Decision Tree for Infertility in Red River Hog
(An example for other ungulate species)

Historical/Husbandry Information for Breeding Pair:
-for the sire & dam of the breeding pair (i.e., their parents):
  1) Did they conceive regularly?
  2) What was/is their rearing history?
  3) Did either of them have any pathology in their reproductive tracts?

-for the breeding pair in question:
A) Husbandry Issues:
  1) Diet; changes in diet?
  2) Substrate?
  3) Hours on exhibit?
  4) Photoperiod (i.e., geographical location of zoo)?
  5) Enclosure size; barn size?
  6) Immobilizations per year per animal?
  7) Enrichment?
  8) Number of hours of interaction with keepers?
  9) Mixed species exhibit?
 10) Proximity of exhibit to predator exhibits?
 11) Are pigs housed together continuously throughout the day?
 12) If there is more than one female in the group, does each female have equal access to the male?

B) Reproductive history of pair:
  1) What was their age at first reproduction?
  2) Were first copulation attempts successful (i.e., litter produced)?
  3) What is their contraception history?
  4) How long have the hogs been together?
  5) Genetic value of the pair?
  6) Is either member of the pair a proven breeder?
  7) What is the rearing history for either member of the pair?
  8) Health history of the pair?
### Possible Tests and Procedures to Perform on Potentially Infertile Males

- Physical Exam/Rectal Exam
- Semen Analysis
- GnRH challenge
- Testes ultrasound
- Accessory sex gland ultrasound
- Serum Testosterone/FSH/LH
- Thyroid Panel
- BSE
- CBC/Chem/Disease Screen
- ACTH challenge
- Mineral Screen
- Seminal Fluid Culture
- Fecal
- Urine analysis
- (Testicular Biopsy)

### Possible Tests and Procedures to Perform on Potentially Infertile Females

- Physical Exam/Rectal Exam
- GnRH challenge
- Serum E2/P4/FSH/LH
- Thyroid Panel
- CBC/Chem/Disease Screen
- ACTH challenge
- Mineral Screen
- Fecal
- Urine analysis
- Uterine lavage for culture
- Transrectal ovarian ultrasound
- Laparascopy-exam oviducts
- Uterine culture/swab
- Endometrial biopsy (at estrus only because of cervical rings)

### Treatment/Reversal for Infertility in Females Based on Diagnostic Factors

- Failure to Cycle (ovulate): management intervention (husbandry/pheromones/weight loss), hormonal therapy, treatment of disease (pyometra)
- Failure to Fertilize/Conceive: AI, IVP, unplug blocked ducts, antibiotic therapy
- Embryo Death/Failure to Implant: synthetic progestagens, pentoxyphylene, decrease stress, decrease feed intake, uterine quieting (give single treatment of deslorelin)
- Fetal Death/Abortion: vaccination, synthetic progestagens, management/husbandry
Breeding interest?

- Look at parental & relative (sister/brother) breeding history
- Look at husbandry
- Look at reproductive history of the pair
- Consider conducting diagnostics outlined above

Copulation?

- how long is copulation?
- evidence of ejaculation?
- how many copulation attempts?

Diagnosed pregnant?

- Conduct diagnostics outlined above (recommend starting with male first)

Litter produced?

- Early embryonic death suspected therefore:
  Conduct appropriate diagnostics for female outlined above

- fetal death-abortion?
  - still born?
  Conduct appropriate diagnostics for female outlined above

YES  NO

YES  NO

YES  NO

YES  NO