PREPARING FOR LAMBING:
Considerations for a healthy flock

Melinda Ellison, UI Extension Sheep Specialist

Navajo Sheep Producers Webinar – January 23, 2025

Facebook: www.Facebook.com/UISheep&Goats
YouTube: University of Idaho Extension Livestock

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Normal Physiological Measures

SHEEP

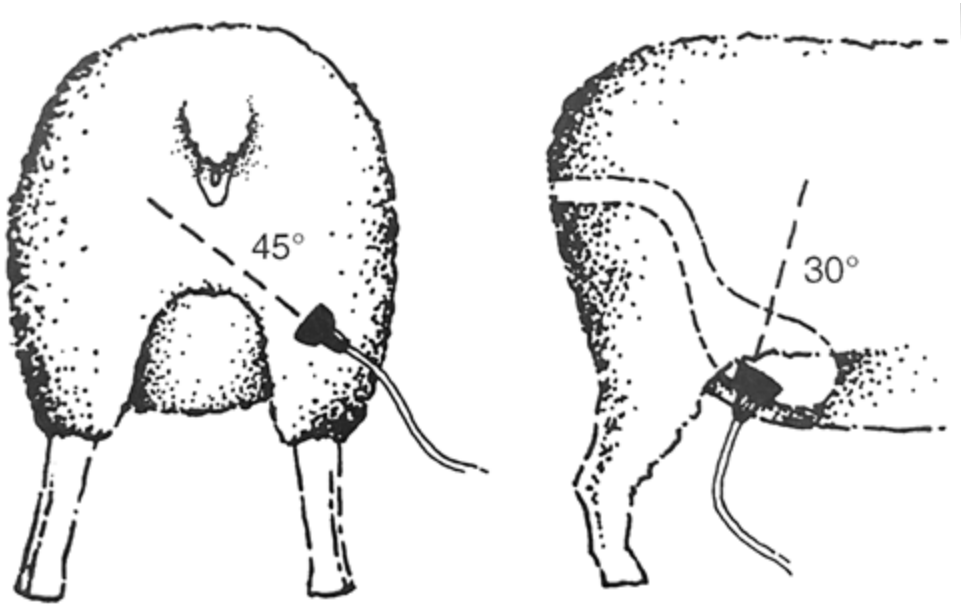
- Rectal Temperature:
  - 102-103ºF adults; 101-104ºF lambs
- Respiratory Rate:
  - 10-20 breaths/minute
- Heart Rate:
  - 70-90 beats/minute
- Fecal production:
  - 6-10 lbs/day adults; ~4 lbs/day feeder lambs
- Behavior – “normal”; reduce stress whenever possible

Photo Credit: Melinda Ellison

Pregnancy checking

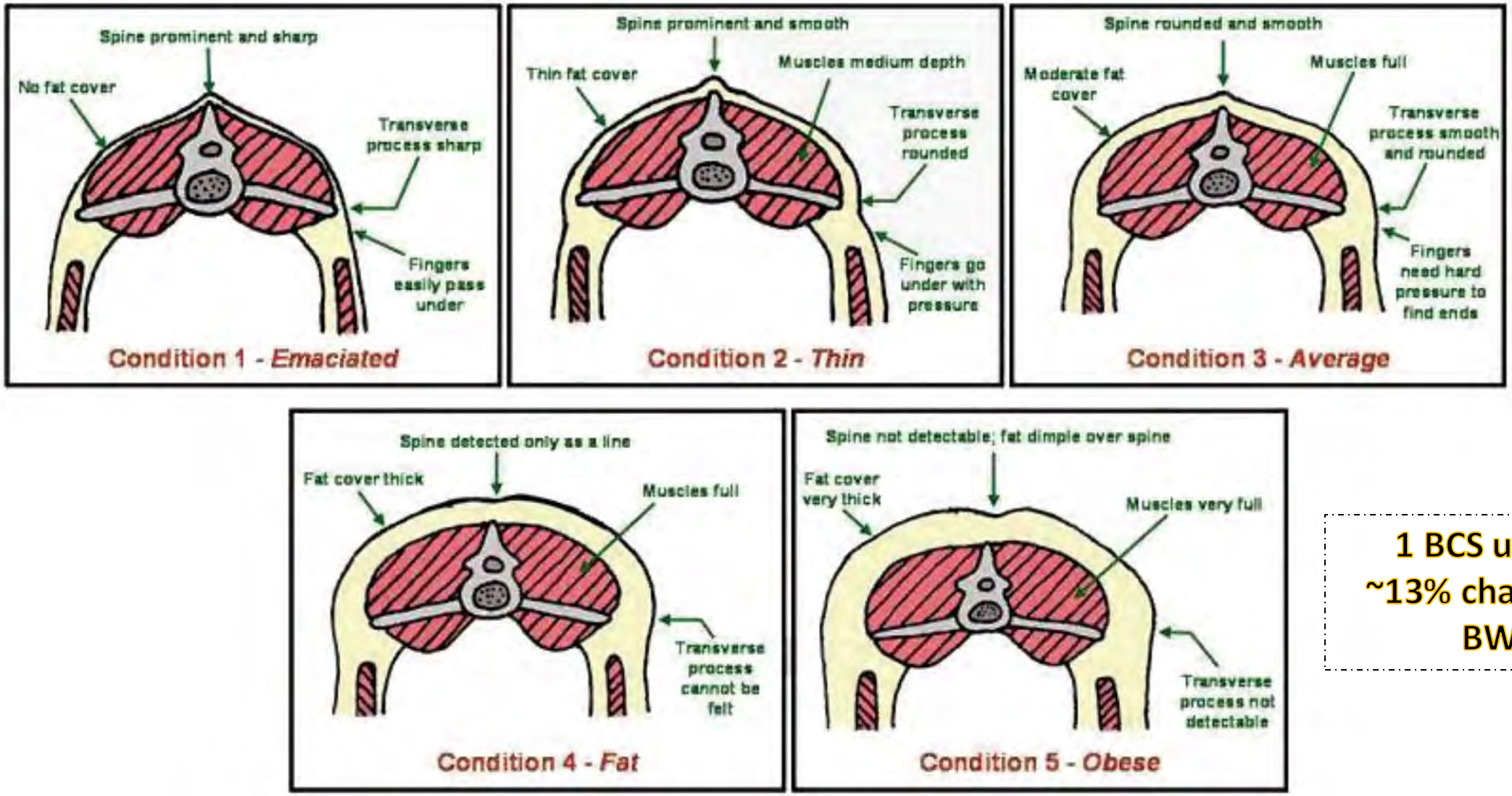
PRE-PARTURITION

- Ultrasonic Scan
  - Transducer
    - 70 - 100 days post-breeding
  - Transrectal Probe
    - 18+ days post-breeding
- Udder Palpation
  - 1-2 weeks
- Blood Progesterone Test
  - <30 days



Sheep Production Handbook, 2002

Body Condition Scores – Sheep/Goats



1 BCS unit =
~13% change in BW

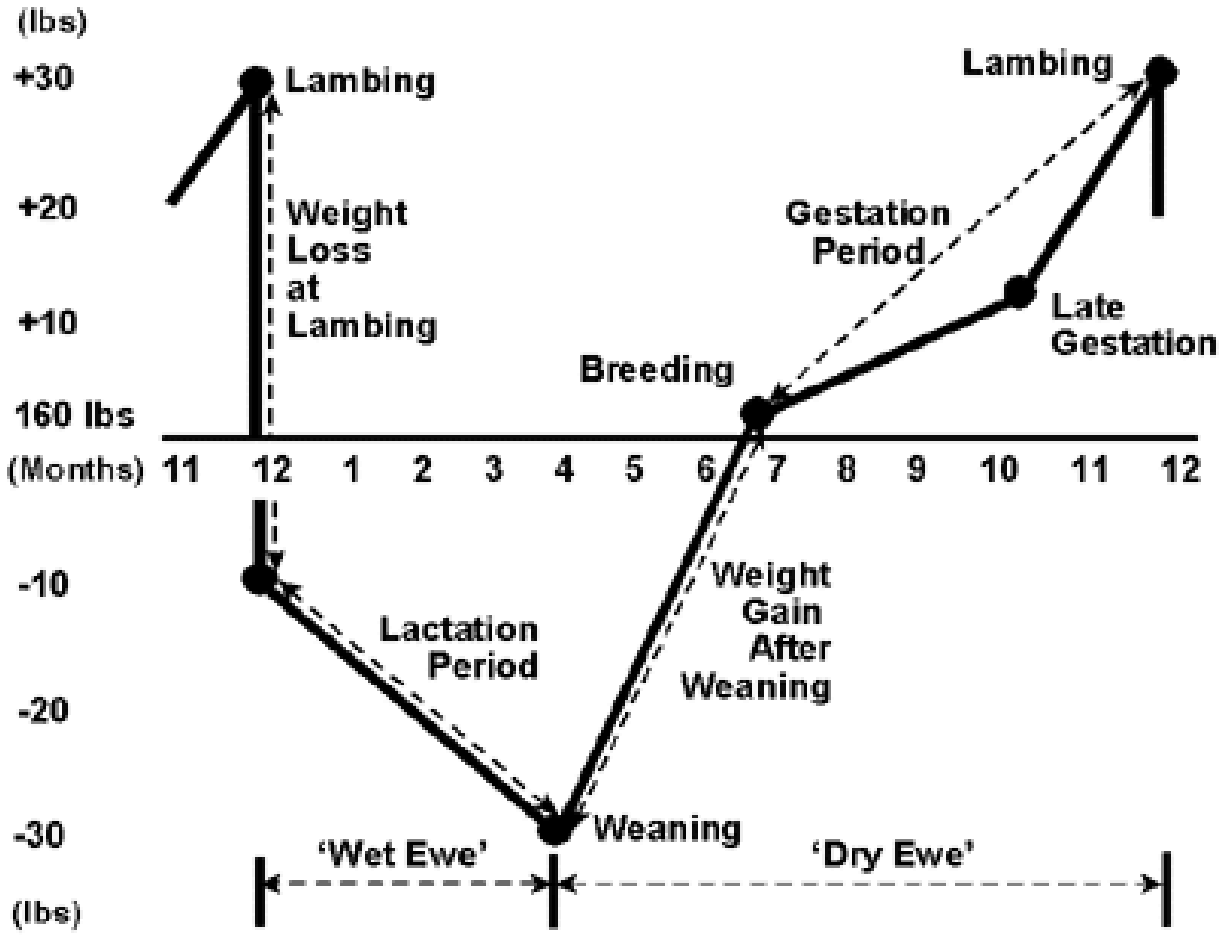
Adapted from "Body Condition Scoring of Sheep" by J.M. Thompson and H. Meyer (Oregon State University).

Body Condition

PRE-PARTURITION

Nutritional rqt's increase during late-gestation and again during lactation

- Breeding → BCS = 3.0 – 3.5
- **Lambing → BCS = 2.5 - 3.0**
- Weaning → BCS = 2 (at minimum)
- Dry period → return to BCS = 3.0 – 3.5
- Risks of thin/fat ewes/does
  - Poor milk production → fetal or lamb/kid growth
  - Pregnancy toxemia (esp. 2+ lambs/kids; 2 ≥ BCS ≥ 4)
  - Low chance of recovery in crucial time periods



http://infovets.com/books/smrm/B/B580.htm

Feeding

PRE-PARTURITION

- Mature sheep and goats will eat 2-3% of their body weight per day, depending on life stage. Ewe lambs will eat 3-3.5% of their body weight per day.

INTAKE (DM) (% of BW)	Maintenance	Breeding	Early-Gestation (single)	Late-Gestation (single)	Early-Lactation (single)	Late-Lactation (single)
160 lb Mature Ewe	2.8 lb *(1.6% BW)*	3.2 lb *(1.8% BW)*	3.5 lb *(2.0% BW)*	4.4 lb *(2.5% BW)*	4.7 lb *(2.7% BW)*	4.0 lb *(2.2% BW)*

Age (Maturity)	**1.0 yr *(87%)***	**0.6 yr *(70%)***	**0.7 yr *(75%)***	**0.95 yr *(85%)***	**1.0 *(85%)***	**1.2 yr *(90%)***
Yearling Ewe Lamb (Mature Target Weight 160 lb)	3.6 lb *(2.8% BW)*	3.4 lb *(3.0% BW)*	3.7 lb *(3.2% BW)*	4.6 lb *(3.5% BW)*	4.5 lb *(3.0% BW)*	5.3 lb *(3.4% BW)*

(Adapted from NRC, 2007)

PRE-PARTURITION

- Fill is limiting factor - use feeds that meet requirements within total intake limits

160 lb Mature Ewe	Late-Gestation (single)	Late-Gestation (twin)	Late-Gestation (3+)	Early-Lactation (single)	Early-Lactation (twin)	Early-Lactation (3+)
Intake (DM) *(% of BW)*	4.4 lb *(2.5% BW)*	4.4 lb *(2.5% BW)*	5.0 lb *(2.8% BW)*	4.7 lb *(2.7% BW)*	4.7 lb *(2.7% BW)*	6.8 lb *(3.9% BW)*
CP	0.[illegible] lb	0.[illegible] lb	0.[illegible] lb	0.[illegible] lb	0.[illegible] lb	1.[illegible] lb
TDN	2.[illegible] lb	2.[illegible] lb	3.[illegible] lb	3.[illegible] lb	4.[illegible] lb	5.[illegible] lb

X X X X X X

Brome Hay:
91% DM
9.7% CP
55% TDN

Feed 5 lbs DM/ head / day
5 lb DM / 0.91 = **5.5 lbs As Fed**
5 lb DM * 0.097 = **0.49 lbs CP**
5 lb DM * 0.55 = **2.75 lb TDN**

Feed 4.4 lbs DM/ head / day
4.4 lb DM / 0.91 = **4.8 lbs As Fed**
4.4 lb DM * 0.097 = **0.43 lbs CP**
4.4 lb DM * 0.55 = **2.42 lb TDN**

****Lambs/kids will begin sampling solid feeds at 2-3 weeks old****

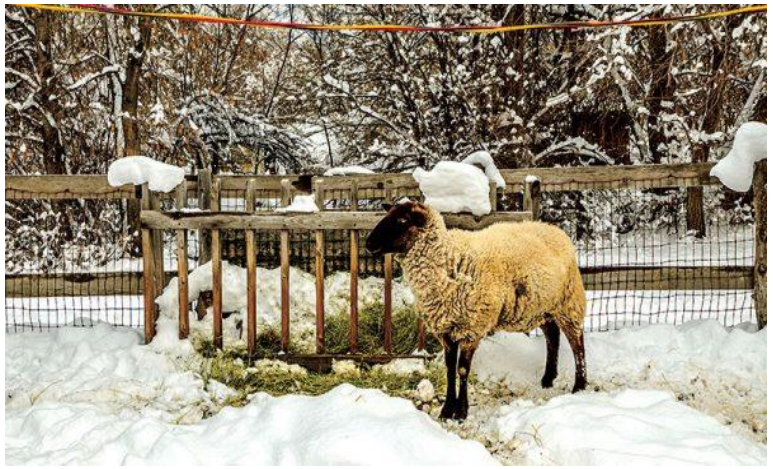
(Adapted from NRC, 2007)

Feeding

PRE-PARTURITION

- **PLACEMENT – LIMIT SPREAD OF DISEASE**
  - Ground – rotate to clean spots (snow vs. mud)
    - Greatest waste & disease/parasite spread potential
  - Feed bunks
    - Decrease exchange of urine/feces in feeds
    - Better evaluation of intake & less waste
- **SPACE – LIMIT UNDER- & OVER-FEEDING**
  - Limit feeding: 12” (sires) / 16-20” (dams) / 9-12” (lambs/kids)
  - Self-feeding: 6” (sires) / 4-8” (dams) / 4-6” (lambs/kids)
- **COLD SPELLS & BAD WEATHER – MAINTAIN BODY HEAT**
  - Increase feed to maintain body heat (especially at night)
  - Provide bedding – but clean/replace it regularly!
- **SEPARATE BY STAGE AND NUMBER OF LAMBS/KIDS**
  - Supplement dams with 2+ lambs/kids
    - Highly digestible energy and protein feeds: Distiller’s grains, oils (vegetable, canola, etc.), corn, soybean meal

https://www.abc.net.au/news/2018-12-16/farmer-feeding-sheep/10619870?nw=0



https://www.hobbyfarms.com/5-tips-for-feeding-livestock-during-winter/

Feeding

PRE-PARTURITION

- WATER IS CRITICAL for milk production
  - Mature sheep & goats: 0.5 – 5 gal/day
    - 0.5 – 1.0 gal milk/d (non-dairy)
  - 25 lb lambs/kids: Up to 0.5 gal/day
  - Provide enough water for max water intake for ALL animals per day – What is your water quality?
  - Warmer (during cold days) and cleaner = better intake
  - Sheep can utilize snow – but monitor snow quality/availability

https://www.shutterstock.com/search/water+trough

https://www.dreamstime.com/stock-photo-little-kid-water-goatling-drinking-pond-image46877901

Vaccinating

PRE-PARTURITION

Photo Credit: Carmen Willmore

- Use regularly and as labeled
  - Proper storage
- Benefits outweigh drawbacks
  - Ensure good body condition to be most effective
- Clostridial diseases and tetanus
  - CD&T, 8 way
- Farm specific vaccination program
  - Identify prevalent diseases on farm and/or in the area
    - Abortion causing infections, footrot, soremouth, rabies, etc.
- Develop management plans to control diseases
  - In the absence of vaccine or alongside vaccine protocol

****Work with your veterinarian!****

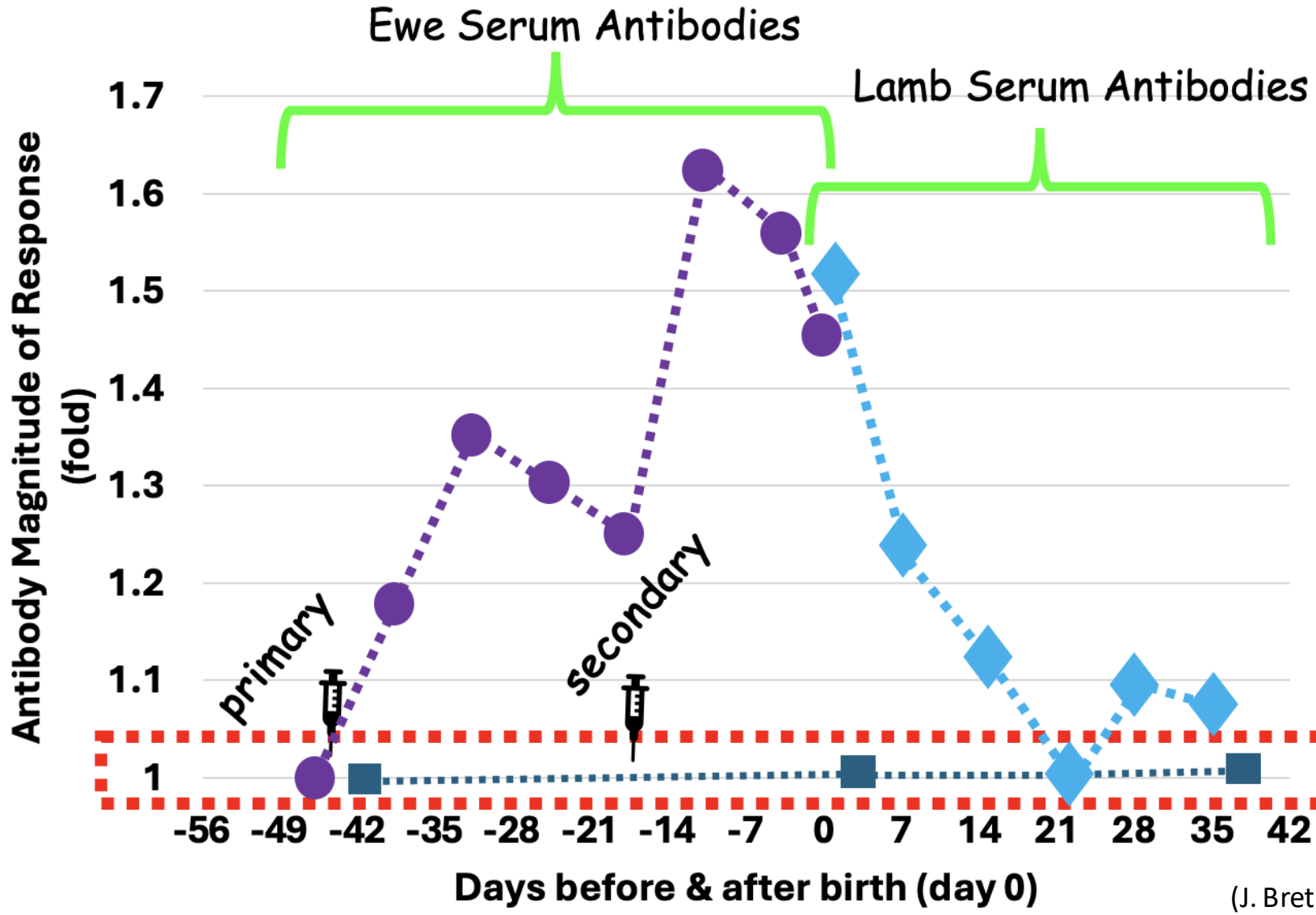
Vaccinating

PRE-PARTURITION

- Why vaccinate?
  - Prevent disease by stimulating the natural immune response
- Passive transfer occurs in colostrum, not in *utero*
  - 2-3 weeks to develop a mature immune system
  - No consumption of colostrum within first 12-24 hrs → likely mortality (>70%)
- Primary, Secondary, Booster

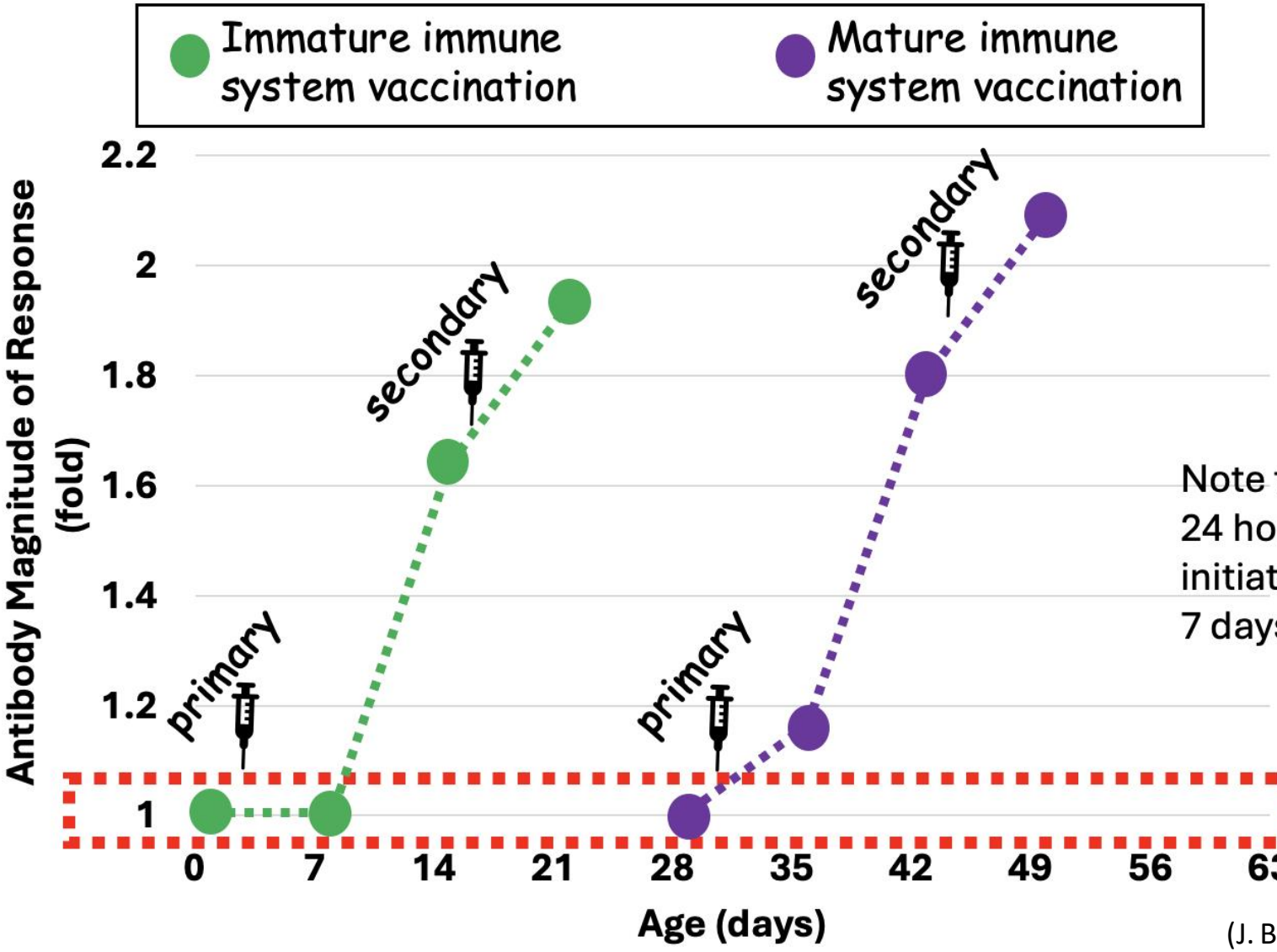
(J. Bret Taylor, US Sheep Experiment Station)

Antibody Response in the Pregnant Ewe and Transfer to the Lamb



(J. Bret Taylor, US Sheep Experiment Station)

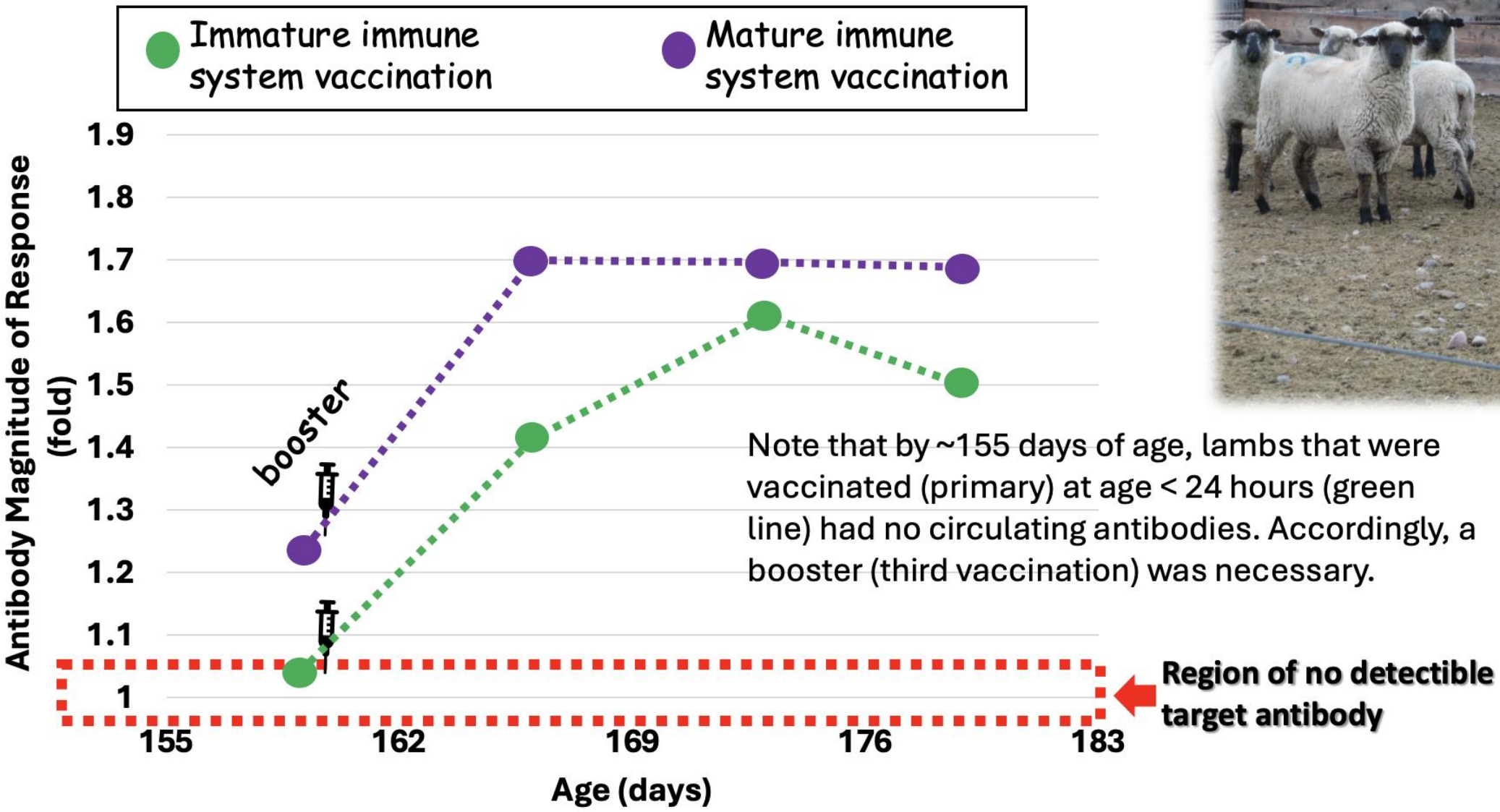
Vaccination Efficacy: Lamb Maturity



Note that vaccination at age < 24 hours (green line) failed to initiate antibody production for 7 days

(J. Bret Taylor, US Sheep Experiment Station)

Vaccination Efficacy: Boosters



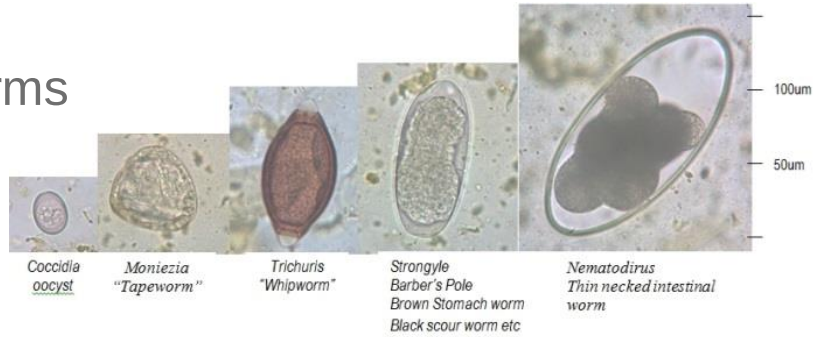
Note that by ~155 days of age, lambs that were vaccinated (primary) at age < 24 hours (green line) had no circulating antibodies. Accordingly, a booster (third vaccination) was necessary.

(J. Bret Taylor, US Sheep Experiment Station)

Internal Parasite Control Program

PRE-PARTURITION

- Farm/Area specific, strategic timing based on type of parasite
- Fecal testing – what is the actual parasite load? What is the parasite(s)?
  - Test before and after deworming for effectiveness
  - Anthelmintics need to be effective against at least 90% of worms
- Parasite resistance – increasing incidence to 100%
  - FAMACHA score, poor condition
  - Deworm 75% of flock – dose for heaviest animal in group
- Regular effectiveness checks: Is the anthelmintic working?
- Grazing management: Leave 4”, rest 4-6 wks; co-species grazing
- Select resistant animals for breeding stock



https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0006/749292/DIY-worm-egg-counts-livestock-incl-poultry.pdf

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Internal Parasite Control Program

PRE-PARTURITION

Dewormer Trade Name	Safe During Pregnancy	Milk Withdrawal
Valbazen	Do not use in first trimester	7 days
Safe-Guard	Yes	4 days (Add 1 day for each additional day the drug is used)
Ivomec Sheep Drench	Yes	9 days
Prohibit (Levasol and Tramsiol)	Yes	3 days
Cydectin Sheep Drench	Yes	8 days
Morantel tartrate (Rumatel)	Yes	0 days

External Parasite Control

PRE-PARTURITION

- Lice
  - Chewing or sucking
  - Dull/matted coat, itching, excessive grooming, hair loss, lesions, listlessness, weight loss, reduced milk production, anemia
  - Severity dependent upon seasonality & animal condition
    - Winter & stress
  - Prevention:
    - High energy feed
    - Anthelmintics: 2 treatments at 10-14 day intervals required to kill eggs
    - Quarantine and treat replacement animals 2x before introducing to the herd

https://www.agric.wa.gov.au/livestock-parasites/sheep-lice-spread-and-detection

Other external parasites*:

- Keds
- Ticks
- Mites - mange
- Flies - fly strike
- Fleas

*can lead to secondary infections

Shearing

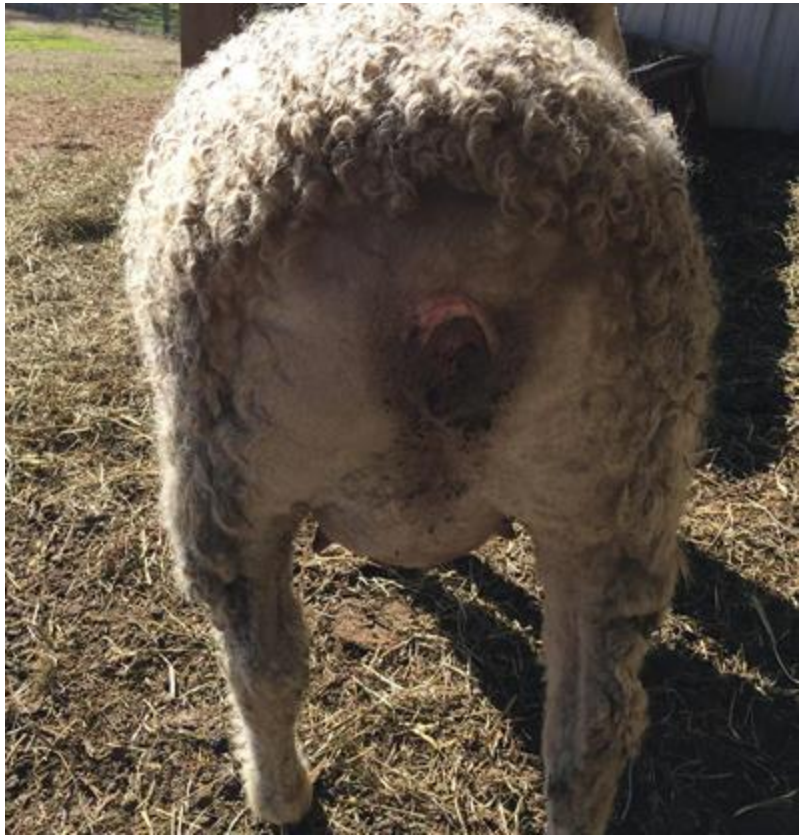
PRE-PARTURITION

- Full Shearing 30-45 days prior to lambing
- Pros:
  - Cleaner/dryer birthing environment
  - Ewes inclined to seek shelter
  - Easier access for nursing
  - Better wool
- Cons:
  - Cold Stress
  - Greater feed input / shelter needs

Shearing

PRE-PARTURITION

- Crutching - Removal of wool from around udder and vulva
- Pros:
  - Decreased cold stress
  - Lower feed inputs
  - Easier access for nursing
- Cons:
  - Lower quality wool



https://www.flickr.com/photos/baalands/25657467357

Photo Credit: Carmen Willmore

Shed lambing & kidding

BIRTHING STALLS/JUGS

Photo Credit: Melinda Ellison

Shed lambing & kidding

BIRTHING STALLS/JUGS

USSES - Photo Credit: J. Bret Taylor

Photo Credit: Carmen Willmore

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Late-term complications

PRE-PARTURITION

- Late-term abortions
- *Q-fever*
- *Chlamydiosis**
- *Campylobacteriosis**
- *Toxoplasmosis*
- *Salmonellosis*
- *Listeriosis**
- *Leptospirosis**

- **Zoonotic!!**
- Vaccine available*
- Diagnostics::
  - Vaginal Swab
  - Blood Sample
  - Placenta
  - Aborted Fetus

Photo Credit: Melinda Ellison

Lambing & Kidding

Signs of Labor

Week(s)

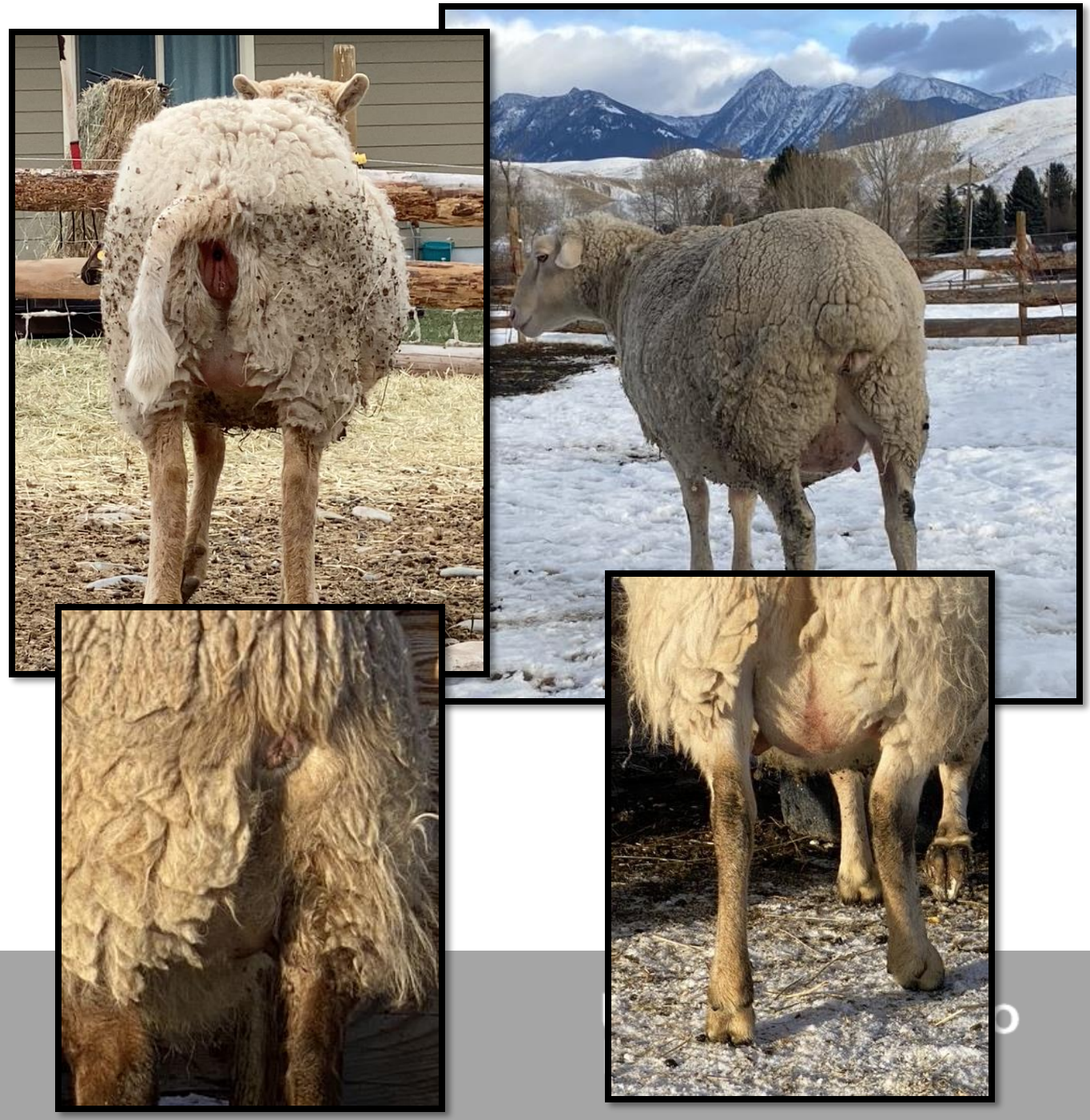
- Signs of milk production (1-3 weeks prior)
  - Udder & teats often become very tight in last day

Day(s)

- Relaxed / swollen vulva
- Discharge - may be clear/slightly bloody
- Lamb(s) / kid(s) ”drop”
- Change in eating behavior (sometimes)
- Nesting / Mothering / Defensive behavior

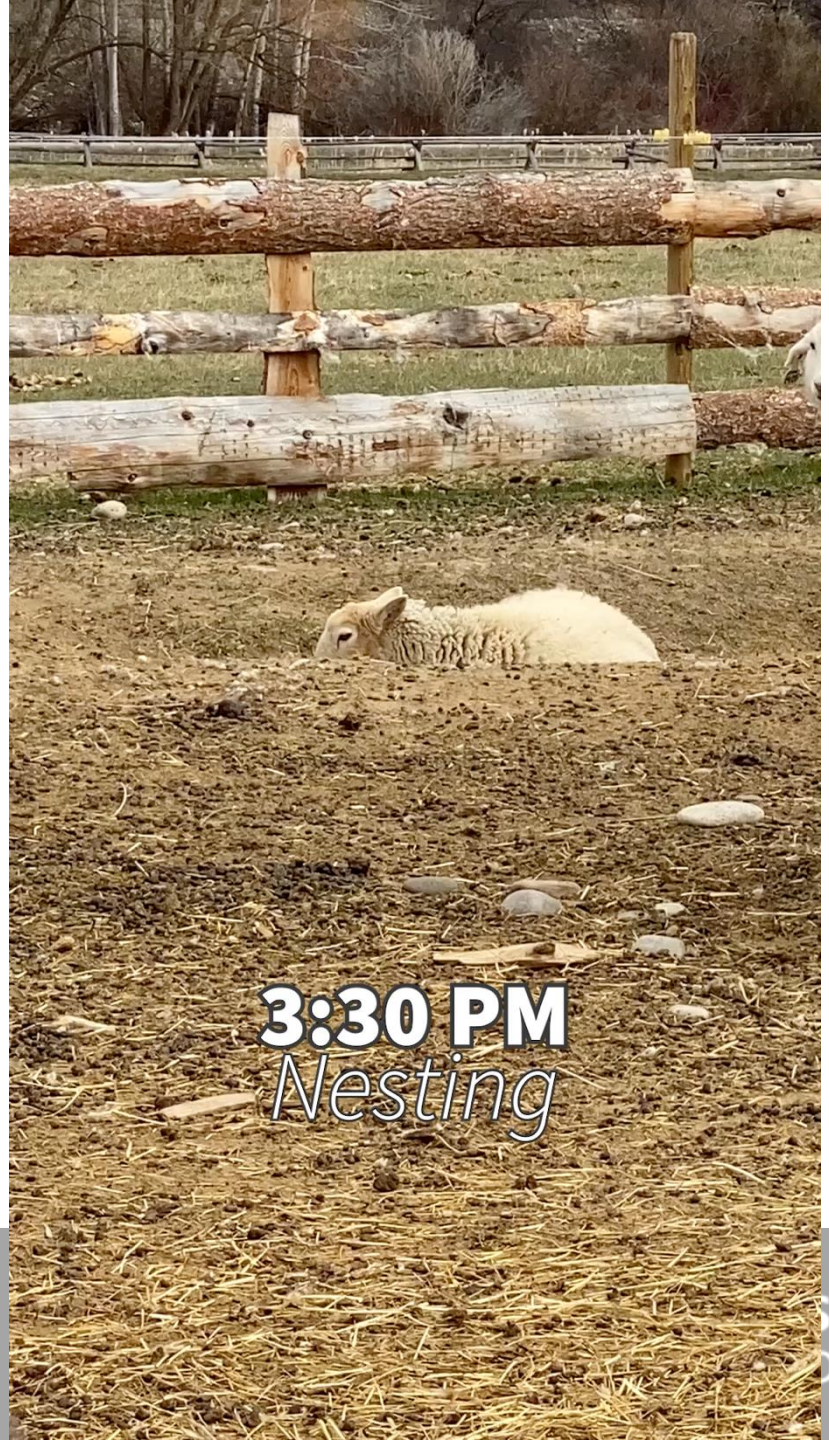
Hour(s)

- Discomfort / Raised tail / Pawing
- Increased respiratory rate
- Increased vocal and posting
- Water bag appears



Normal Labor & Parturition

- Movement, nesting, up & down
- Water bag → Lamb/kid born = ~0.5 – 1 hour
  - First time ewes may take a little longer



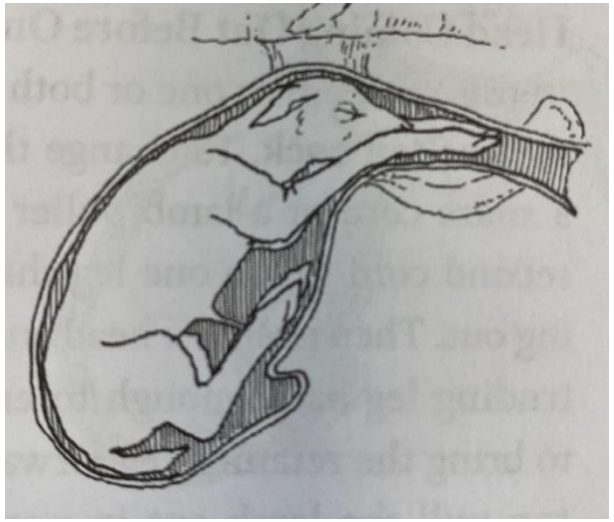
Lambing & Kidding

Normal Labor & Parturition

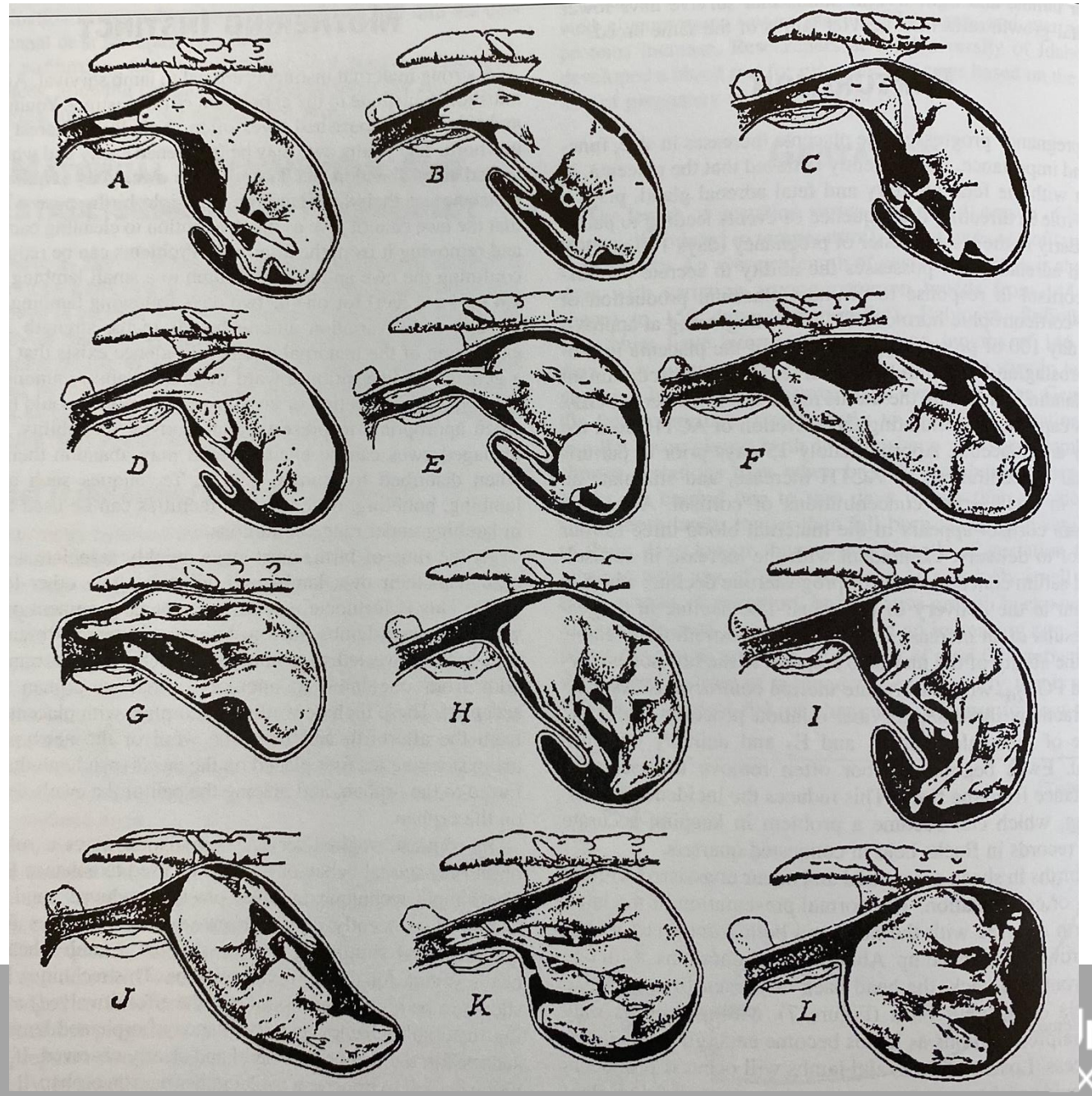
- Movement, nesting, up & down
- Water bag → Lamb/kid born = ~0.5 – 1 hour
  - First time ewes may take a little longer
- Between lambs/kids = 20 – 30 minutes
- Up & Nursing = 30 minutes - 1 hour
  - Intervention in cold weather may need to happen earlier

Lambing & Kidding

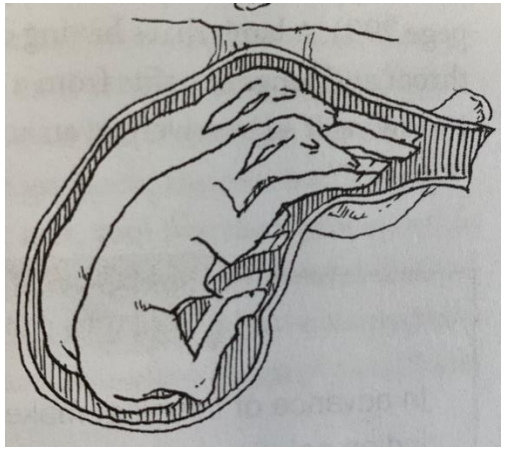
Presentation Possibilities

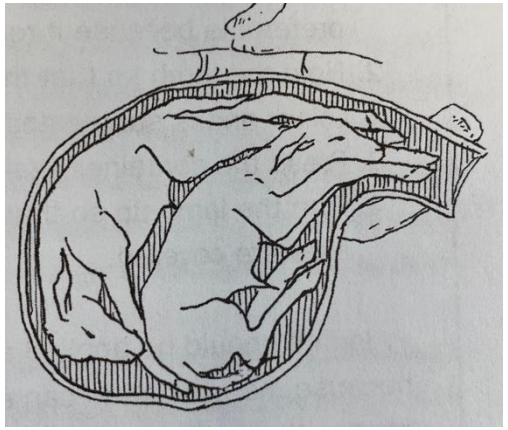


"Normal"



American Sheep Association, Inc. 2002. "Sheep Produciton Handbook, Volume 7.





Simmons, P. & C. Ekarius. 2009. "Storey's Guide to Raising Sheep"

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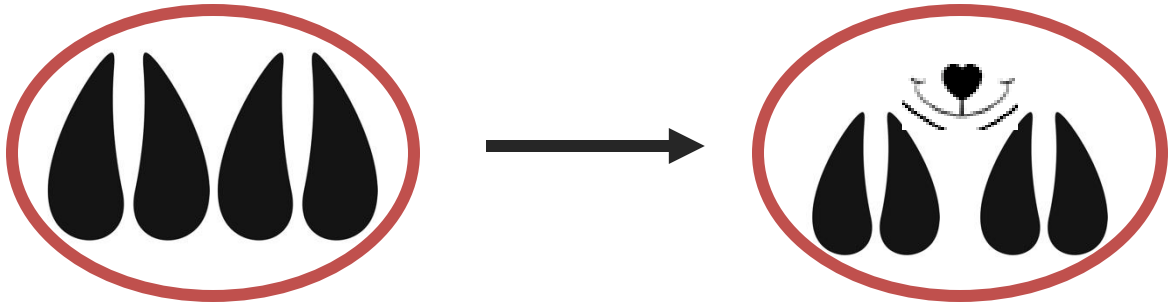
Assisting

- When to Assist:
  - Strain with no progress
    - Obvious labor for a couple hours with no change
    - Ewe/doe becomes tired and weak
  - One foot & nose showing – other foot missing
  - 2 right/left feet showing or more than 2 feet
    - twins coming simultaneously



"Normal"

"Backward"

Assisting

- Catch ewe/doe
- Wash hands and ewe/doe
- Glove up, apply lube
- Insert carefully, assess position of first lamb/kid
- When pulling, apply pressure downward
- Careful positioning of lamb/kid's head
- Assist with all lambs/kids – if she needed help with the first, she's likely too tired to finish
- Clear airways
- Allow dam to clean and nurse lambs on her own before assisting

https://www.premier1supplies.com

Nursing

- Allow lambs/kids to search until you observe slowing effort
- Assisting nursing:
  - Catch dam, strip teat – may still have wax plug
  - Guide lamb/kid to teat, if not successful, insert teat into mouth of lamb/kid
- Colostrum – necessary in first 12 hours
- Lambs/Kids that are weak and/or cold:
  - Inside of mouth should be warm
  - Should attempt to suckle a finger
  - Take a rectal temp:
    - <99.5ºF need to warm immediately

Lambs & Kids Physiological Measures:

Rectal Temperature: 101-104ºF

Hypothermic < 99.5ºF

Respiratory Rate: 10-30 breaths/minute

Heart Rate: 70-90 beats/minute

Lamb & Kid Support

Warming Up

Photo Credit: Carmen Willmore

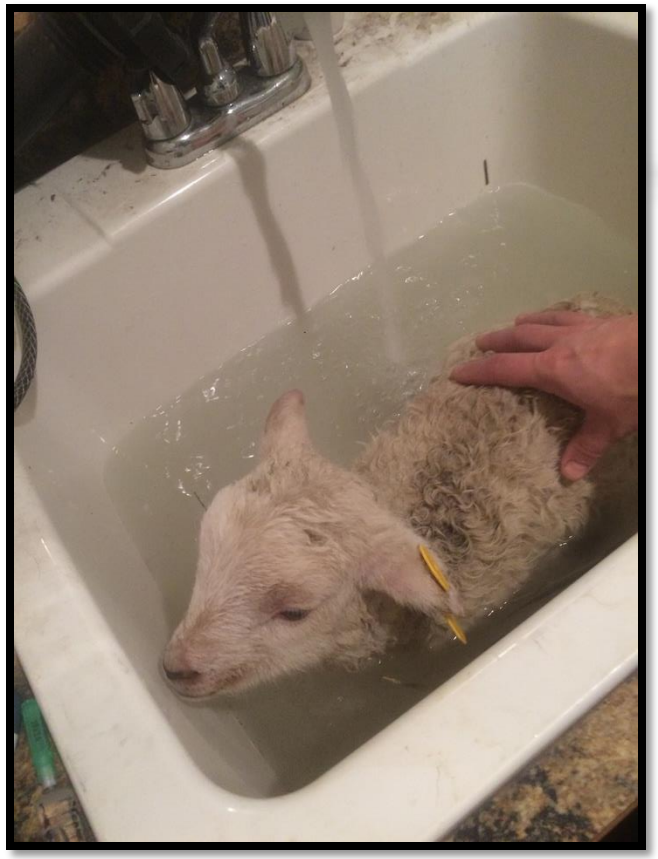


Photo Credit: Melinda Ellison

http://www.instituteofhomescience.com/how-to-get-your-towels-clean-fresh/

https://www.pinterest.com/pin/91760911131971118/

https://www.amazon.com

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Lamb & Kid Support

First 12 Hours

- Colostrum
  - Feed at body temp: cooler better than too hot!
  - Feed 20 cc per lb of body weight
  - Feed every 2 hours – careful not to overfeed at each feeding
- Provide probiotics, energy drench, vit B
- Watch for starvation / scours
  - Make sure they are getting (enough) milk
  - Weigh each day, watch for full bellies

Lamb & Kid Support

Colostrum Replacer vs. Supplement

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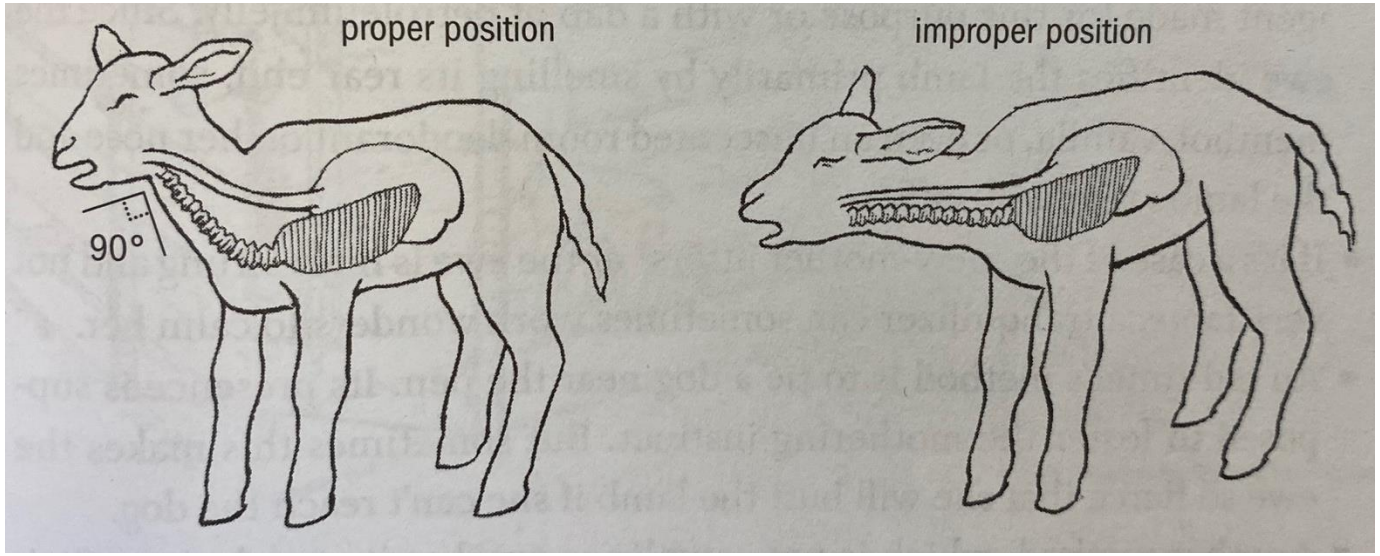
Milk Replacer – Nutrient Content

Nutrient	Sheep	Goat	Cow
Fat (%)	5.9 – 11.6	3.1 – 5.2	2.5 – 3.8
Calcium (mg/dL)	182[a]	130[b]	120[b]
Magnesium (mg/dL)	13[ab]	17[a]	13[b]
Potassium (mg/dL)	179[a]	184[a]	148[a]
Sodium (mg/dL)	52[a]	36[b]	49[a]

[a,b] Statistically different
(Adapted from Gardner and Hogue, 1966; Pietrzak-Fiecko and Kamelska-Sadowska, 2020)

Tubing

- 60 cc syringe & esophageal tube
  - Warm & sterile, wet
- Insert slowly over the tongue
  - Allow time to swallow
  - Should feel it as it goes down, would not be able to feel if inserted into trachea
  - Cannot insert too far → 11-12 inches
- Check placement with wet finger or blowing test
- Slowly squeeze milk, careful removal



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LAMBS/KIDS

- **CREEP FEED LAMBS/KIDS: 15-20% CP AND 2.5-5% FAT**
  - Provide starting at birth, away from dams (creep pen with 7.5 – 9” gaps)
  - All lambs/kids, but especially those with a disadvantage or early weaning scenario

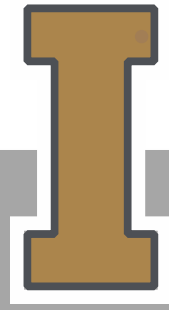
Treatment Protocol

BIOSECURITY

- Identify antibiotics to keep on hand
- Understand appropriateness & read labels
- Ensure injections make it into the animal & that they receive full recommended regiment
- Have all equipment that you may need on hand:
  - Disinfectants/antimicrobial scrubs, gauze or cotton
  - Syringes, needles, latex gloves
  - Bandaging materials, suture, surgical tools
- Treat in strategic order:

Lambs first, then flock, then sick pen…don't spread disease to your healthy animals!

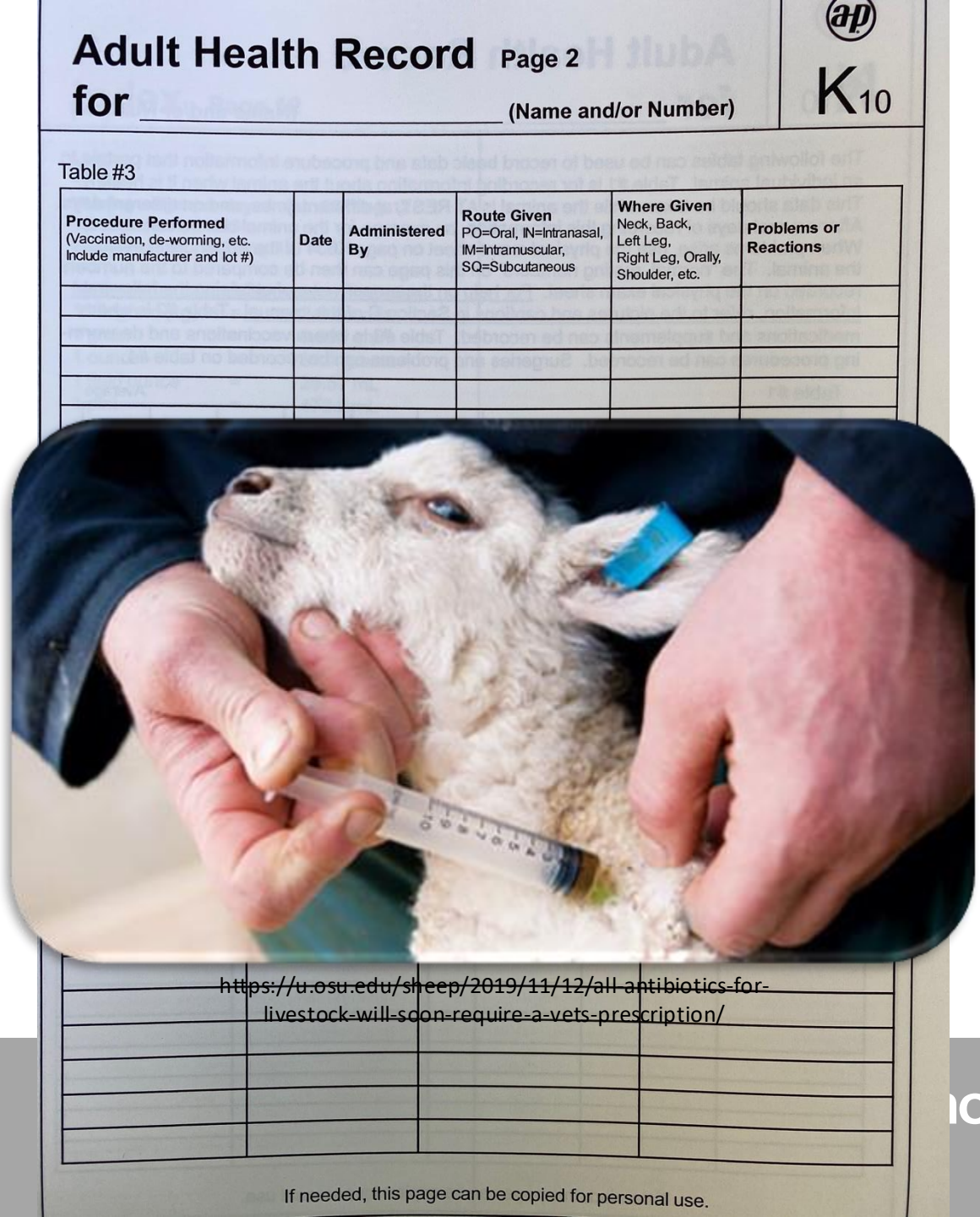
****Work with your veterinarian!****



Importance of keeping records

BIOSECURITY

- Withdrawal periods – vaccines/anthelmintics/treatments
- Disease testing & necropsy records
- Treatment records
- Records of source flock
- Animal death, causes, tests
- Fetal Losses
- Reproductive performance
- Nutrition program



https://u.osu.edu/sheep/2019/11/12/all-antibiotics-for-livestock-will-soon-require-a-vets-prescription/

Disinfection & Sterilization

BIOSECURITY

- Wash & Disinfect Equipment: shears, hoof trimmers, pullers, chains, esophageal tubes, boots, etc.
  - Before and after use: Chlorhexidine, betadine, bleach
- Wash coveralls, gloves, etc. regularly, especially after handling sick
- Sterilize surgical tools, Use Latex Gloves
- Muck stalls, apply clean bedding between animals
- Scrub fence panels and trailers, especially after new arrivals & sick

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Importance of nutrition in

DISEASE CONTROL

- MOST disease is related to nutrition
  - Caused or influenced
  - ex. White Muscle Disease, Sheath Rot, Ketosis, Copper toxicity, Urinary Calculi
- Work with a nutritionist (or your Extension Specialist) to develop balanced ration for your animals
  - These change by season, location, life-stage, etc.
  - Be prepared to change things
- Healthy animals with strong immune systems fight disease better & more quickly!
  - Poor health animals are more susceptible to disease, less likely to survive, and have greater risk of secondary infection

Photo Credit: Melinda Ellison

http://www.sheep101.info/201/feedingewes.html

Stress

DISEASE CONTROL

- Minimize stress where possible
  - Vaccinate prior to stressful events: parturition, weaning
  - Low stress handling
- Provide best husbandry techniques possible:
  - Air
  - Water
  - Feed
  - Housing
    - Physical and social

- **QUALITY** – free of dust, mold, chemicals, disease, & parasites, palatable, adequate nutrients
- **QUANTITY** – adequate availability
- **PROTECTION** – weather, exposure to disease, predators & nuisances (insects)
- **MINIMIZE STRESS** – space per animal (social interactions, exercise), minimize disturbances

Visitors & visiting

DISEASE CONTROL

- Use alternate boots when visiting other livestock operations – & scrub them!
  - You don't want to track something they have home to your sheep
- Other people, vehicles, etc. can bring disease to your operation
  - Develop a visitor's protocol ahead of time
- Wearing on-farm boots to the feed store

https://www.123rf.com/photo_69536701_dirty-rubber-boots-in-farm-.html

Thank You!

Questions?

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