AI Basics & Benefits

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Reproduction Basics

- Seasonality
- Length of the breeding season
- Estrous cycle
- Synchronization
- Breeding

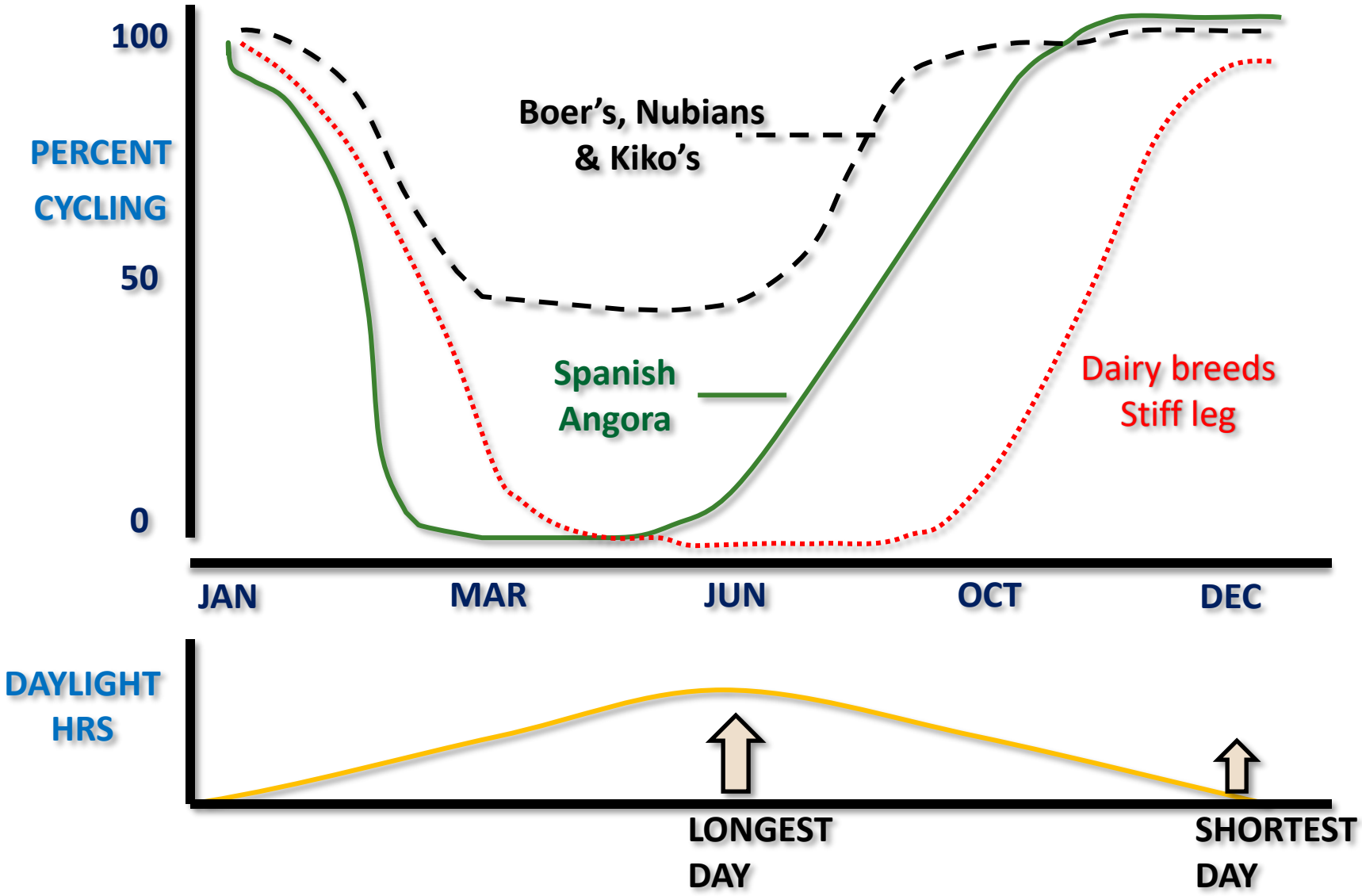
Seasonality

- Goats are generally seasonally polyestrous in North America.
- Short day breeders
- Polyestrous near the equator.

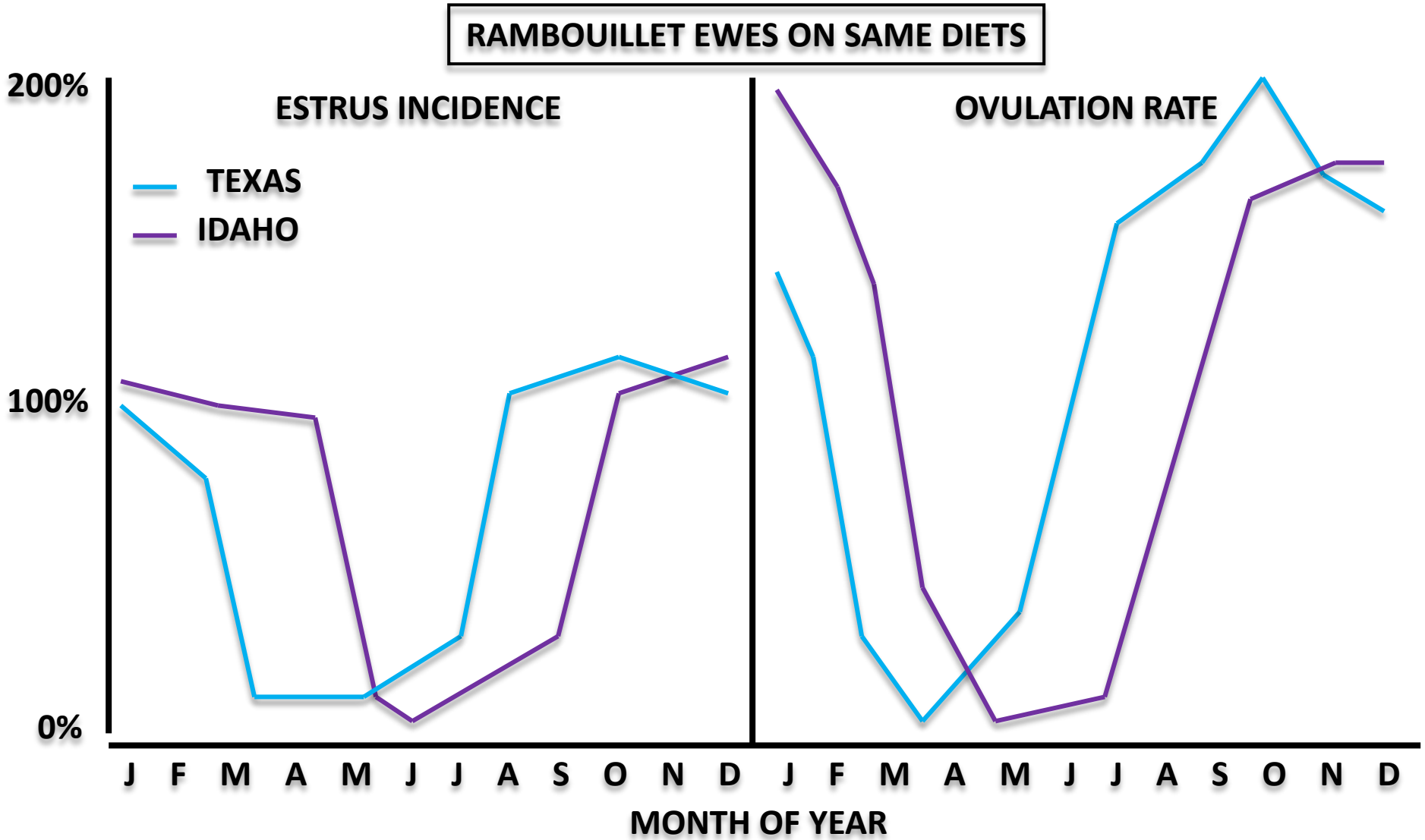
The length of the breeding season is influenced by:

- Breed
- Location
- Nutrition

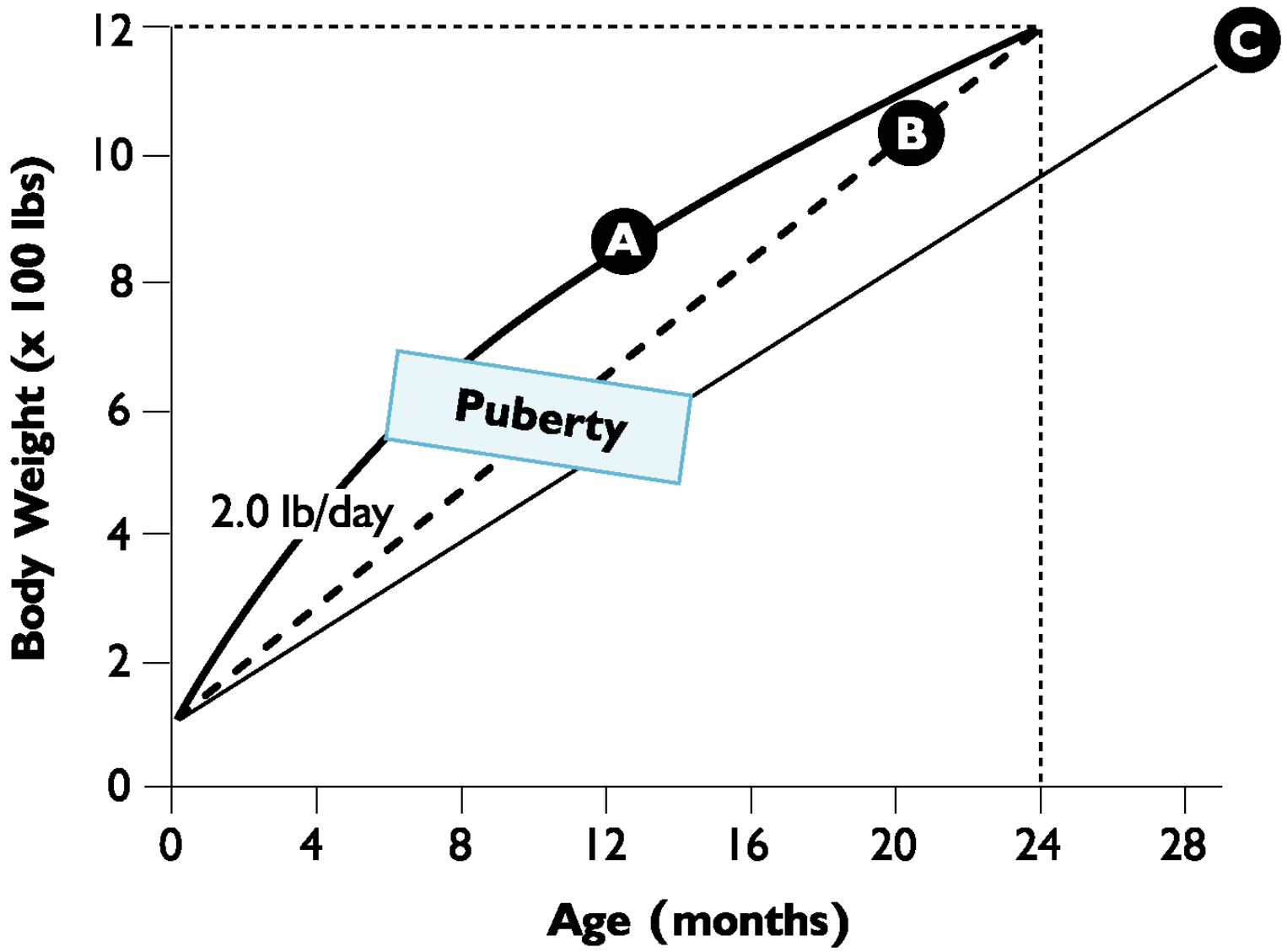
Breed & % Cycling by Month



Location effect on estrus onset & ovulation rate



Nutrition

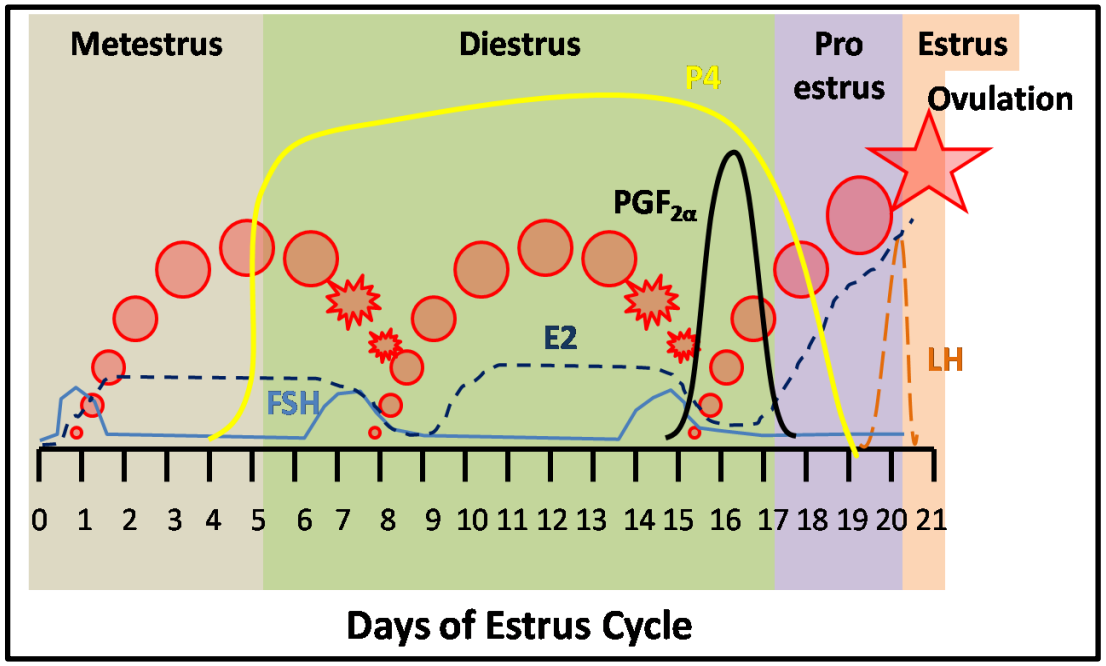

Body Weight (x 100 lbs)
0
2
4
6
8
10
12
0
4
8
12
16
20
24
28
Age (months)
A
B
C
Puberty
2.0 lb/day

Estrous cycle

- Length – 19 to 23 days (21 days)
- Angora (16-18) and Pygmy (>21)
- Estrus – 24 hours [12 – 36 hours]
  - Doelings : 24 hours
  - Older does : 24 – 48 hours
- Ovulation – towards the end of estrus

Estrus Cycle

- FSH stimulates growth of follicular wave
- Maturing dominant follicle = ↑ estradiol, inhibin = ↓ FSH
- Progesterone inhibits LH leading to regression of dominant follicle
- Regression of dominant follicle = ↓ estradiol, inhibin = ↑ FSH
- Luteolysis = ↓ progesterone = dominant follicle continues to grow
- ↑ estradiol leads to preovulatory LH surge
- LH surge leads to ovulation



Signs of estrus

- Fence walking
- Swollen vulva
- Tail wagging
- Increase in urination
- Decrease in appetite
- Vocalization - does

Methods of estrus detection

- Introduction of a male or teaser
- Fence line exposure
- Buck jar: Rub a rag on the bucks head, put the rag in a jar and offer it to does once a day.
- Buck – beard hung on the pen during late transition or early in the breeding season

Teaser Options

- Teasing apron
- Marking harness
- Intersex
- Penile deviation
- Epididectomised male
- Vasectomised male

Teaser Behavior

- Sticks nose in stream of urine from females
- Flehmen reaction
- Strikes with his front leg
- Flicks his tongue
- Mounts

Triggering cycles

- Male effect
  - Works late transition
  - Middle of August
  - Bucks should be away from the does for at least 2 months
  - Good management tool to synchronize does
  - Short breeding season
  - Artificial insemination could be utilized with teaser buck exposure
- Light effect
- Hormones – PGF2@, P4 & FSH

Doelings

- Select replacements
- Remove supranummery teats – split teats
- Puberty – 5 to 8 months
- Breeding >70 % of their mature weight
- Bred too early stunted growth

Why and Why Not AI?

Reason To:

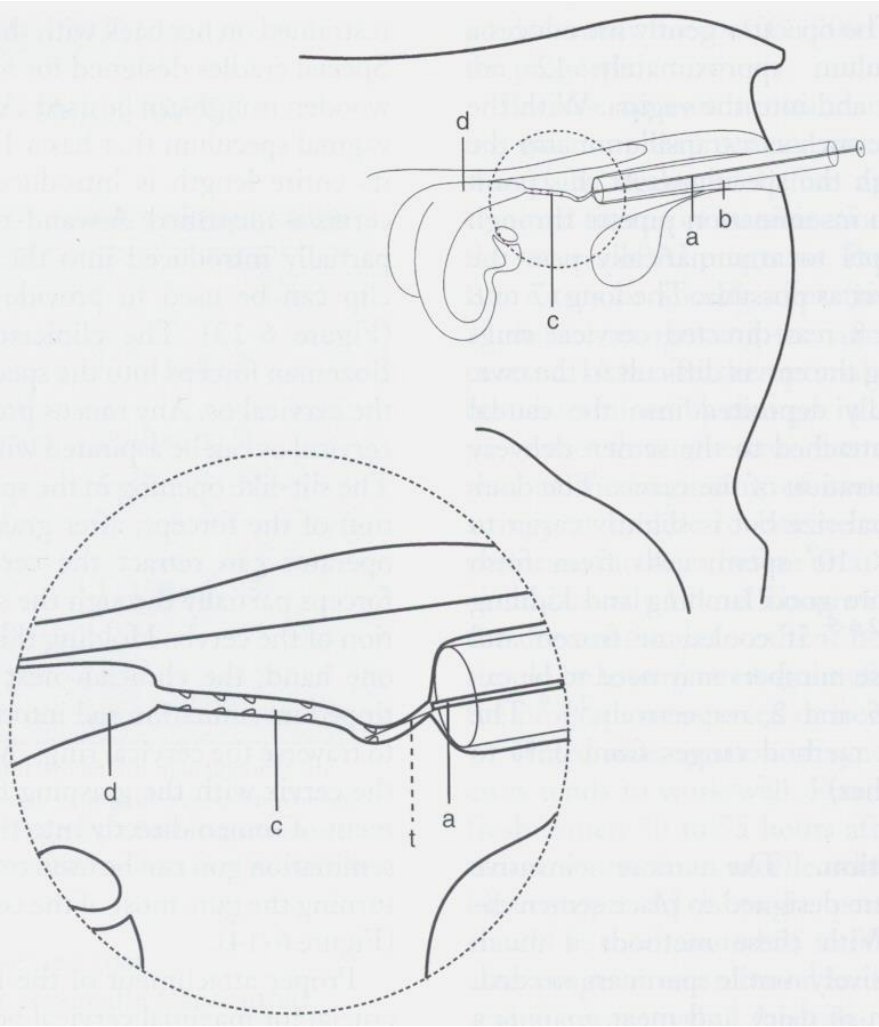
- Improve genetics
  - Breed to better genetics to produce bucks and replacement does.
  - Able to improve herd multiple ways.
- Reduce breeding costs
  - Better genetics usually cost more.
  - Purchasing semen is cheaper and generally easier than purchasing the animal.

Reason Not To:

- Breeding Efficiency
  - AI conception rates are generally lower than natural conception.
- Time and Effort
  - AI will take more time and labor, along with added expense.
- Cost
  - Goat AI is a higher cost than other species.
- Commercial Goats
  - AI is not for producers wanting to producer market animals.

Types of AI

- Transvaginal AI
  - Traditional method
    - Uses a speculum and light to deposit semen after the cervix
  - Easy to learn
  - Cost: Semen plus supplies (Cheapest)
  - Conception rates 40% to 80%



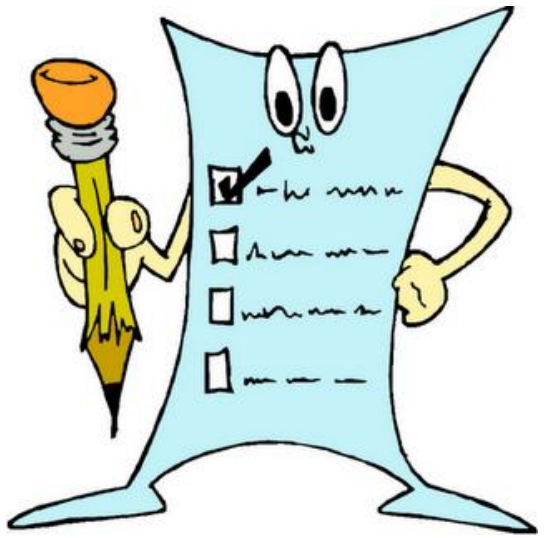
Types of AI

- Laparoscopic AI
  - Surgical procedure that may require a veterinarian.
    - Will require a vet to get the necessary drugs.
  - Puts the semen directly into the uterus.
  - Cost: Semen plus cost of procedure ($60/doe)
  - Conception Rate > 70%
- Endoscopic Transvaginal AI
  - Newest technology
  - May still require a veterinarian
  - Uses a endoscope to deposit the semen behind the cervix
  - Conception Rates > 80%

- The trick to all AI procedures is catching the does in estrus (heat)

Common synchronization protocols used in does

- Literature numerous
  - Each vet or AI technician has their favorite method
- Drugs needed to do this typically require a veterinarian.
- Synchronization requires prior planning and work before the AI can be performed.



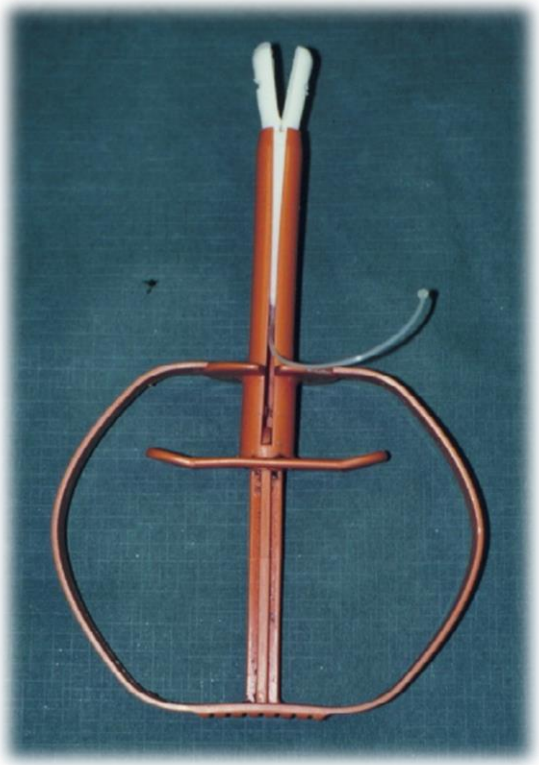
EAZI-BREED CIDR Sheep Insert

Product Description

- Active Ingredient:
  - 0.30 gm Progesterone, 0.30 gm
- Indication:
  - Induction of estrus in ewes (sheep) during seasonal anestrus
- 20 EAZI-BREED CIDR Sheep inserts per bag
- EAZI-BREED CIDR Sheep applicator sold separately
- 24 month expiry dating
- Storage:
  - Store at controlled room temperature 20° to 25° C (68° to 77° F) with excursions between 15° to 30° C (59° to 86° F).
- Cost - $6 to $8

EAZI-BREED CIDR Sheep Insert

- Fall out rate [2 – 25%]
- Clean lubricated vaginal speculum
- Maiden does [Strictures or hymen]
- Avoid rough handling [Adhesions]



Tighten Synchrony of Estrus

- Prostaglandin

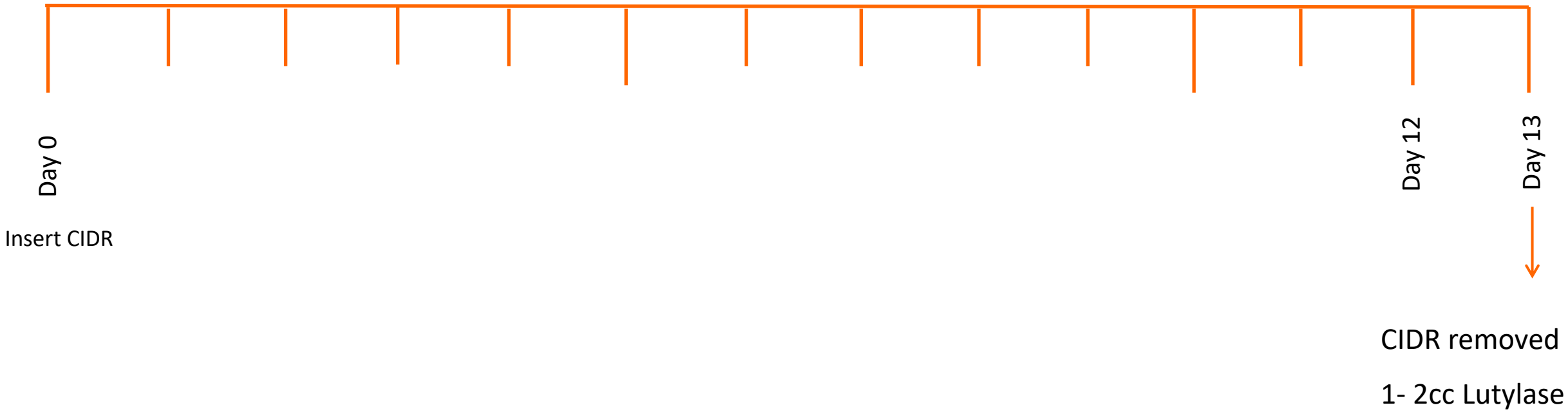
- FSH product – eCG or PG 600

- On the day of removal or < 24 hours before

Gonadotropin Products Used

Product	Dosage	Route
PG 600 5 ml contains (400 IU eCG) (200 IU HCG)	Full dose – 5ml - off season. ½ dose late transition and breeding season	Intramuscular
Equinex, Stimukron, Fostim, Folligon [Equine Chronic Gonadotropin or eCG]	400-500 I.U.= off season and transition period. 200-300 I.U.= breeding season	Intramuscular

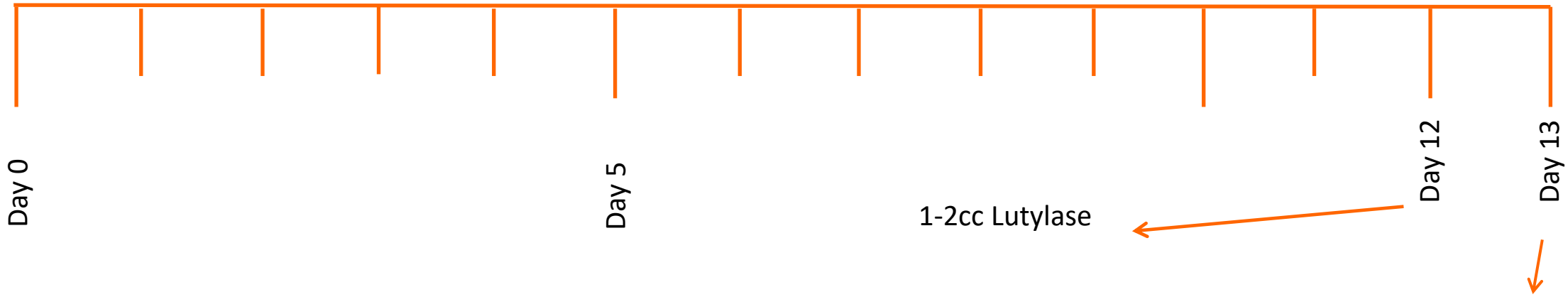
CIDR / Lutylase



NS or A.I.= 24 hours after standing estrus

TAI= 52 to 56 hours after CIDR removal

CIDR + Lutylase + PG 600 (or ecG)



Remove CIDR

Give 5cc PG600 during the off season (½ dose during the breeding season)

Give 4 cc ecG during off seson (½ dose during breeding season)

- **NS or A.I =24 hours after standing estrus**
- **TAI = 42 to 48 hours after CIDR removal**

Day 0	Day 18	Day 19	Day 20
8 am **Insert CIDR**	8 am Remove CIDR	Off Feed	AI 50-55 Hours after CIDR Removal

- **Dr. Castleberry**
- **Late Transition and Breeding Session**

CIDR-G

Duration (days)	eCG	Prostaglandin	Season	Estrus (hours)	Breeding	Pregnancy Rate
16	+ (Removal)	—	Breeding	27.2 ± 0.4	TAI 48 and 60 hours after CIDR removal	47%
9	+ (Removal)	+ (Removal)	Breeding	24-36	Natural service	95%
9	—	+ (Removal)	Breeding	24-72	Natural service	65%
13		+ (Removal)	Breeding	40.2±10.5	AI after the onset	63%
5	+ (Removal)	+ (Day 0) with CIDR-G insertion	Breeding or Non-Breeding		TAI at 54 hours	50%

Using AI

- AI is not for all producers.
- Need to have a purpose.
- Can be an inexpensive method to improve genetics
- Check with veterinarian on drug use.

For Dulcie it was the perfect Valentine's Day gift.. everything a cow could want without all the rest of the bull.