

Observations in Donkey Reproduction



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Scope of presentation

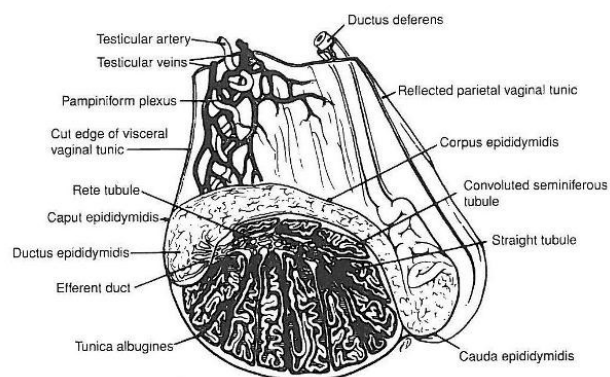
- Male and female anatomy
- Female reproductive physiology
- Ultrasound examination of the female
- Reproductive behavior

Basis for presentation

- Observations, not rules
- Personal experiences- 25 years
- Few clients
- Teaching/research herd
 - 3 jacks- 1 currently
 - 9 jennets- 6 currently
- Information from scientific literature

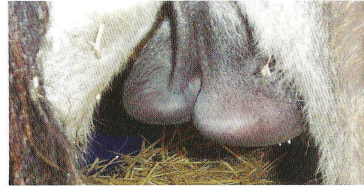
Male Anatomy

- Genitalia similar to the horse.
- Testes relatively large
- Located in the scrotum
- oriented with long axis horizontal

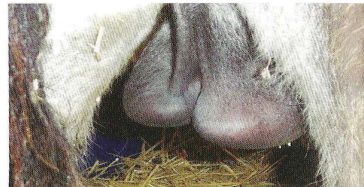


selectbreeders.com

Testes

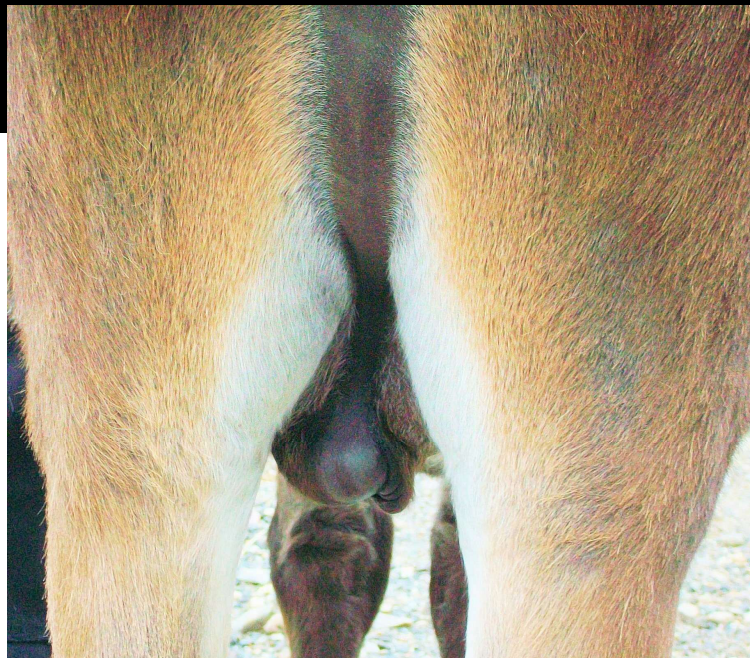


External views of the scrotum. Note the pendulous scrotum in the lateral view (left) and the large, prominent cauda epididymis in the caudal view.



External views of the scrotum. Note the pendulous scrotum in the lateral view (left) and the large, prominent cauda epididymis in the caudal view.

Professional Handbook of the Donkey, DS, Svendsen

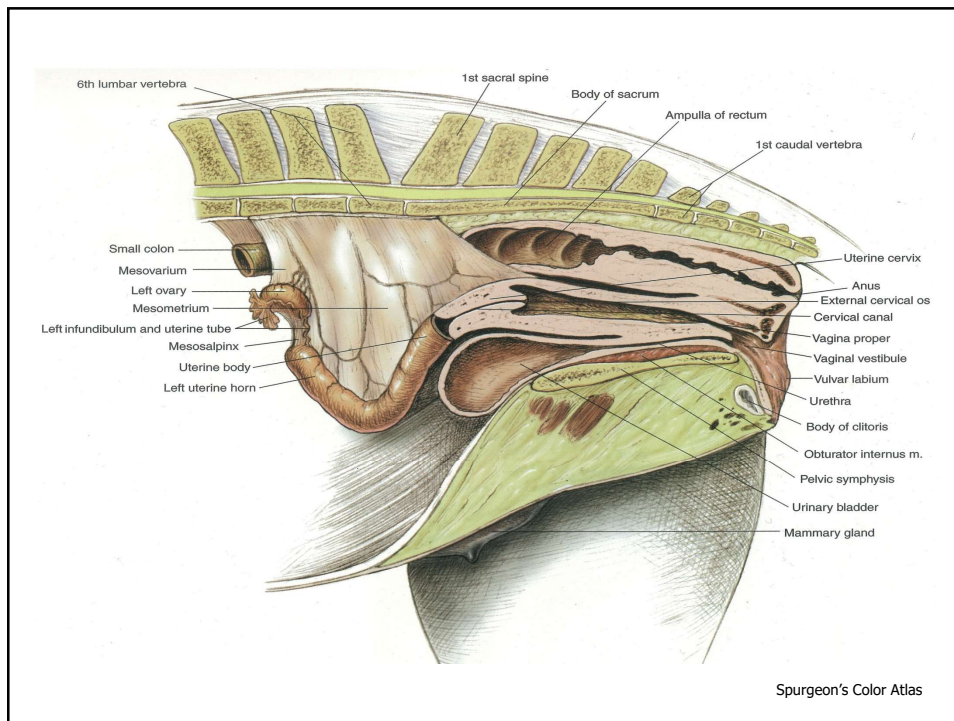


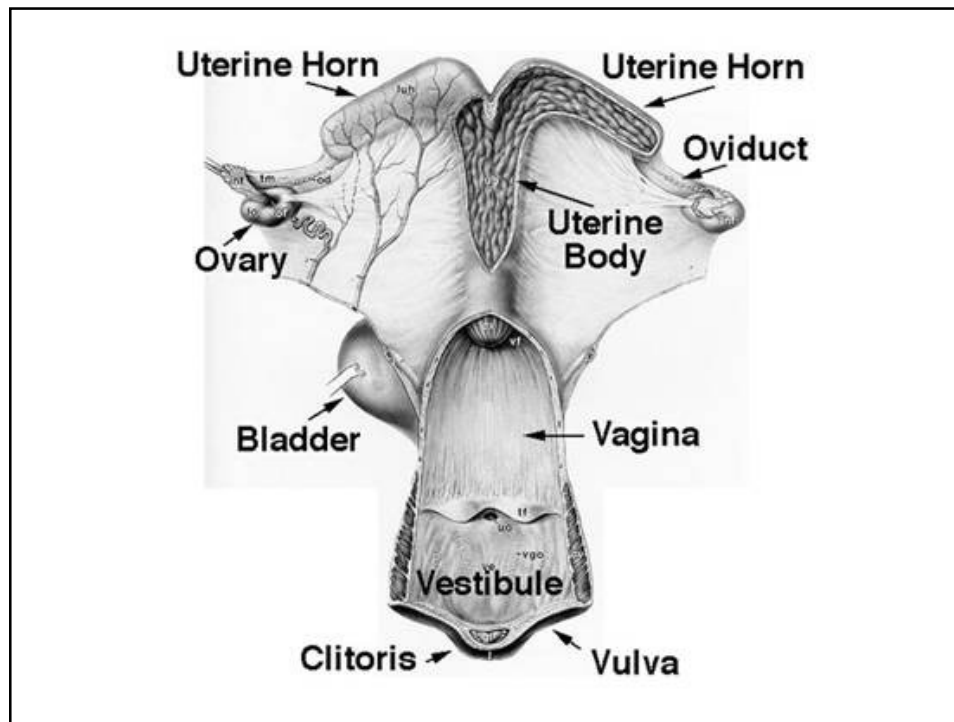
- penis length of a miniature donkey is approximately 14–18" when fully erect
- a full sized equine AV is used for semen collection.



- testes and penis of larger donkeys are longer than those of comparably sized horses.
- jack and stallion have the same accessory sex glands
- the ampulla is larger in the jack compared to the stallion

Female Reproductive Tract



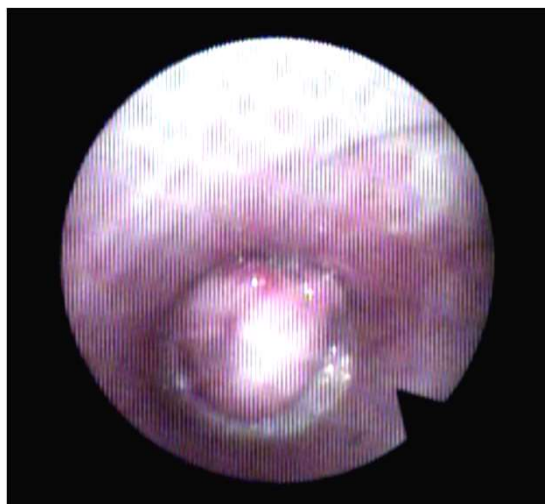


Female Anatomy

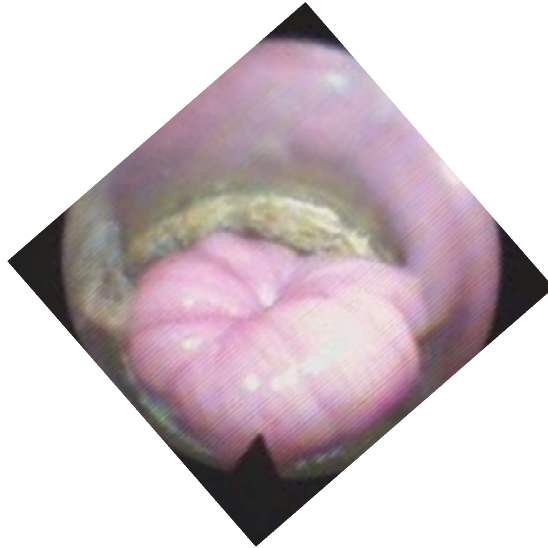
- **Vagina**- approximately 14" long in the average miniature donkey.
- **Cervix** lies on the cranial vaginal floor
 - has a similar appearance to that of the horse
 - often points upward
 - Usually longer than that of the mare and has a smaller diameter

- **cervical appearance-** changes with the stage of the estrus cycle
 - Relaxed during estrus, accompanied with an increase in vaginal mucous secretions.
- **Jennets may cycle throughout the winter-** % unknown
- **Winter anestrus** also occurs with animals having follicles up to 20 mm diameter without showing behavioral estrus.

Closed Cervix (Diestrus)



Relaxed Cervix (Estrus)



Reproductive Physiology

- **Estrus Cycle**
 - length 21–28 days
 - jennet sexually receptive for 5–7 days of this period.
 - Usually ovulate before the end of receptive behavior

Ovulatory follicle size

- Similar to full-size equines
- Follicles 25–30 mm in diameter considered potentially ovulatory
- Miniature jennets may ovulate 40+ mm diameter follicles.

Follicular Dominance

- Occurs in donkeys
- Usually one follicle grows in size and spontaneously ovulates
- Multiple follicles may ovulate >> twin conceptions.

Twin Conceptions

- rate unknown for donkeys
- most likely a natural reduction to one embryo.
- **Twins are undesirable**
 - placentation (epitheliochorial) will most often not support successful gestation of twins >> abortion
 - If twins are born usually one or both is weak or defective.

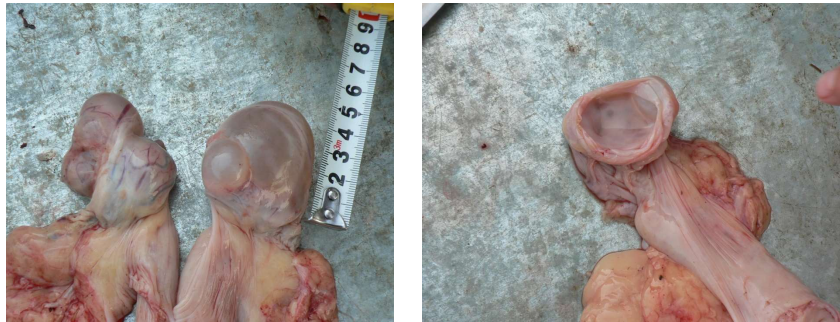
Ovarian dynamics

- Follicles >> estrogen
- Corpus hemorrhagicum- intermediate stage
- Corpus luteum >> progesterone
- Corpus albicans- non functional

Ovaries with follicles



35 mm follicle



Corpus hemorrhagicum

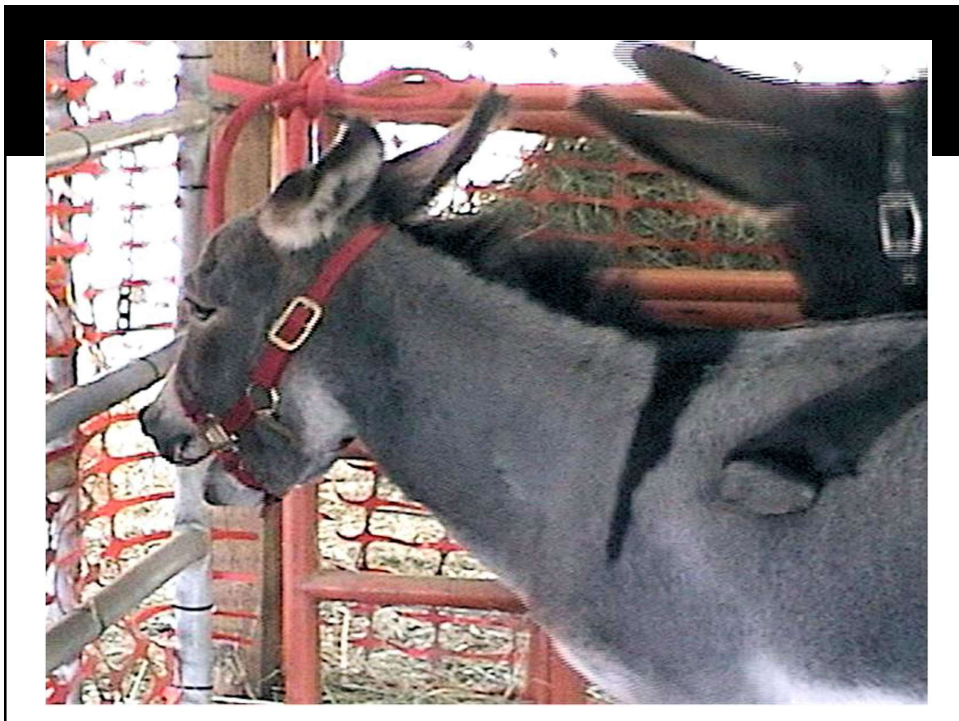
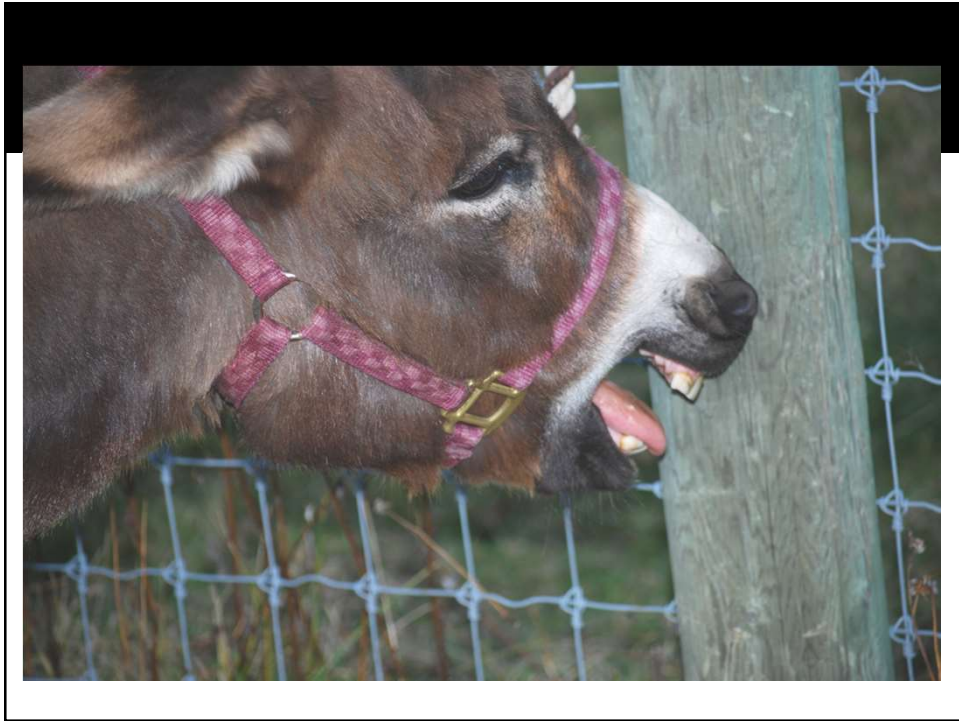


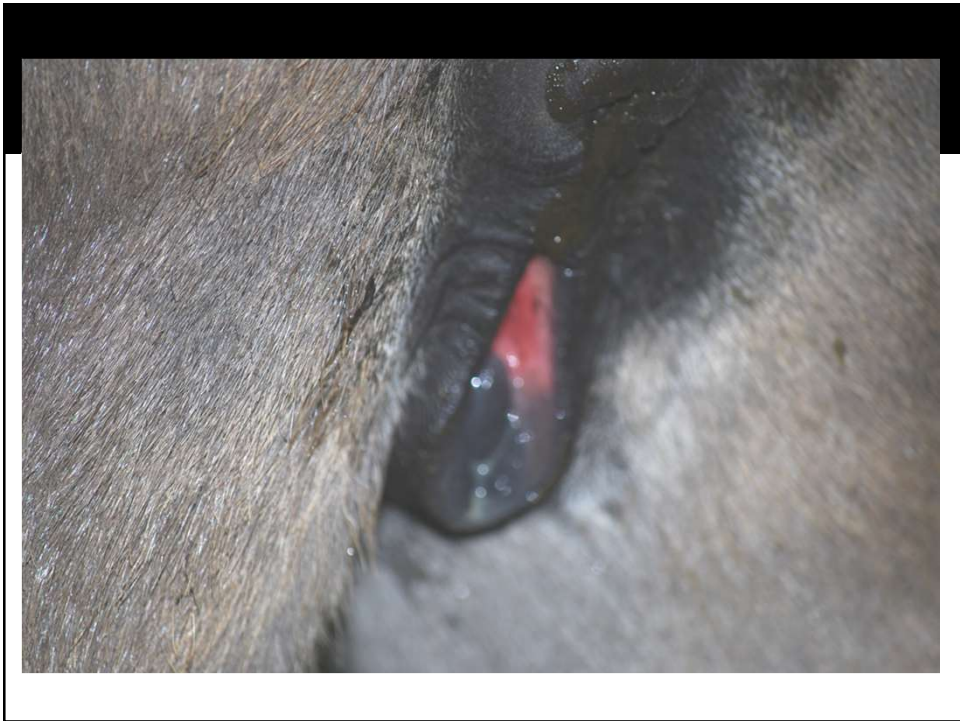
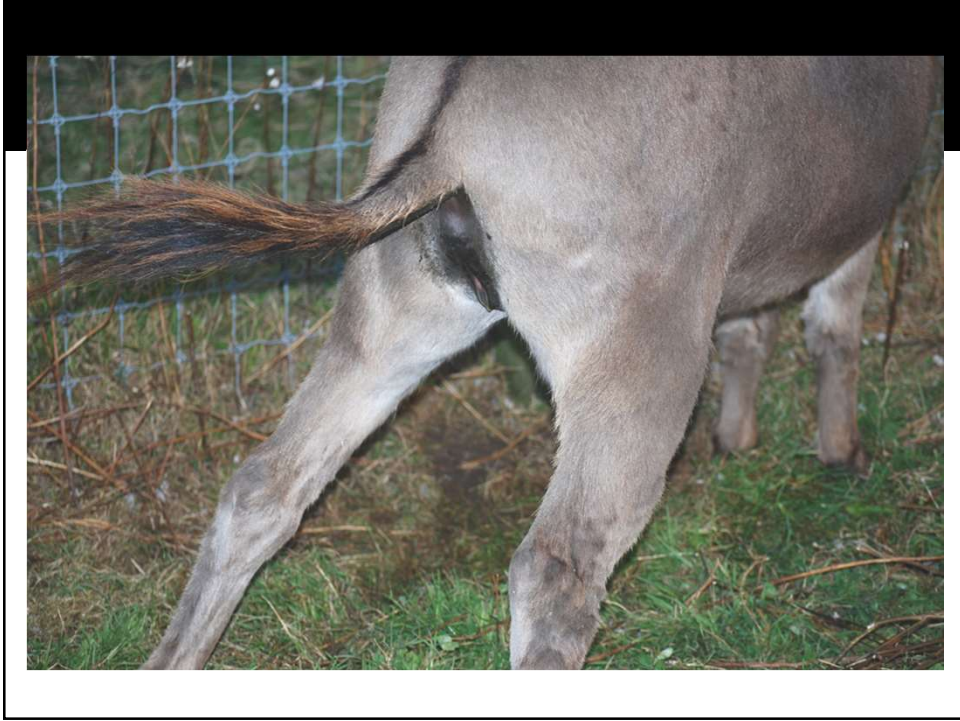
Corpus Luteum



Reproductive Behavior

- A jennet often shows her first heat at 8–12 months of age.
- Heat = estrus= receptivity
- Female receptivity is evidenced by the jennet backing up to the jack and making **jawing motions** with the mouth = **JAWING**
- Other behaviors:
 - Urination while squatting
 - Winking the vulva- eversion of the clitoris





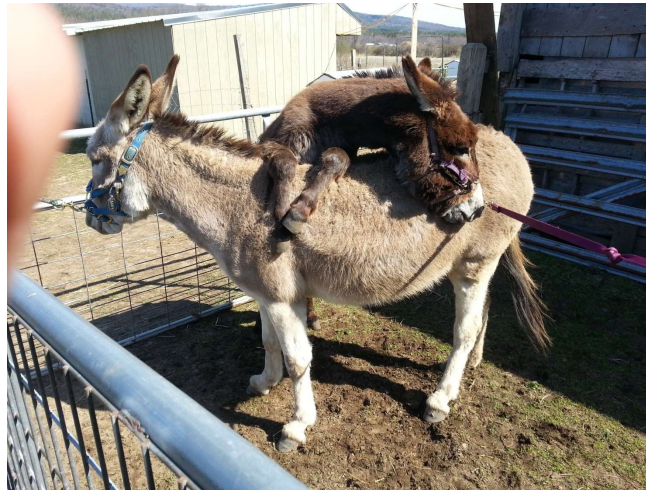
Kicking the jack



Kicking is particular to the jennet and jack involved- all are not the same!



Cuddling a quiet jennet



Thinking?



- **Jennets mount each other** on occasion, with the estrus jennet on the bottom.
- **Some jennets do not show receptivity** when:
 - there is no jack present
 - when nursing a foal
 - when another female interferes with the advances of the jack.
 - In a group

Short Day/Winter Anestrus

- May be seen in jennets
- % unknown
- Lulu- Estrus 1 week after pregnancy terminated (January)
- Anna- Estrus 4 months after pregnancy terminated (April- March in 2016).
- My other 3 jennets cycled in 2016 within 1 month of late 2015 pregnancy termination



Jack Behavior

- **pursue** the jennet in estrus, sometimes very aggressively, especially when first introduced.
- may **bite** the neck, back, and front or hind legs and even draw blood.
- some jacks have to wear a **breeding muzzle** to avoid injury to the jennet.
- usually calm down after 15–30 minutes and then the muzzle may be removed.

- It is easy to teach most jacks to mount without biting the jennet by using a chain lead shank over the nose.
- Vigorous jerking motions on the chain along with verbal commands usually result in a quick learning process for the jack.
- Donkeys are intelligent animals and respond well to consistent, firm training methods.



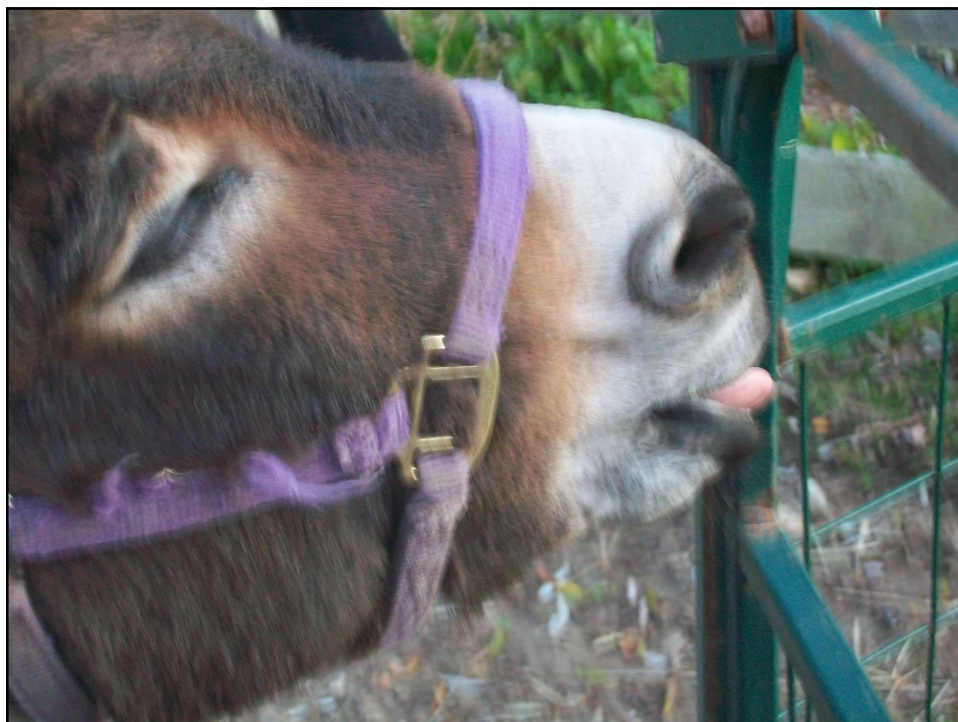
Erection in Jacks

- A jennet may back up to the jack after having ovulated, but he may not mount her if he has recently bred her within few hours or has been collected for artificial insemination.
- Normally, a **jack will mount a jennet a few times before becoming fully erect**
- Some jacks are relatively slow to achieve erection (10–40 minutes) when compared to horses.

- common for multiple mounts to be required along with some periods of inactivity at a short distance from the jennet before the jack achieves a full erection and completes a breeding.
- no correlation between time to achieve full erection or degree of aggressive breeding behavior and fertility.

Flehmen Reaction





Field / Pen Breeding

- **Field Breeding** most commonly used, turning one jack out with as many as 10 jennets.
- **Jack selects** the most receptive/closest jennet to breed by checking the herd's manure for pheromones that may be involved in estrus detection.
- **Receptive jennets may also approach a breeding pair** to attract the jack.

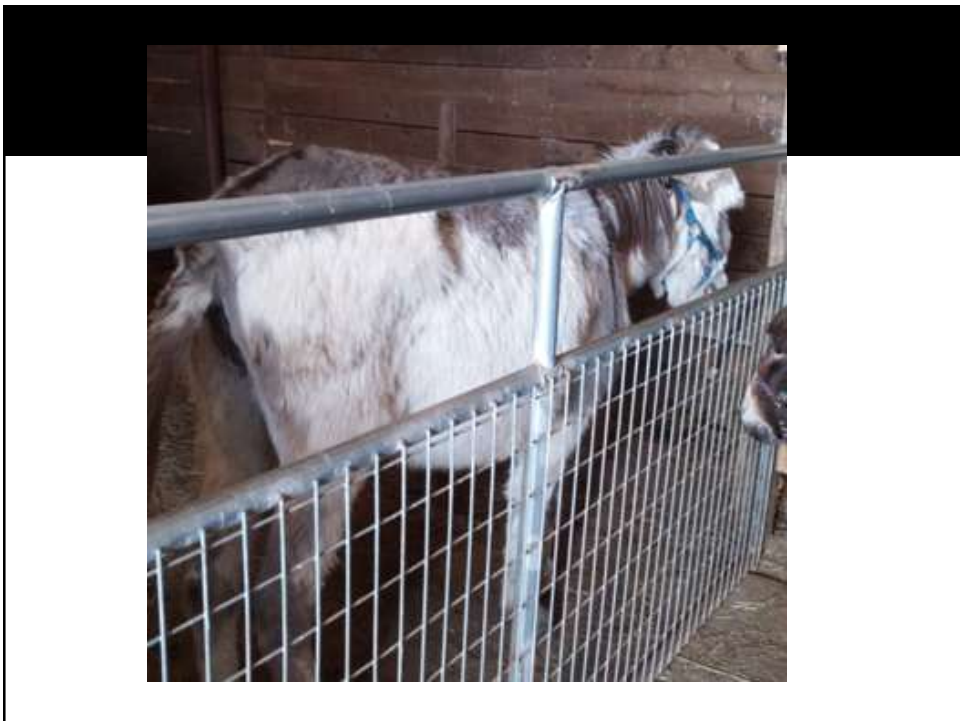
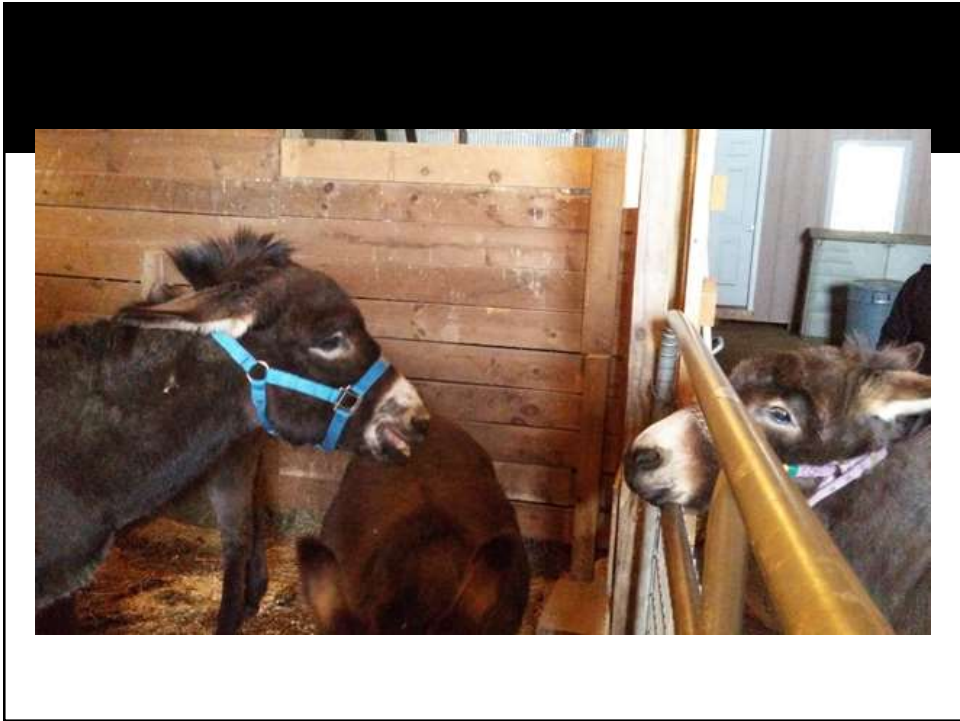
Pen Breeding





Hand Breeding

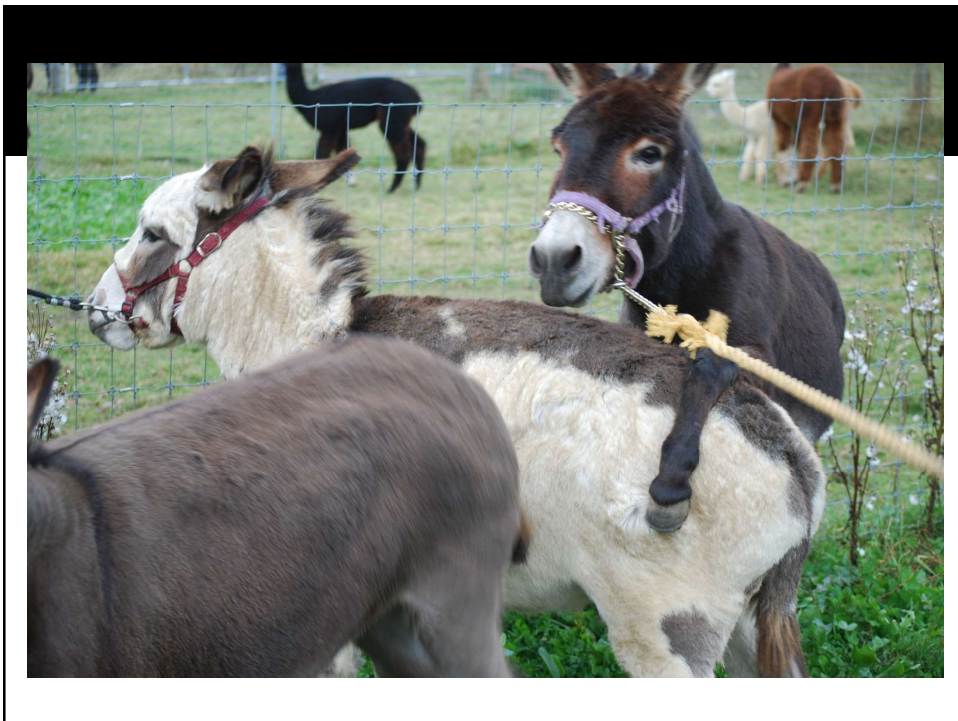
- Controlled, hand or “appointment” breeding allows for recording of exact breeding dates.
- The breeding cycle may be coordinated with **serial ultrasound examinations** of the ovaries to determine the time of ovulation and the best time to breed.
- Jacks may be overly aggressive or timid when first training them to mount in controlled situations.

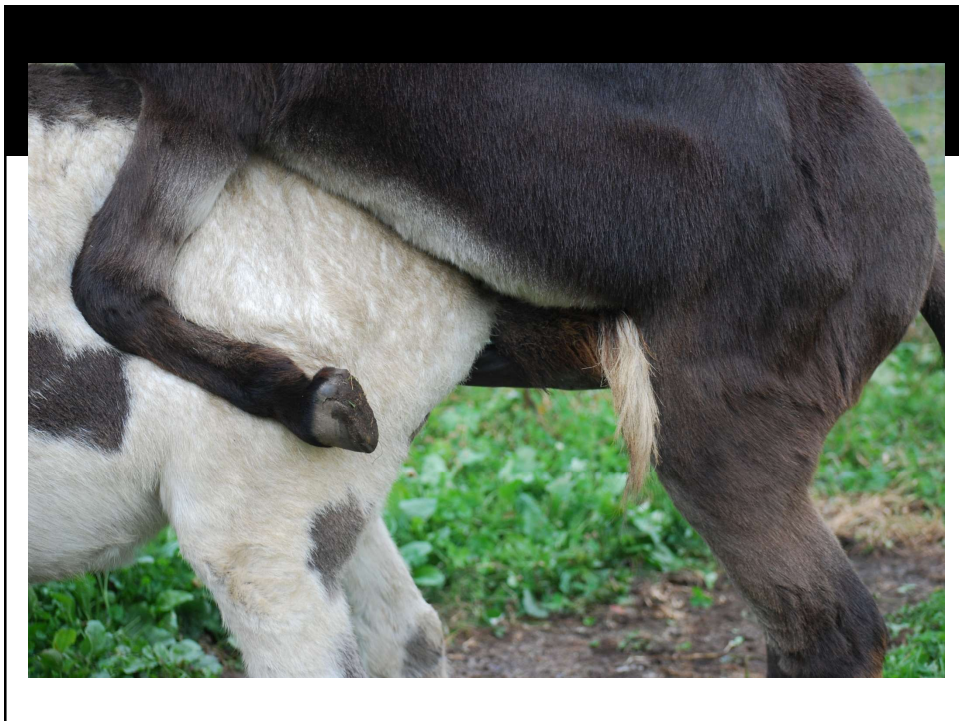
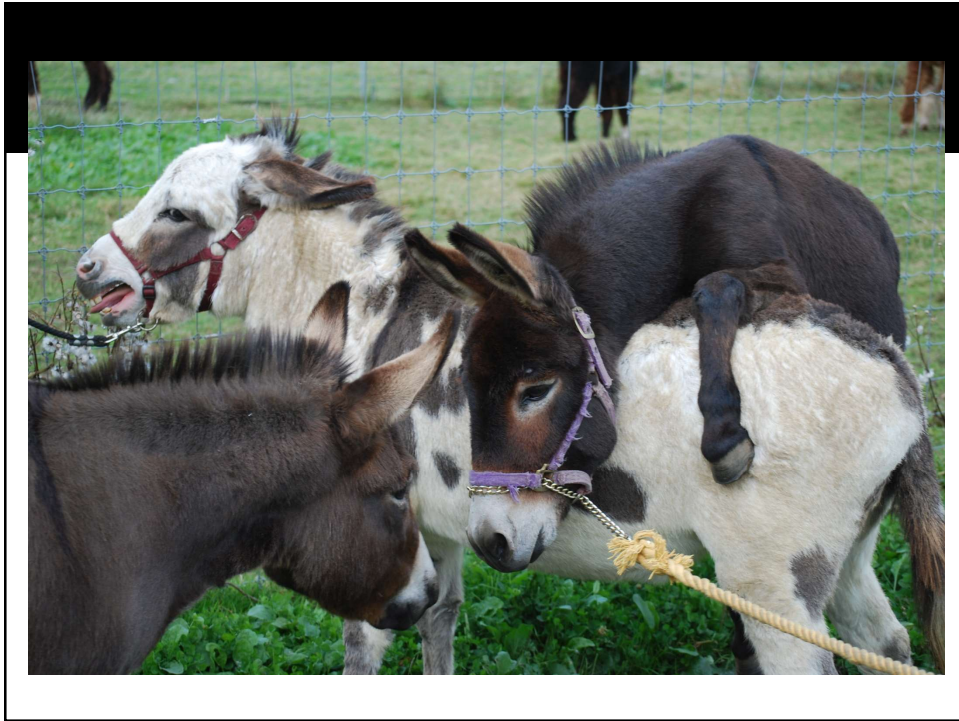


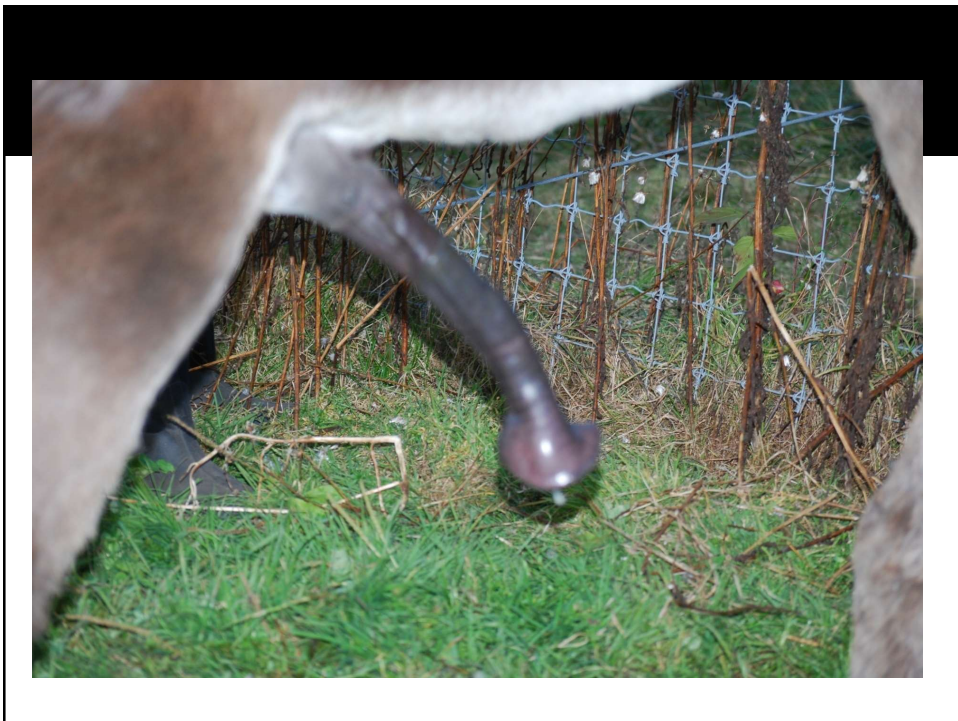


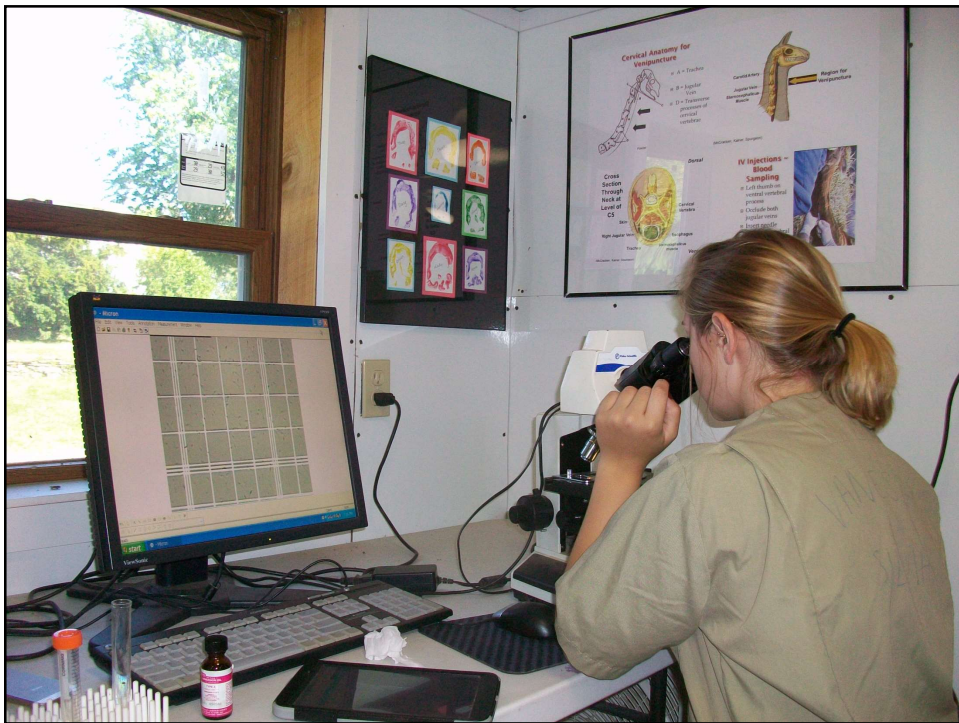
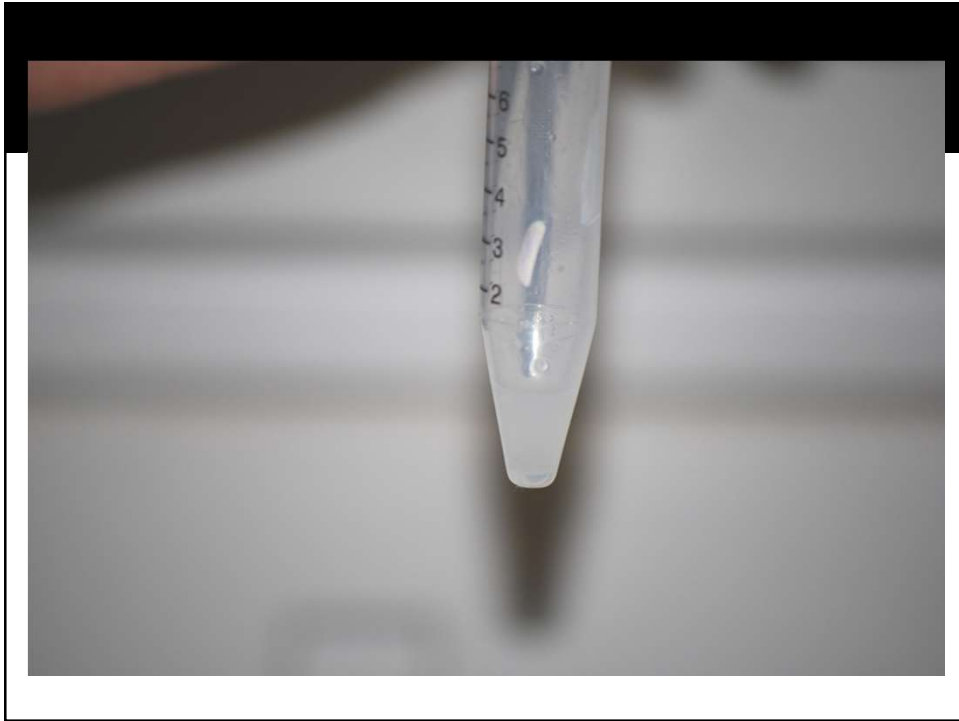






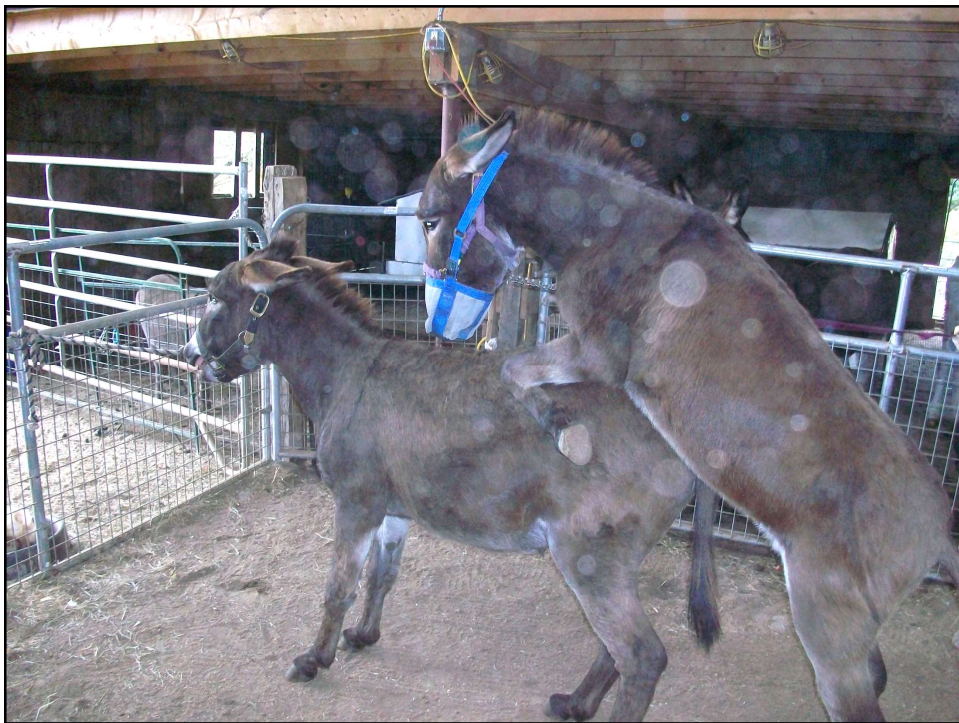


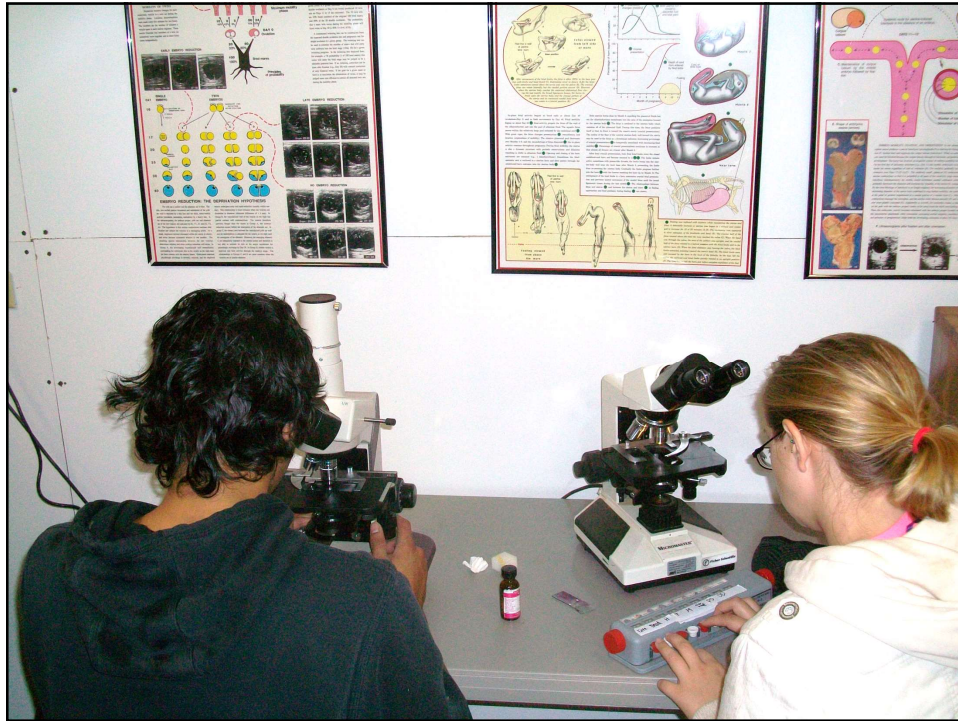












Gestation

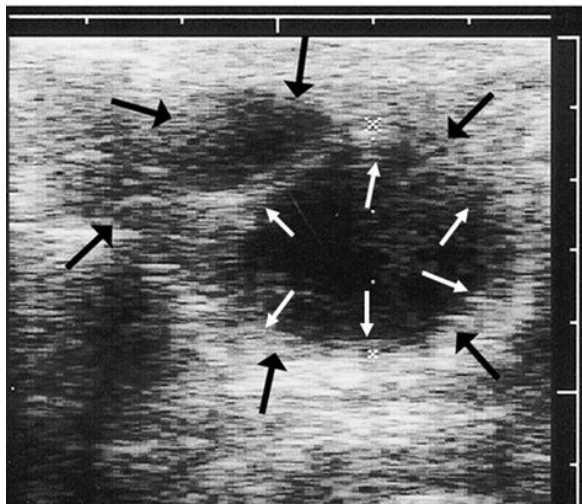
- Length 12-13 months
- Daytime foaling
- Most of my foals (8) were at 365 days gestation



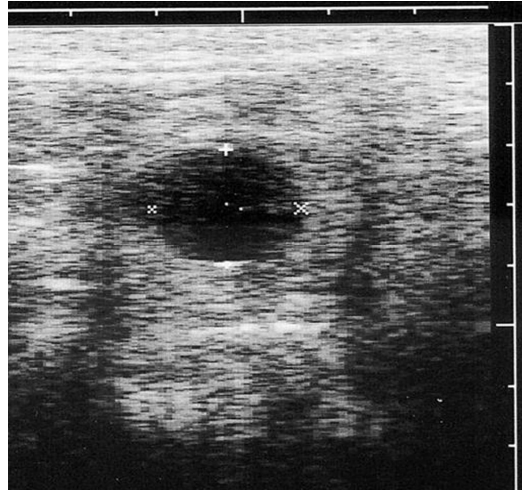
Ultrasound Pregnancy Examinations

- **Transrectal examinations** are accurate as early as 10 to 16 days after breeding.
 - performed without manually carrying the probe into the rectum using a plastic pipe extender
 - **very safe** technique
 - **well tolerated** by jennets with minimal training or sedation.
 - follow follicles as they mature and regress
 - **embryo proper and embryonic heartbeat** may be detected at approximately 25 days of pregnancy.

Ultrasound of ovary

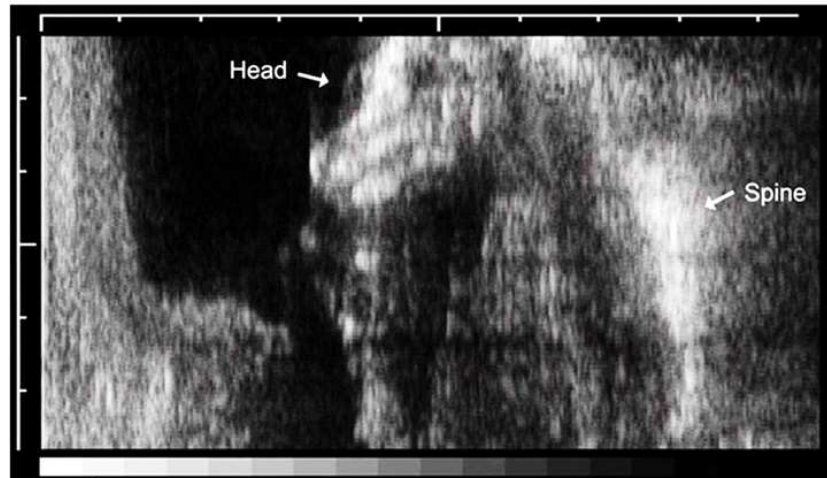


18 day pregnancy



- **Transabdominal examinations**
 - easily performed after 70 to 80 days in miniature donkeys.
 - It is more difficult to estimate stage of pregnancy after 90 days unless specific fetal structures are found and measured.

72 day pregnancy



Artificial Insemination

- possible on the farm, or with transported fresh, cooled semen.
- **Jacks are easy to train for collection** although this technique is not currently used on a widespread basis.
- Miniature donkey semen is very concentrated and in general has good fertility.



Thank you! Questions??



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