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# The Impact of Prostaglandins Post Farrowing on Sow Productivity

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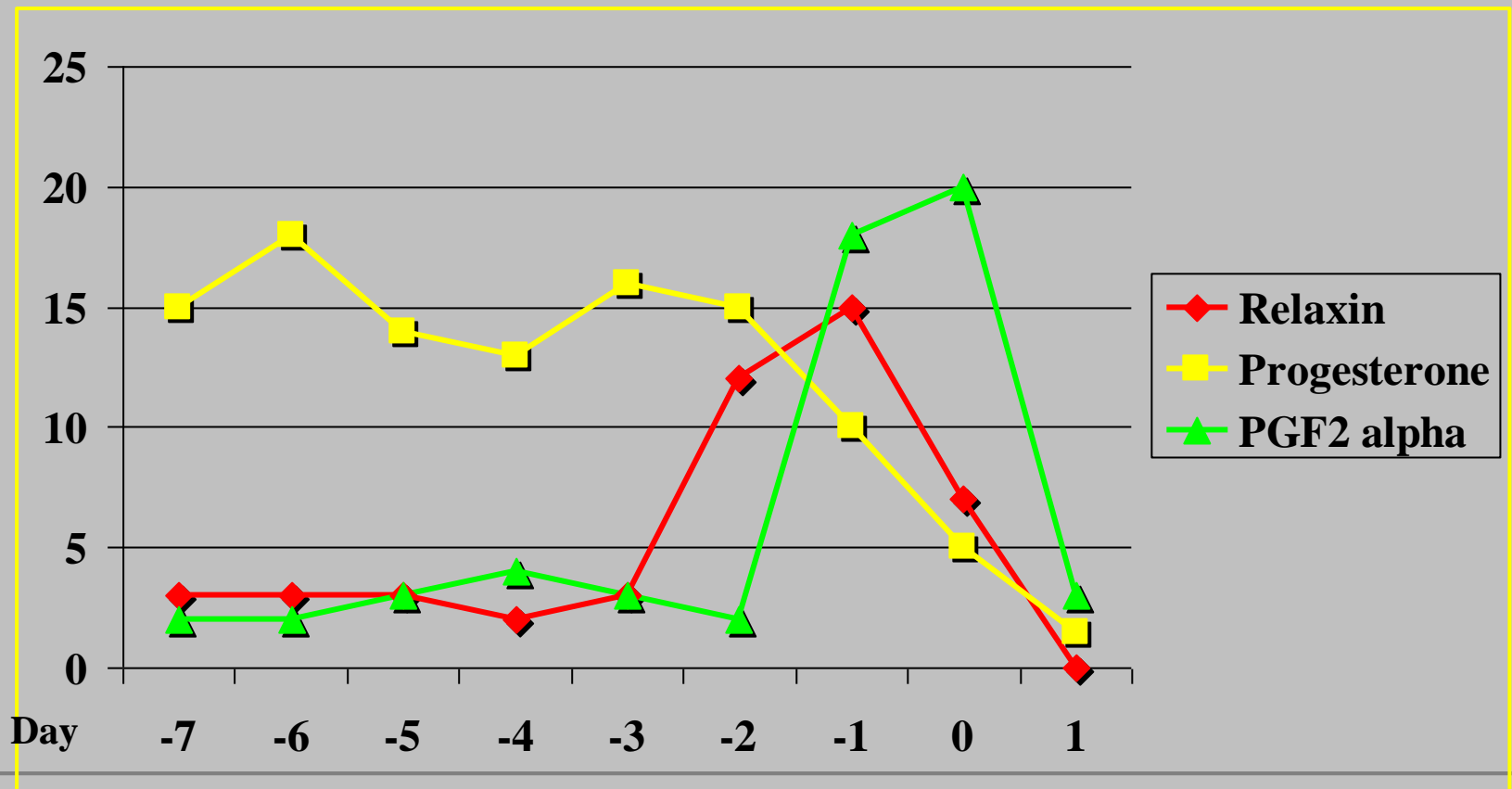
# Natural Events at Farrowing

- Pigs grow exponentially in cramped space
- Stress hormones signal luteolysis
- Progesterone declines
- Relaxin increases
- Prostaglandins cause contractions
- Piglet stimulation releases oxytocin
- Farrowing events continue
- Lactation begins

**Hormone signals can come from different sources.**

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# Hormonal Cascade Associated With Farrowing



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# Possible Effect of High Levels of Plasma Progesterone Postpartum

- Higher incidence of endometritis
    - Postpartum discharge
    - Early embryonic mortality
    - Reduced feed intake by sow
  - Negative effect on lactation by reducing prolactin production
  - Inhibit release of LH
  - Extended wean to estrus interval
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## Uterine infections after inoculation of the uterus with $5 \times 10^7$ CFU *E. Coli* (De Winter et al., 1992)

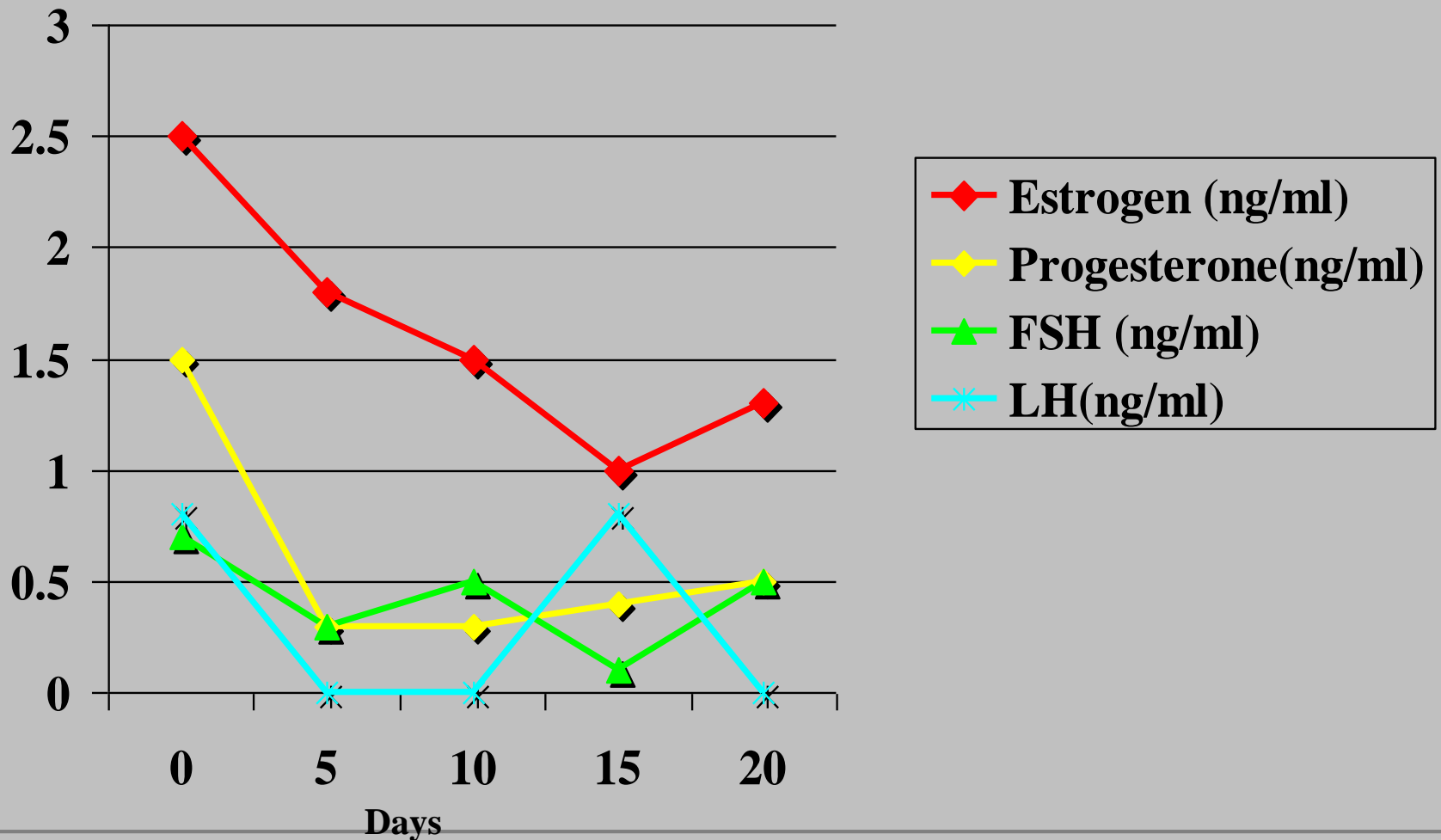
	Discharge	Bacteriology	Histology		
<u>Estrus</u>					
1	0	0	0		
2	0	0	1		
3	0	0	0	<b>“Small amounts of Progesterone facilitate uterine infections.”</b>	
4	0	0	0		
5	0	0	0		
<u>Early metestrus</u>					
1	++	+++	2		
2	++	+++	2/3		
3	0	0	0		
4	0	0	2		
5	+	+++	2		

Discharge: traces (+) to large quantity (++);

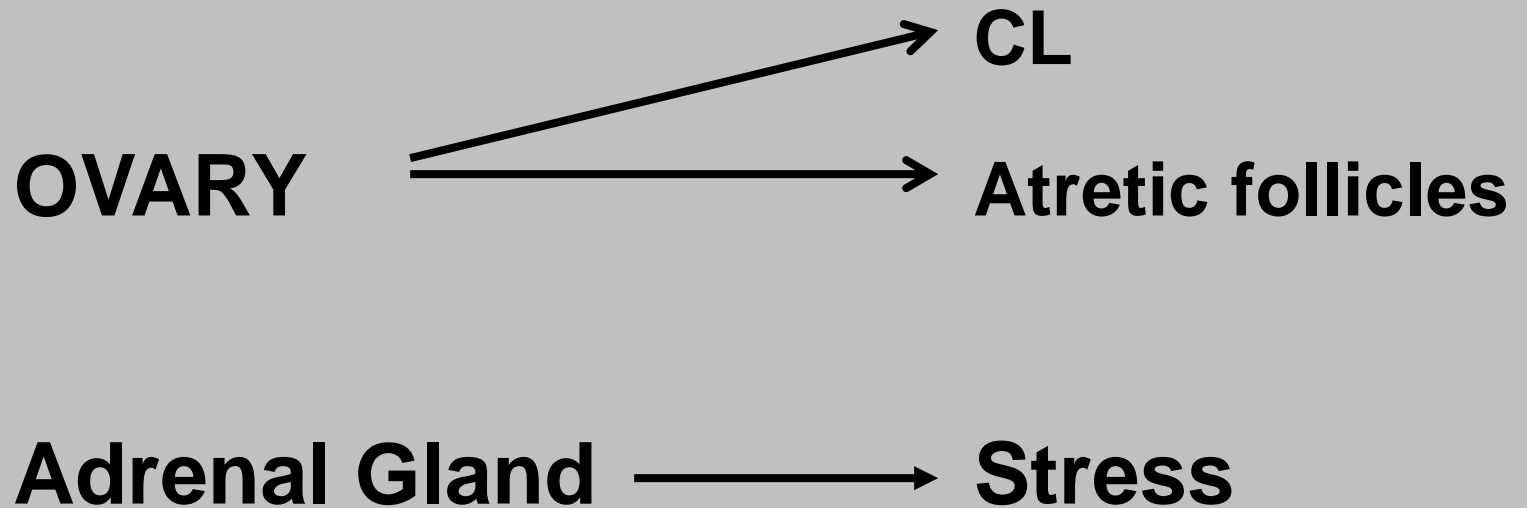
Bacteriology + (1-10 colonies) to ++++ (more than 300 colonies).

Histology: moderate acute (1) to chronic (4)

# Postpartum Hormone Levels



# SOURCES OF PROGESTERONE



# Background statements:

- **Excess stress in gilts and parity 1 females contributes to incomplete luteolysis, persistent progesterone and decreased farrowing performance.**
- **Poor farrowing performance reduces piglet quality and inhibits milk production resulting in low grade temperature increases mid-lactation.**
- **Compromised farrowing = poor breedback and untimely removal.**



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# Hypothesis:

- **Administration of exogenous prostaglandins after farrowing is complete will improve retention of P1 and P2 females by enhancing farrowing house quality.**
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# Procedure: (page 1)

- **Identify gilts and P1 females @ 112 days**
  - **Load all females as normal flow allows.**
  - **Observe farrowings as normal**
  - **At 1<sup>st</sup> observation of afterbirth, or on the morning after 1<sup>st</sup> pig is born: inject odd-numbered females with labeled dose of prostaglandin to cause farrowing.**
  - **Treat a minimum of 100 females per group.**
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# Procedure: (page 2)

- Proceed through lactation as normal.
- Record sow treatments during lactation.
- Review % of placed pigs that are weaned per female.
- Follow standards for breeding.
- Collect typical production data through subsequent farrowing.
- Document % each parity that farrow.
- Complete analysis: drop or expand project.

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# Speculations: (page 1)

- **Treated sows will:**
    - **Need fewer treatments in farrowing.**
    - **Wean healthier pigs**
    - **Milk at superior rate**
  - **Females that wean healthier litters (but do not go anestrus from excess lactation) will breed back at an improved rate.**
  - **Sows that express estrus and breed easier will have a higher fecundity index (pigs farrowed per 100 mated)**
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# Speculations: (page 2)

- **Females with better fecundity stay in the herd longer.**
  - **Farms with more fertile sows that stay past 2<sup>nd</sup> parity will produce more pigs per sow space.**
  - **Small improvements in production from improved farrowing house processes will be profitable even in challenging economic conditions.**
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# I welcome the chance to assist

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