Swine Reproduction and Production Management

No Small Subject
Important References

• LSU Therio Phillip Hoyt:
  - www.vetmed.lsu.edu/eiltslotus/theriogenology-5361/swine%20theriogenology_2.html

• Other:
  • American College of Theriogenologists and Society for Theriogenology and American Association of Swine Practitioners. Proceedings of Swine Reproduction Symposium, August, 1996.
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  Pond, W. G.; Maner, J. H.: Swine Production in Temperate and Tropical Environments
  Wrathall, A. E.: Prenatal Survival in Pigs: Part I
  Wrathall, A. E.: Reproductive Disorders in Pigs
  Marrow, D.A.: Current Therapy in Theriogenology
  Reproductive Examination of the Boar. Journal of the Society for Theriogenology, Volume XIII
Swine Breeds

Chester White

Hampshire

Yorkshire

Duroc

provided by National Swine Registry

provided by National Swine Registry

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provided by National Swine Registry
Reproductive Goals/Facts

- 114 day Gestation (3/3/3)
- 21 day Lactation
- 5 day Rebreeding

140 Day Farrowing Interval
2.6 Litters/year X 12 weaned pigs/sow
= 31.2 pigs weaned per sow per year
Gilts about 5 less
Mating Systems

• Double mating – 12 and 24 hr intervals
  – Increased CR, Litter Size

• Pen Mating/Pasture Breeding
  – 1 boar per 10 sows q 23-45 days (cont farrow)
  – Adv/Disadvantages

• Hand Mating
  – Estrus sows taken to breeding pen (boar)

• AI
Female Anatomy

1. Pregnant horn > 1 meter in length

2. Epithelial-chorial placentation

3. Cervical architecture unique
   - Interdigitating Prominances
Puberty

• 150 – 250 days (mean = 200 days)
  – Cross Breeds < Land < Yorks < Durocs

• Can be Delayed/Hastened by # of Factors
  – Inbreeding, nutrition, confinement, lighting, boar exposure

• Earlier in Boar
Estrous Cycle 21 days

- Proestrus 1-3 days
  - Alert to boar but will not accept

- Estrus 3-4 days
  - Physical and behavioral signs
  - Ovulation occurs mid-late estrus

- Diestrus 14 days

- Metestrus 2 days
Estrous Cycle
Ovulation and Fertilization

• Ovulation - last 1/3 estrus q 2hrs
  – Rates Avg 17 sows 13 Gilts (Heritable)

• Fertilization - All or non response
  – Optimal breeding is 12-24 hrs after start estrus
  – Sperm viable for 24 hrs
  – 1st Serv CR 70 – 90% (preg rate?)
EED

• 30-40% between day 1 – 114
  – 50% during 1\textsuperscript{st} 25 days

• Intrauterine migration
  – Migrate up to 12 days
  – Need 4 viable embryos for MRP day 12
  – Need 2 viable embryos for MRP day 30
Preg Detection

- Non Return to Estrus

- US at 30-90 days (preg/open)

- Rectal palp?
Parturition - Farrowing

• Can induce – PGF2α 10mg at day 112 gestation
  – 60-90% farrow within 18-36 hrs

• Duration 2- 24 hours
  – 2 piglets/hour

• Lactation
  – Colostrum Important
  – Milk let down – 28 sec
  – Nurse every hour
  – 32 hours to establish teat order
Estrus Synch - Sows

• Primarily done by weaning (18-24 days)

  – 10 mg PGF2α within 24 hrs post farrowing and 5 ml PG 600 at weaning (reduces anestrous)

  – PG 600 = 400 IU PMSG and 200 IU hCG
    • mimicks FSH and LH
Estrus Sync - Gilts

• Various protocols

– PG 600 5-6 months old =
  • 50-70% estrus in 5-7 days (often DNB)

– PG 600 (day 0) + Lut (day 18) =
  • estrus (day 20-25) = Pig Sync?

– Feed progestin (Penmate™ Regumate™) day 0-21 + lute day 35 =
  • estrus day 37-42
Reproductive Problems

• Many management and breed factors
  – Repro tract deformities common in gilts 5-10%

• Disease(s)
  – SMEDI Syndrome
    • Stillborn, mummies, ED, infertility
  – Viral and Bacterial Causes
  – Humans
Viral Repro Disease

• Syndrome I
  – Fatal to embryo or fetus but dam normal
  – True abortion rare = more EED
  – Parvo, enterovirus, Jap B encephalitis

• Syndrome II
  – Maternal morbidity, late term abortion
  – Psuedorabies, hog cholera, swine influenza
Bacterial Repro Disease

- Lepto – typical serovars
  - Mild signs in adults, typical pathogenesis
  - Abortion, mummification, stillbirths
  - Vaccine available

- Brucellosis
  - EED and abt
  - Eradication and reportable
Male repro facts

• semen
  – 3 fractions- presperm, sperm, postsperm gel
  – 250 mls with 150 – 500 $\times 10^9$ cells

• Ejaculation pressure dependent 3-20 minutes

• AI with fresh chilled semen common

• Published BSE values
Discussion