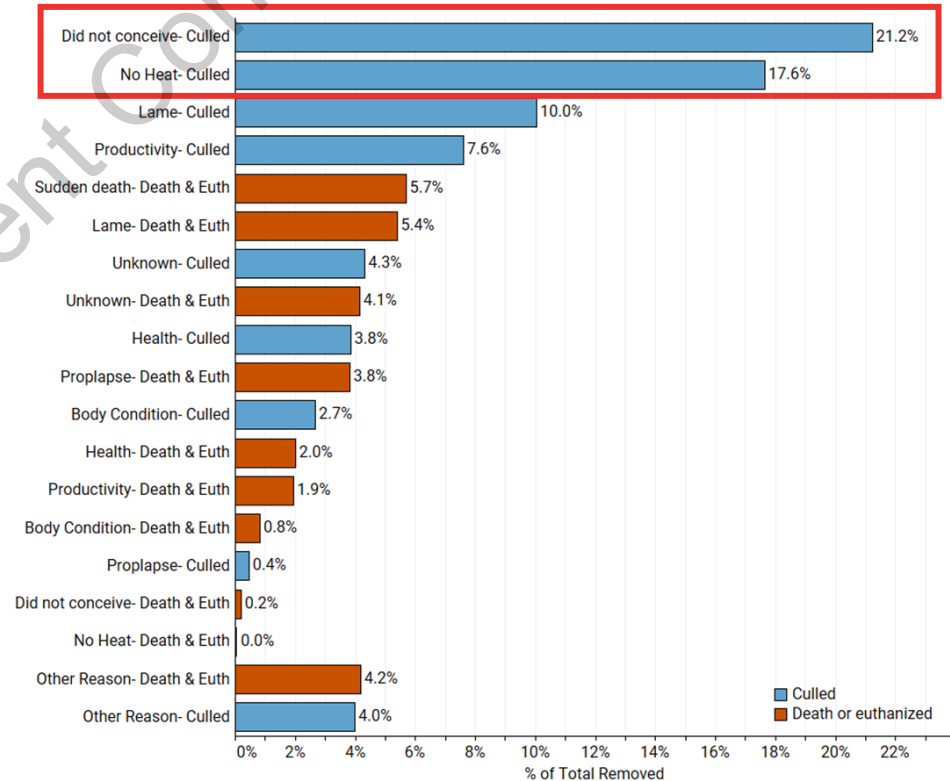
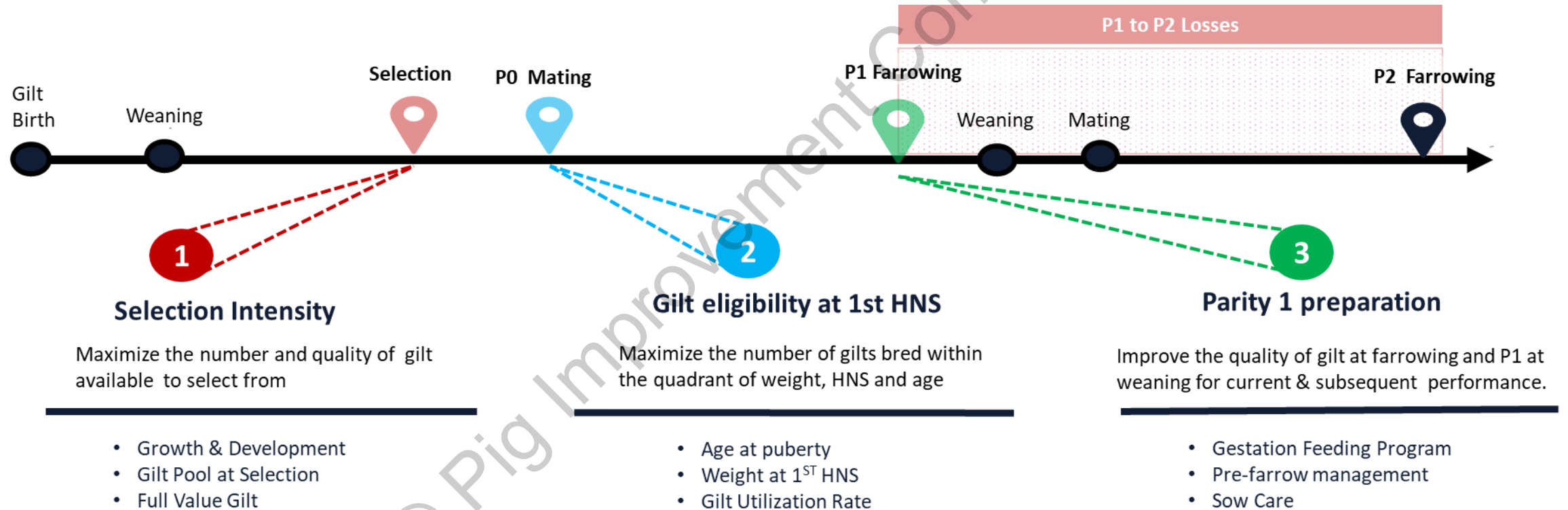


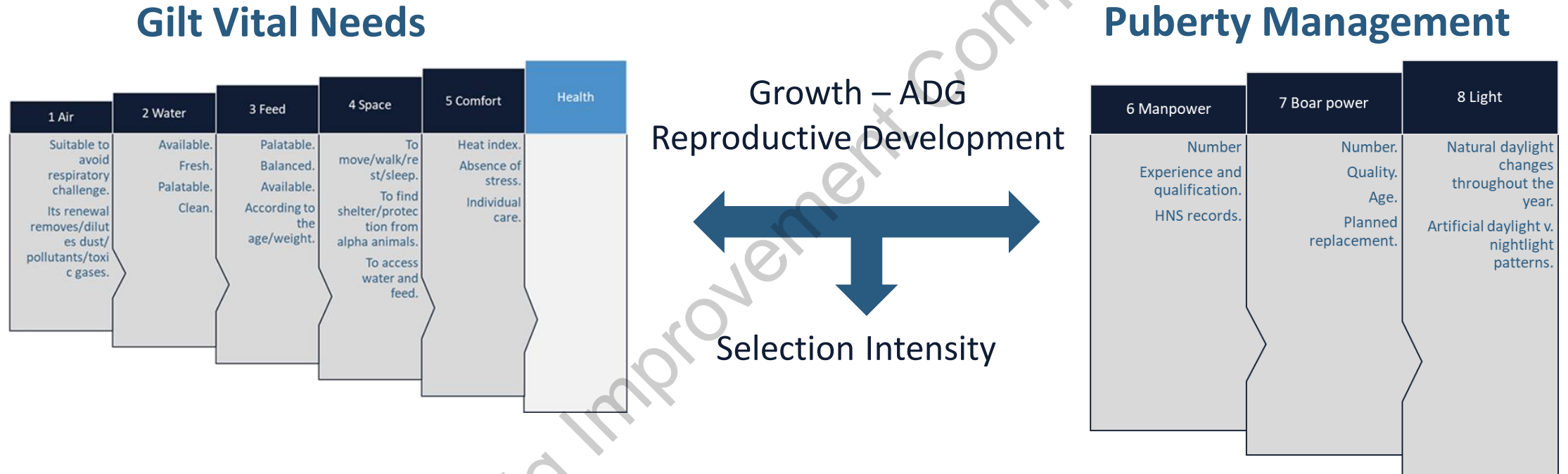
Figure 3. Breakdown of removal reason between parity 1 and parity 2.

# P2 Retention – P1 Development

How to build a Sustainable P1 development program



# 1 Selection Intensity – Gilt Development Quality

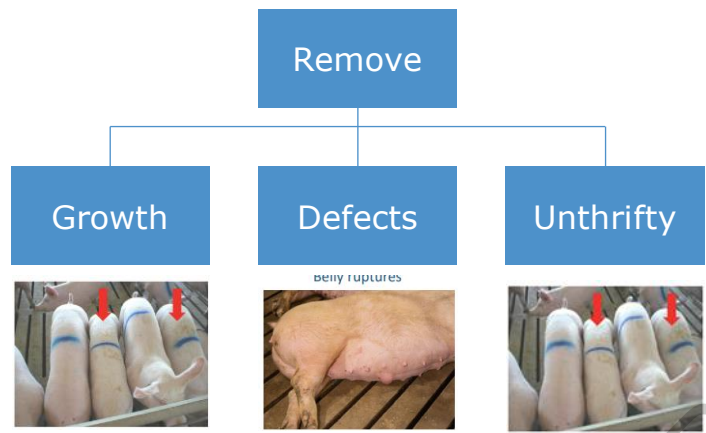


- Housing and environmental conditions determine gilt growth and reproductive outcome

# 1 Gilt Selection: Gilt quality, Select for Success

Removing gilts to be culled is one part of the selection process. Evaluation and selection of gilts for optimum lifetime performance requires the right pool of gilts to select from.

## Select Gilts to be Culled

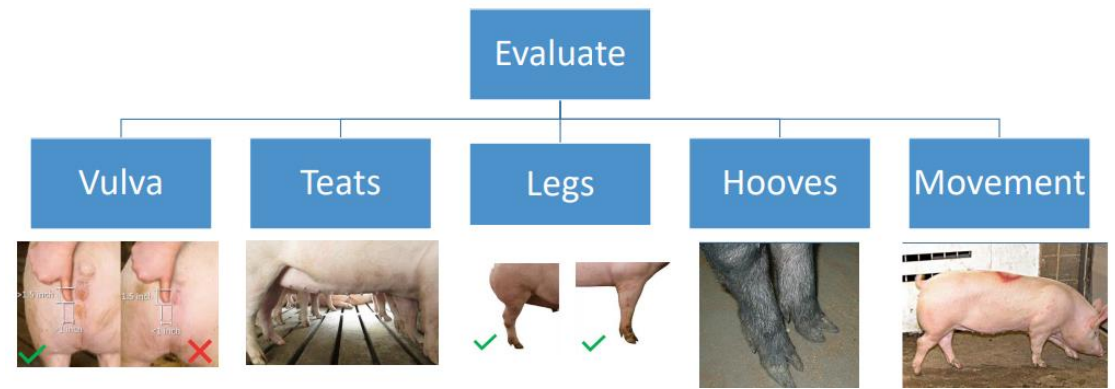


Step 1

Selection Intensity



## Select Gilts to be Prime



Step 2





# 1 Practicalities: Gilt Pool At Selection

Maximize gilt availability (quantity and quality) to be part of the selection process.  
Unlock growth and development potential for optimum lifetime performance.

Troubleshoot Fall Outs

Troubleshoot fall out prior to selection:

- **Mortality** records and reasons

GDU Placement Plan

GDU flow and spaces:

- Review **limitations and bottlenecks**
- Assess **housing and environmental** requirements

GDU – Farm Flow

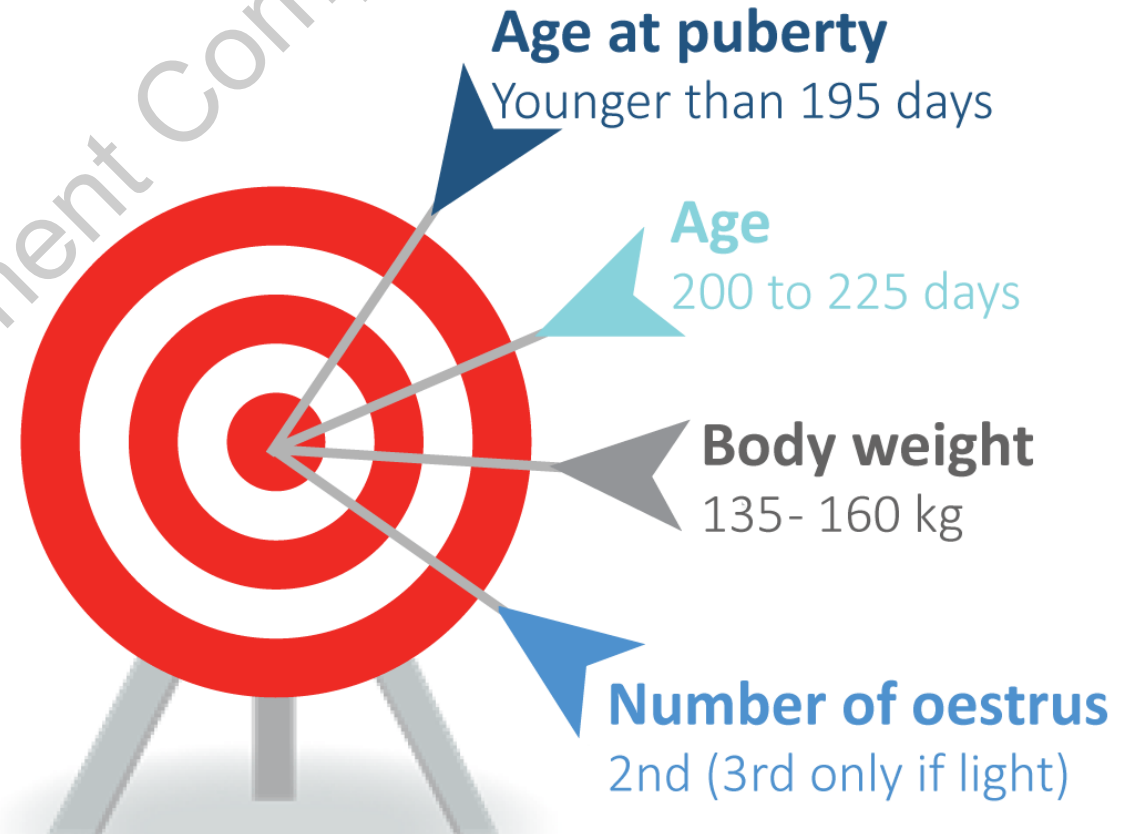
Manage herd sow inventory and GDU flow integrity to **avoid disruptions:**

- **HNS target** and flow
- Gilt breeding target
- Gilts not selected and culling **placement plan**

## 2 The Inevitable Question...Which is Most Important?

### ALL OF THEM

- Achieving more of any element improves performance and success
- However, there is a synergistic effect when all are combined
- Common scenario that farms struggle to achieve all 4



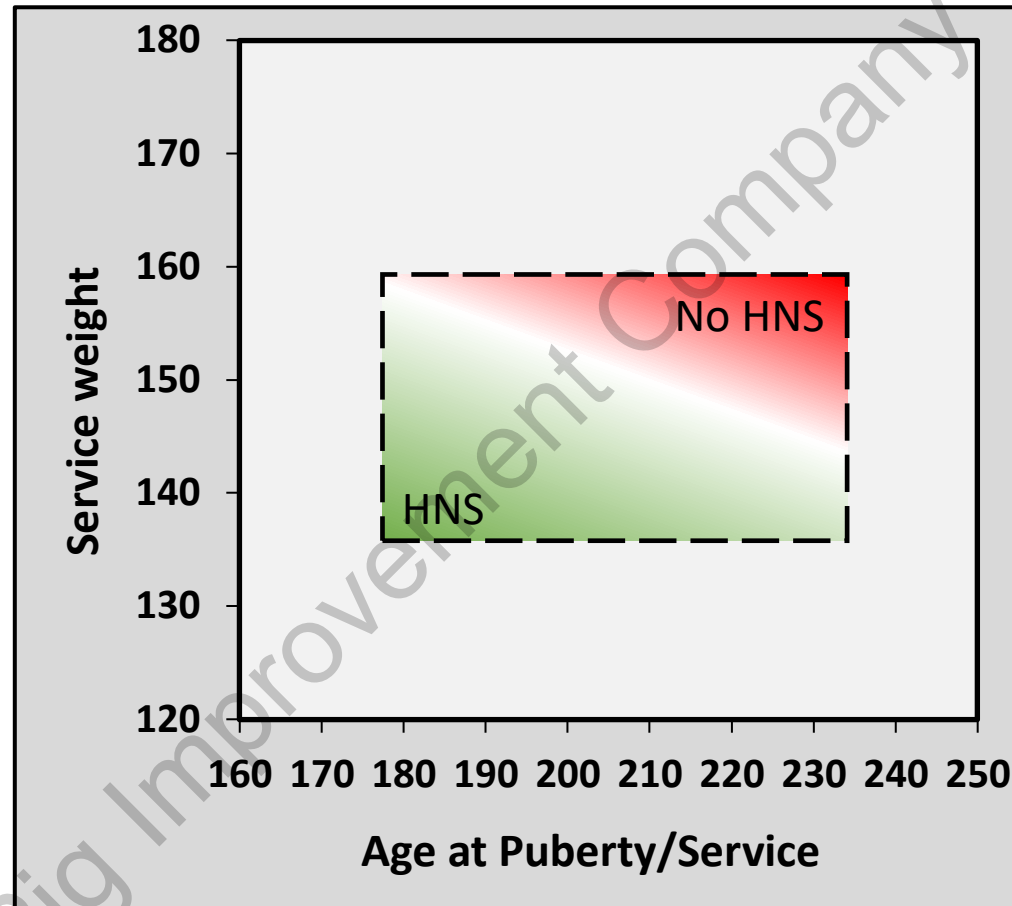
# “Hitting the Quadrant” - Gilt eligibility at first mating

## Heavier Weight at Service

- ↑ 1<sup>st</sup> litter size
- ↑ Feed costs
- ↑ Physical size
- ↑ Lifetime maintenance costs
- ↓ Retention to 3<sup>rd</sup> litter
- ↑ Risk of lameness
- ↑ Stillborn
- ↑ Feed refusals

## Lighter Weight at Service

- ↓ Litter size at first farrowing
- ↓ Performance during 1<sup>st</sup> lactation
- ↓ Body reserves during lactation
- ↓ Feed intake capacity



## HNS at service

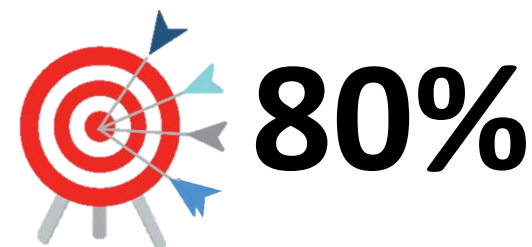
- ↑ 1<sup>st</sup> litter size (total born)
- ↑ pigs after four litters
- ↑ in farrowing rate

## Earlier Age at Puberty

- ↑ retention to 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> litter
- ↑ rebreeding success
- ↑ piglets during their lifetime
- ↓ fewer NPD (inseminated earlier)

## Older Age at Service

- ↑ risk of being over weight
- ↑ # of low efficiency sows
- ↑ weaning to service intervals
- ↑ risk for late returns



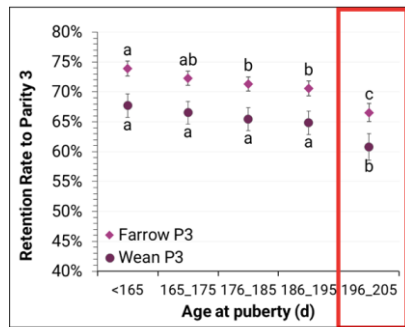


## Breeding Gilts in the Ideal Quadrant Reaps Big Benefits

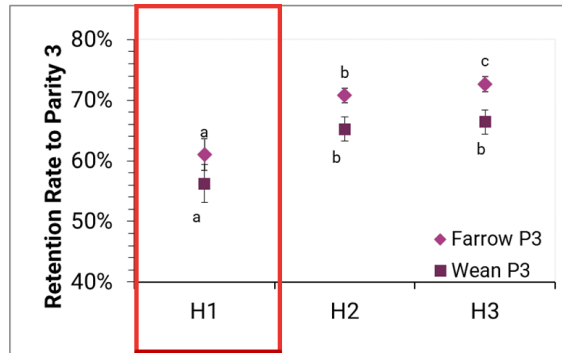
- Improved farrowing rates
- Lower removal rates/higher retention rates
- Improved gilt utilization
- More pigs weaned

# 2 Gilt Eligibility at 1<sup>st</sup> Mating: Gilt Fertility Quadrant

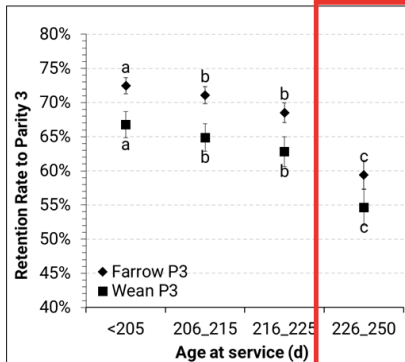
## PIC Current Recommendations



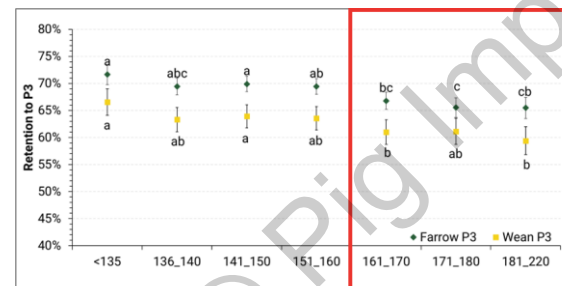
Avoid



Avoid



Avoid



Avoid

## Work in Progress

Item	YES	NO
% Services with $\geq 2$ HNS	51%	49%
Age at Puberty, d.	190	209
Average Weight at Service, Lb.	323	335
% Gilt Bred over 350 Lb.	0%	31%
Reproductive Removals (% Differences)	17% Lower	
Locomotion Removals (%Differences)	27% Lower	
Retention up to P2 Differences	~ 7 pts Higher	
Pigs weaned up to P2 Differences	2 pigs Higher	

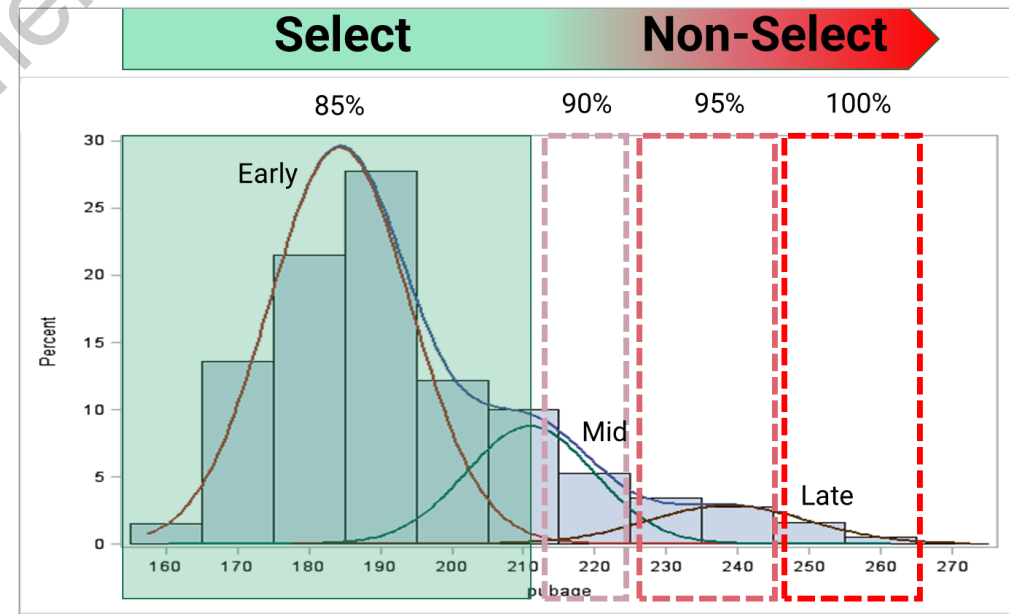
Workflow 1 – Retrospective analysis of 5k gilts served up to P3. Outside GDU Delivering HNS gilts to 8 farms. P1 Retention (93.3 vs 89.2%), P2 Retention (72.6 vs 65.4%)

## 2 Gilt Eligibility at 1<sup>st</sup> Mating: Age at Puberty

Direct contact with boars is most effective for triggering puberty.  
Early responses to effective boar stimuli is the critical selection tool.

- A recorded pubertal estrus by 190 days of age is a **critical selection tool**
- This allows “Select” gilts to be bred at second estrus and at acceptable target weights

~95% of gilts will cycle in 100 days.... BUT....



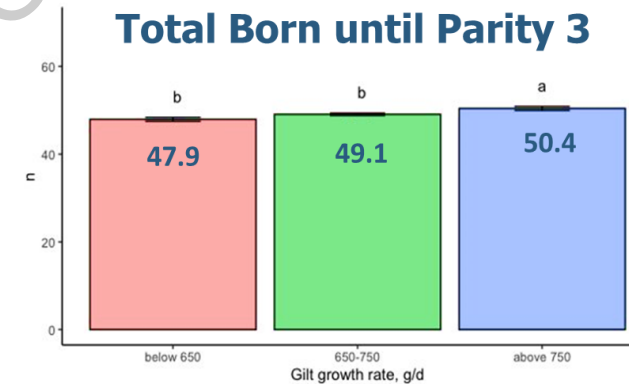
Vallet, 2015

## 2 Gilt Eligibility at 1<sup>st</sup> Mating - Weight and Age

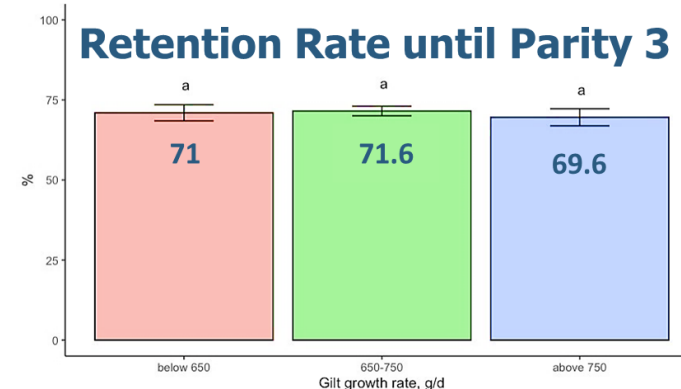
Gilts with higher growth rates are more productive in terms of total born on the first parity and up to parity 3. No differences were observed in retention rates.

Descriptive Summary by Birth to Breed Growth Rate Category

	Below 650 g/d	650 to 750 g/d	Above 750 g/d
Birth Weight, kg	1.28	1.43	1.57
Wean Weight, kg	6.08	6.34	6.71
End Nursery Weight, kg	19.75	21.68	23.73
Selection Weight, kg	92.97	99.14	109.20
Flushing Weight, kg	121.94	134.10	144.55
Gilt Breeding Weight, kg	143.43	150.80	162.57
Gilt Breeding Age, d	228.53	214.00	205.46
Birth to Breed ADG, kg/d	0.62	0.70	0.78



2.5



## 2 Practicalities: Gilt Eligibility at 1<sup>st</sup> Mating

Maximize the number of gilts bred within the right quadrant of weight, HNS and age. Gilts that express puberty early in life have increased rebreeding success and lifetime performance.

### Puberty Onset

- Focus on **puberty induction**
- Plan to start no later than 24 weeks of age
- Early responses to effective boar stimuli is the critical selection tool (Jennifer Patterson)

### HNS Program

- Quality of boar exposure
- Allocate resources (Time, boar power)
- **Breed gilts in the right quadrant** (Age, weight and Heat Not Service)

### Reproduction KPIs

- **Gilt utilization rate**
- HNS and their **weight at first heat** to drive flow and breeding decisions
- **% of gilts bred over 160 kg**
- **% of gilts bred over 225 days**

## Common Scenarios on Farms Currently

- Many farms are not measuring all or even 1 of the 4 elements.
- Gilt flow is not planned around achieving targets.
- Boar exposure/HNS program started too late-bred too heavy and too old.
- Insufficient number/quality of boars.
- GDU is not the priority-especially with labor constraints.



## Troubleshooting if Not in Ideal Quadrant

### Review Puberty induction/HNS Program

No HNS/Late puberty (>195d)

- Start boar exposure earlier, no later than 24 weeks of age
- Boar and labor quality/quantity
- Boars and people inside pens for heat check
- Record and track HNS 7 days a week
- Ensure gilt flow allows for early boar exposure

### Review Growth Limitations

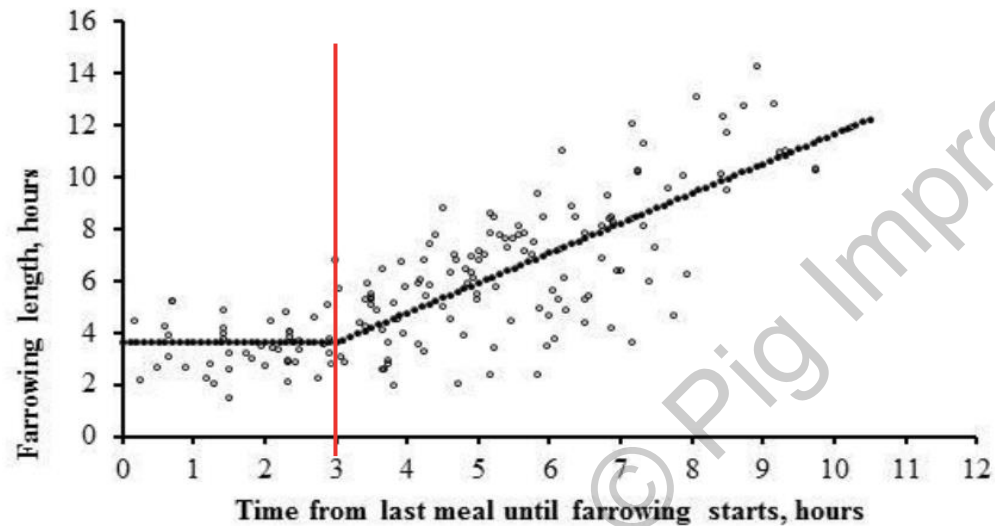
Under 300 lbs after 200d of age

- Feed/water availability
- Space requirements
- Health challenges
- Nutrition
- Minimize stress-environment, excessive movement, health procedure timing

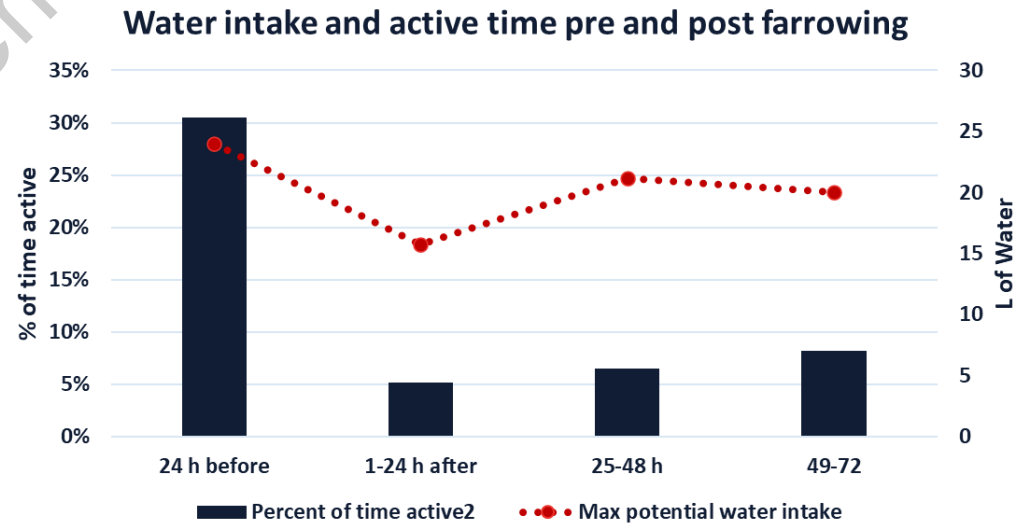
# 3 P1 Preparation for 1<sup>st</sup> Farrowing - Pre-farrowing Management

Reduce farrowing duration and post partum recovery. Water intake and feed management pre-farrow are key basic Sow Care Practices.

Feeding Pre-Farrowing



Voluntary Water Intake



Fraser, D., & Phillips, P. A., 1989

### 3 P1 Preparation for 1<sup>st</sup> Farrowing: Feeding

Higher feed and consistent feed intake in lactation is associated with better reproductive performance and lower body weight loss in lactation. Take steps early on to reduce need for preventable interventions.

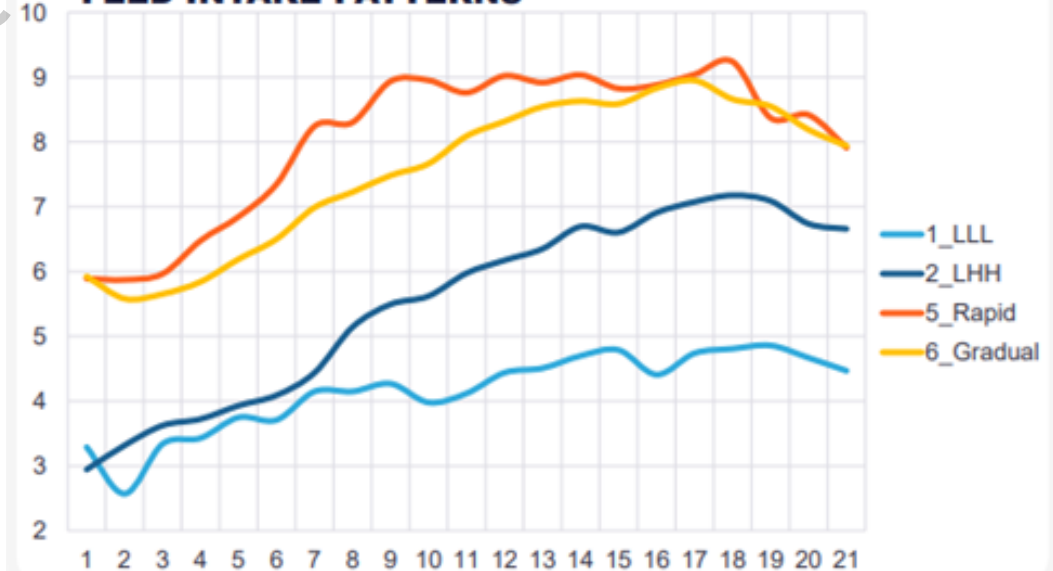


- Room preparation
- Focus on P1.

- Check daily water intake
- Check problematic sows

- Daily sow Care
- Check Fever
- Stimulate voluntary water and feed intake

FEED INTAKE PATTERNS



Source: Jorge Estrada (Carthage System)

### 3 P1 Preparation for 1<sup>st</sup> Farrowing: Summary

Improve the quality of gilts at farrowing and P1 at weaning for current & subsequent litter performance. Maximize their weaning capabilities while decreasing the chance to be removed before their P2 event.



- **Body weight at 1<sup>st</sup> Mating and body condition at farrowing** entry are the most relevant time points for P1s
- **Do not underfeed gilts in gestation (consult with your nutritionist for appropriate feeding levels)**

- **Do not full feed females pre-farrow**
- **Ensure and Stimulate water intake pre-farrow**

- **Early intervention plan:**
  - Problematic sows
  - Check daily water/feed intake
- **P1 Success KPIs:**
  - Pigs Weaned per farrow
  - % of P1s weaning 0 pigs

## Summary



A solid gilt program needs to be considered a foundation for improving retention, lower SDR and maximum weaning performance.



Tracking is the first step to achieving results.



A solid HNS program drives decision making at breeding.