Overview of the Reproductive Anatomy & Physiology of the Female Pig

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General View

The Vulva
- Passage for AI catheters or Boar penis
- Swells and changes color in gilts at estrus but not in sows
- Source of bacteria entry
- Clean wet feces off
- Use lubricant

The vagina
- ~12 inches in length
- Low pH protects against bacteria
- Some mucus
- Can become folded
- Lubrication eases rod passing
- Houses the urethral opening
The cervix
- Gate system for the uterus
- 5 inter-digitating pads
- Locks penis or AI catheters
- Secretes mucus

Cervical lock
- Allows boar to ejaculate
- Allows insemination with minimal backflow
- Uterine catheters pass just ahead

The uterus
- A passageway for sperm to the oviduct
  - Muscular contractions
- Immune cell infiltration
- A site for fetal development
  - Spacing
  - Attachment
  - Blood supply
  - Grows dramatically and involutes
- Made up of
  - Endometrium
  - Stromal
  - Muscle
- Repairs itself after delivery

Size changes in uterus during pregnancy

The oviduct
- Site of fertilization
- Sperm reservoir
- Limits entry and exit under hormone control

- Uterus
- Cervix
- Bladder
- Ovary
- Vagina
- Urethral opening
- Valva
The ovaries

- Are paired structures
- Surrounded by a sac called fimbria
- Produce eggs in follicles
- Produce hormones: estrogen, progesterone

Fimbria encloses ovary to catch eggs

The Physiology of Reproduction

- Parity
- Nutrition
- Lactation Length
- Management
- Stressors
- Prolactin
- Thyroxin
- Temperature

The Physiology of Female Reproduction

Factors:
- Diet/feeding: influences insulin and IGF
- Stressors: influences cortisol

The Ovarian Cycle of the Pig

- Estrus
- Ovulation

The ovarian estrous cycle

The cyclic ovary changes daily

The Ovarian Cycle of the Pig

Day of the Estrous Cycle
Follicles grow in response to FSH and produce estrogen

- High estrogen in follicles and blood induces:
  - estrus behaviors
  - changes in the reproductive tract
  - An LH surge

Estrogen and estrus

- Induced by LH
- Enzymes weaken follicle and stigma forms
- egg & fluid expelled into oviduct

Follicle Ovulation

Ovulation Rate and Litter Size

- Transport must allow for:
  - establishment of reservoir
  - capacitation of sperm
Fertilization

Embryo Development

- d 9-expand
- d 11
- d 13-15
  - Elongation
  - attachment

Limitations to Litter Size
-Eggs ovulated, embryo survival, and Uterine capacity

Pregnancy requires 3-4 embryos at d 14
Progesterone prevents delivery (abortion) until d 114

Day 30 Pregnancy

Avoid Problems-Fluid Vesicles

Best/Worst Times for RTU
Time To Diagnose and Fluid Diameter
Late gestation

Establishing Born Alive Litter Size in Swine

Potential Litter Size

Day of pregnancy

Ovulation Rate

Early/Late embryo loss
Early fetal loss
Mid fetal loss/Mummy
Late loss/Stillborn
Born Alive

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