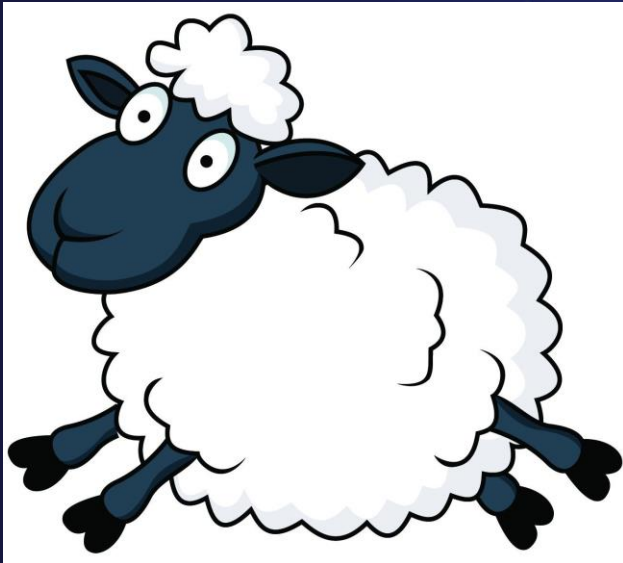




BRITISH
COLUMBIA



So you're thinking of getting sheep or goats...



Glenna McGregor, DVM, MSc, Dipl. ACVP
Veterinary Pathologist
Animal Health Centre
BC Ministry of Agriculture
604-556-3003
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The Animal Health Centre

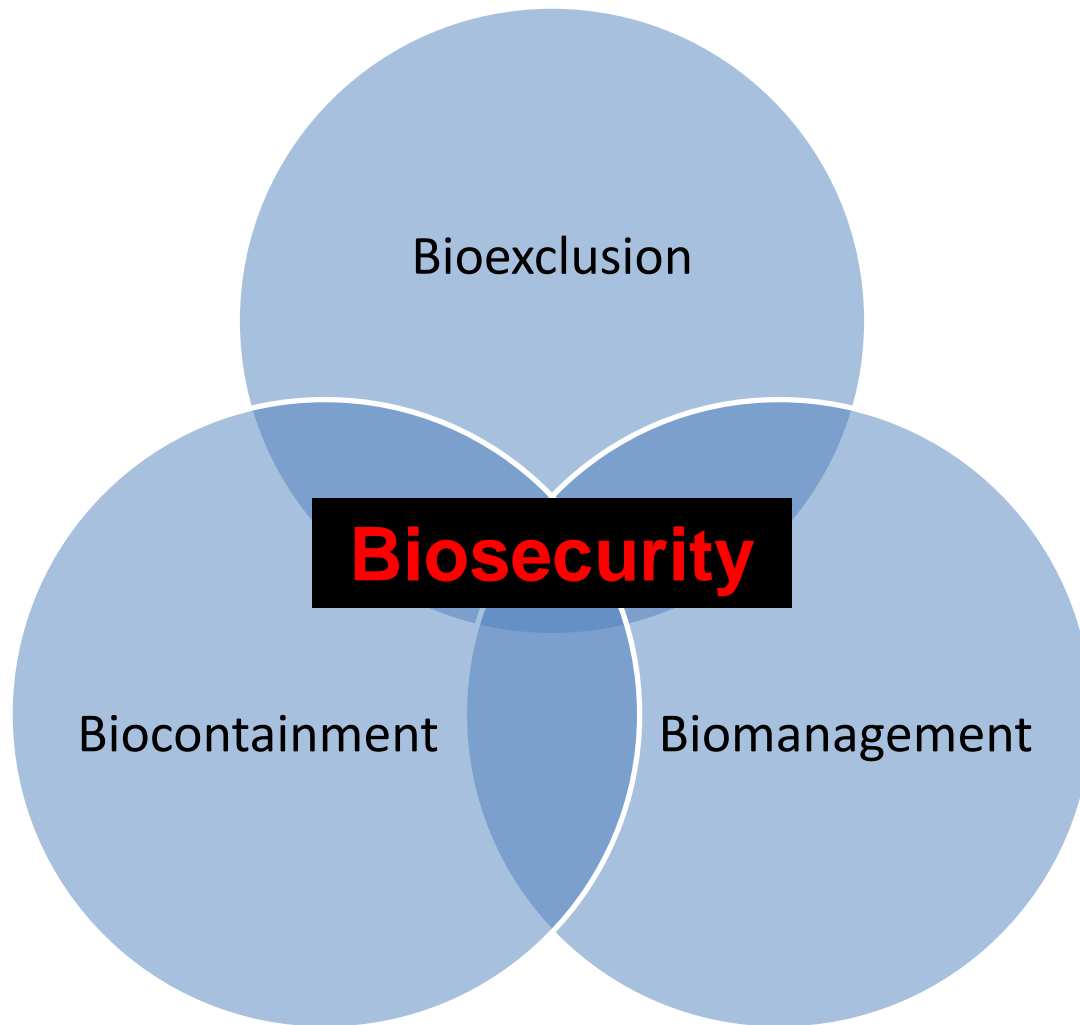


Biosecurity

BIOSECURITY
IS IN OUR HANDS



- Procedures intended to protect humans or animals against disease or harmful biological agents



Be Careful What You Buy...





What can you do to minimize risk of new arrivals?

- Buy from trusted sources
- Quarantine – how long?
 - Minimum of 4 weeks suggested
- Test?
 - Gastrointestinal parasites
 - Johne's disease
 - CAE (goats)
 - Caseous Lymphadenitis (CL)

Johne's Disease

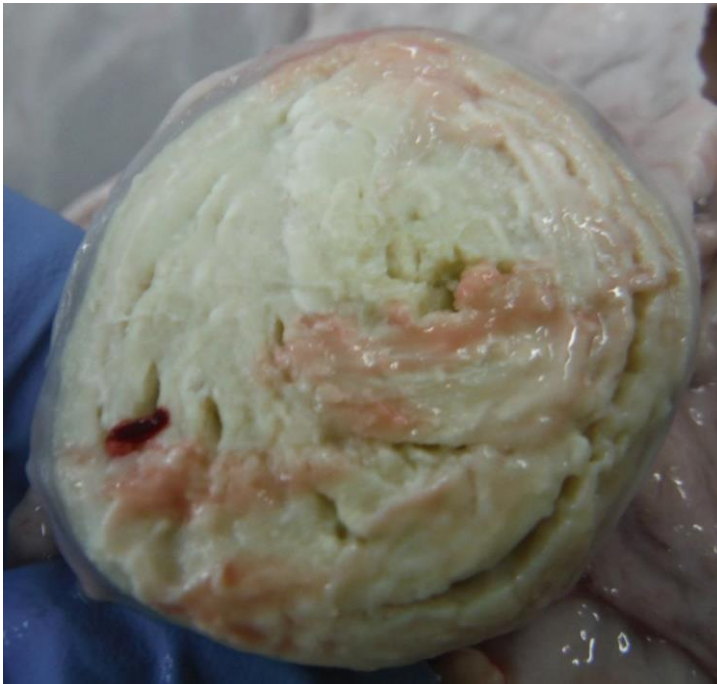




Johne's Disease

- *Mycobacterium avium paratuberculosis*
- Serologic (blood) test available - \$10/sample
- Fecal PCR available - \$35/sample, but can pool
 - False negatives common with both tests

Caseous Lymphadenitis





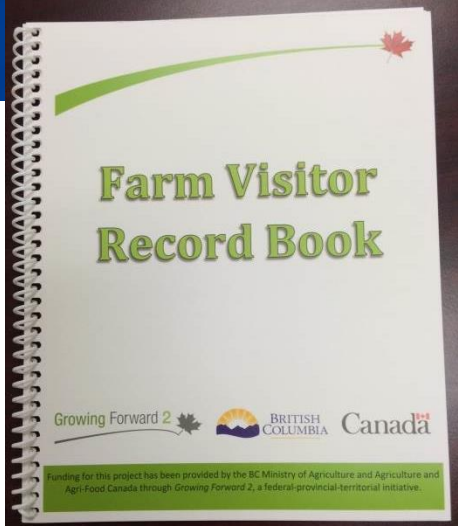
Caseous Lymphadenitis (CL)

- Caused by the bacterium *Corynebacterium pseudotuberculosis*
 - Long incubation period (usually 2-6 months, sometimes years)
 - Can survive in the environment for more than 1 year, resistant to many disinfectants
 - Highly contagious, shearing is the main mode of transfer
 - Lambs/kids infected through drinking contaminated milk
 - COMMON in BC
 - >23% of total carcass condemnations at slaughter



- What are some things you can do to minimize disease spread on your farm?

Ministry of Agriculture





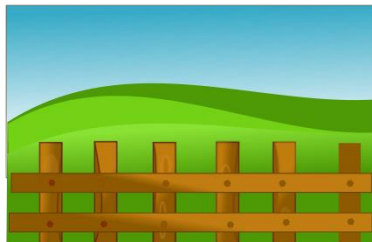
Traceability?

- The ability to track the path and history of an animal from its source to the consumer

Individual Animal
Identification

Unique Premise
Identification

Tracking Animal
Movement



RFID Tag

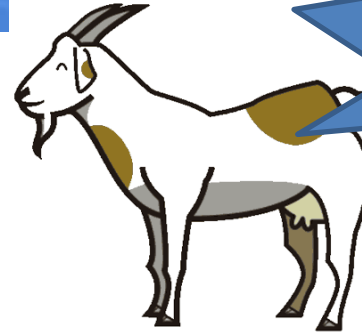


RFID tag **MANDATORY**

\$1.95 + \$0.25 CSF check-off

Canadian Cooperative Wool Growers

www.wool.ca



Goat
regulations
expected
soon!

• Shearwell ASet tag – available as either radio frequency identification (RFID), full duplex (FDX) or visual (non-RFID). This tag has been approved for application to the ear or the tail web of goats.



• Aliflex OS Combi tag – available as an RFID (FDX) tag, approved for application to the ear.



• Datamars ARaymond leg band – available as either RFID, half duplex (HDX) or visual.



Ear or tail or leg

Canadian Cattle Identification Agency

<http://www.canadaid.com/>

How to Tag



Video 1: Why Tag?

Video 5: How to Restrain Animals



Video 2: When to Tag

Video 6: Where to Place the Tag



Video 3: Tagging Systems

Video 7: Tagging with Shearwell



Video 4: Hygiene

Video 8: Tagging with Allflex



Tagging Video Series

Click on any video to view it. Each video is between 1 and 2 minutes in length. We recommend that you view all videos in the right order the first time you view them.



Video 1: Tagging Systems



Video 2: Tagging Hygiene



Video 3: Restraining Animals



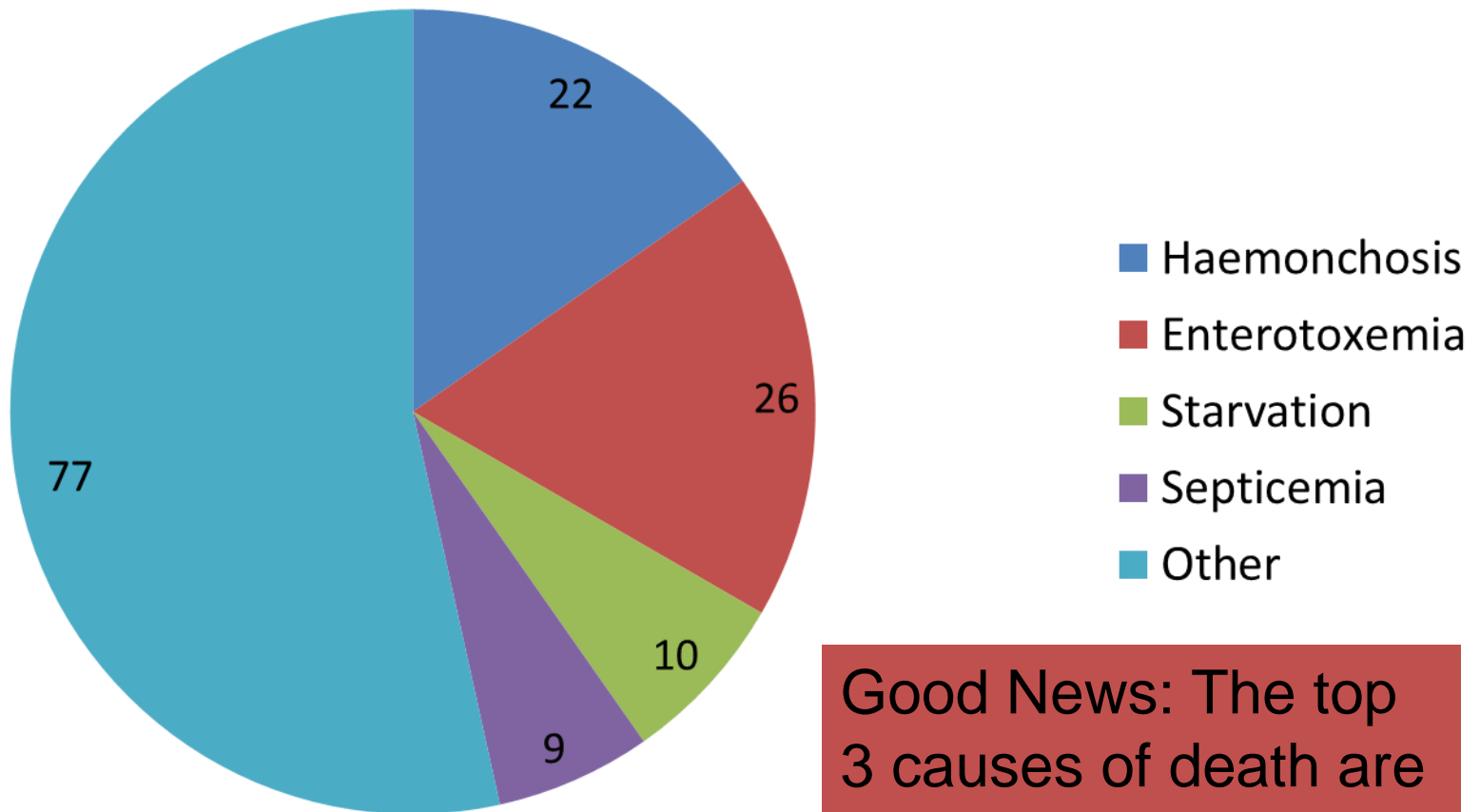
Video 4: Where to Place Ear Tags



Video 5: Where to Place Tail Tags



Top Causes of Death



Good News: The top 3 causes of death are preventable!



Enterotoxemia

(pulpy kidney disease/overeating disease)





Vaccination

- Needs to protect from *Clostridium perfringens* C and D, ideally also tetanus
- May use a multivalent vaccine (includes several *Clostridium* spp.)
- Follow label directions – 1st vaccine around 8-12 weeks, booster 4 weeks later
- Vaccinate dams yearly, usually 3-4 weeks before giving birth

Clostri Shield® 7 (Elanco (Novartis))	+ Glanvac6 (Zoetis)
UltraChoice® 7 (Zoetis)	
Vision® 7 with Spur® (Merck Animal Health)	
UltraChoice® 8 (Zoetis)	
Vision® 8 with Spur® (Merck Animal Health)	
Tasvax® 8 (Merck Animal Health)	
Clostridium Perfringens Types C & D Antitoxin, Equine Origin (Colorado Serum)	
Caseous D-T (Colorado Serum)	

Gastrointestinal Worms





Haemonchosis



Diagnosing Gastrointestinal Parasitism

- Fecal Egg counts
- Diarrhea (Dag score)
- Anemia (FAMCHA scoring)
- Decreased weight gain
- Necropsy

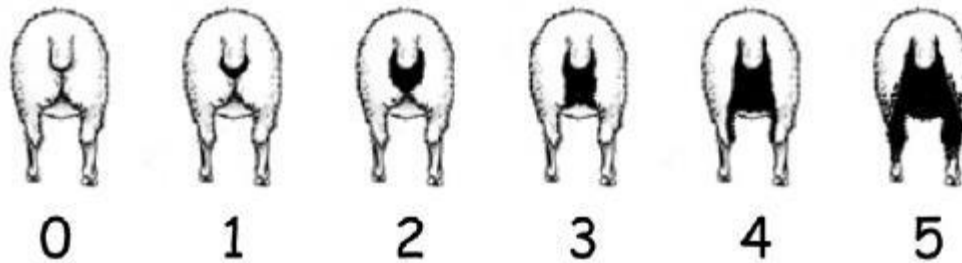




Fecal Egg counts

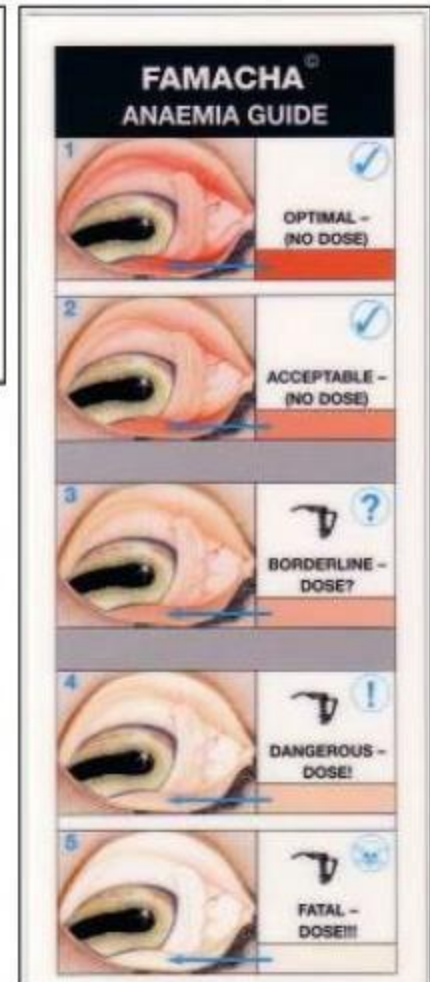
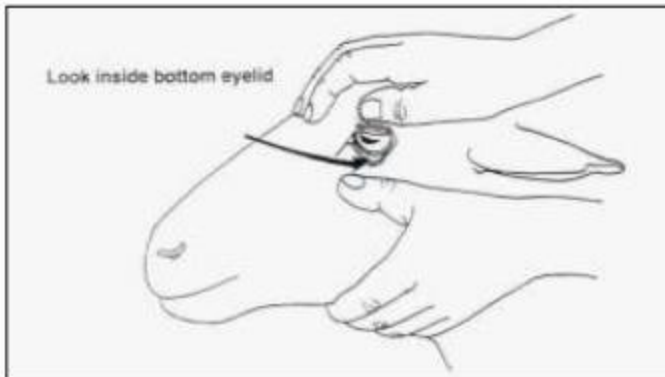
- Sheep grazing pasture that are representative of the group – ideally 10 lambs and 10 ewes (8-10 pellets each)
 - Pool or run individually
- Refrigerate
 - Analyse within 7 days
- Quantitative method (eg. McMaster)

Diarrhea



- Dag Score
- Influenced by diet (lush grass = loose feces)
- Other causes of diarrhea

Anemia



Clinical Category	Eye Lid Color	Packed Cell Volume/PCV	Treatment recommendation
1	Red	≥ 28	No
2	Red-Pink	23-27	No
3	Pink	18-22	?
4	Pink-White	13-17	Yes
5	White	≤ 12	Yes



Times to Monitor

(and possibly treat)

- Ewes 1 month prior to lambing/kidding
 - Reduce periparturient egg rise (=most important source of pasture contamination for lambs)
- Lambs at mid-summer
 - Repeat monitoring at least every 4 weeks
- 2 weeks after treatment
- Breeding animals in fall (if affected)
- New introductions
- Thin sheep, poor growth rates, scours

Deworming products



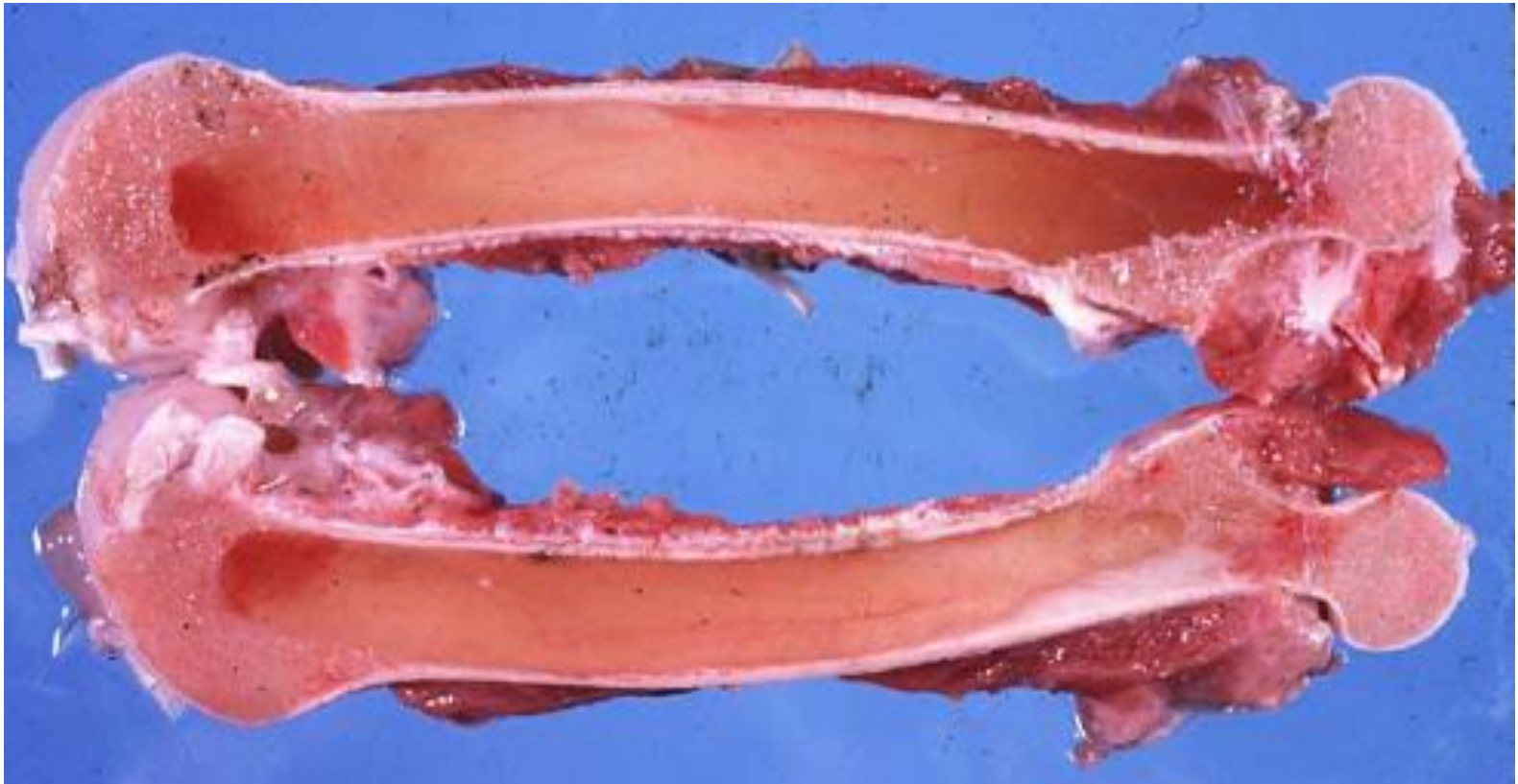


Dewormer resistance

- COMMON
 - In Ontario resistance to ivermectin and fenbendazole was demonstrated on 97% (28/29), and 95% (19/20) of the farms tested, respectively
- Recheck a fecal egg count 2 weeks after deworming
- Management to control parasites is key.

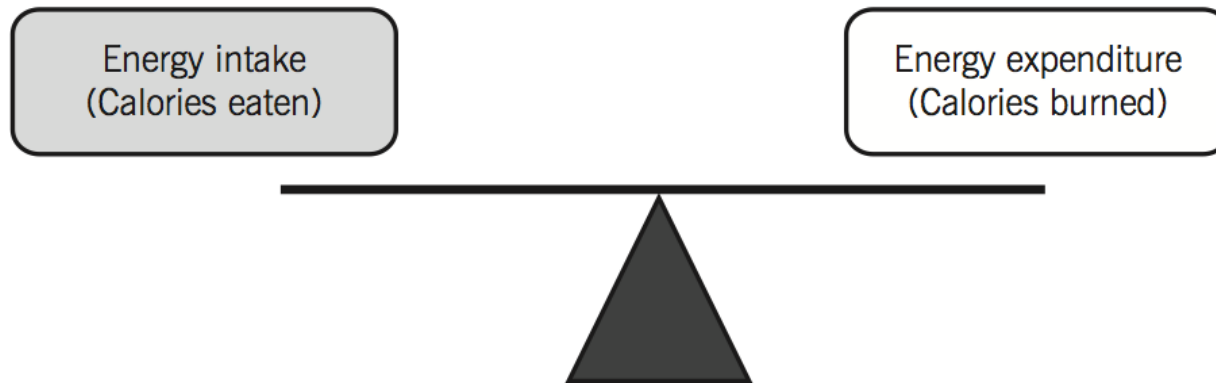
*Considered resistant if dewormer does not reduce fecal egg count by more than 95%

Diagnosis: Starvation



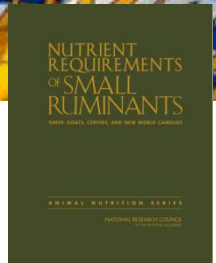


Causes of Starvation



- Inadequate Feed Quantity
- Poor Feed Quality
- Restricted access to feed
 - Inadequate bunk space
 - Dominant animals
- Disease (malabsorption, tooth problems)
- Cold weather
- Disease
- Parasites

How much to feed?



UNEDairyGoat-LE [Read-Only] [Compatibility Mode]

File Home Insert Page Layout Formulas Data Review View Add-Ins Acrobat

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A1

MARYLAND DAIRY GOAT RATION EVALUATOR

HOW TO USE THE DAIRY GOAT RATION EVALUATOR:

by Susan Schoenian

- Fill out the feed inventory with the feedstuffs you plan to feed your goats. Replace the feeds listed with your own feeds and values. You can't balance rations without weighing feed and weighing goats.
- Go to the Nutrient Requirements worksheets (YELLOW TABS) and find the class of goat you want to evaluate a ration for. The nutrient requirements in the tables are from the National Research Council's Nutrient Requirements of Small Ruminants, published in 2007.
- Copy the goat's TDN, CP, Ca, and P requirements to the Windows clipboard. Nutrient requirements are in the BRIGHT YELLOW cells. To copy, highlight the cells you want to copy with the mouse, then hold down the CTRL key and press the C key (or right click the mouse and click COPY).
- Go to the Worksheet (RED TAB) and find the same class of goat.
- Paste the TDN, CP, Ca, and P requirements that you copied to the clipboard to the same location (BRIGHT YELLOW cells) on the Worksheet. To paste, highlight where you want to copy the information to with the mouse, hold down the CTRL key and press the V key (or right click the mouse and click PASTE).
- Under the As Fed column (BLUE cells), enter the amount (pounds) of each feed that you plan to feed this class of goat. Feed wastage will be subtracted.
- The calculated values in the PINK cells show the differences between the nutrients supplied by your ration and the nutrients required by the goat. A calcium to phosphorus ratio is also calculated. The ration should be at least 2:1 when feeding male goats, especially ewethers.
- You can adjust your ration by making changes to the As Fed column. By trial and error, you can figure out which and how much of each feed to feed your goat(s). If you're unable to balance a ration or create a realistic ration (e.g. most goats can't eat 10 lbs. of hay per day), you'll need to add other feeds to your inventory.
- The spreadsheet is password protected, so you cannot change the formulas. You only need to change values in the BLUE cells for the spreadsheet to work. If you want to edit the protected portion of the spreadsheet, contact Susan Schoenian at sschoen@umd.edu to get the password.

This spreadsheet was developed by Susan Schoenian, Sheep & Goat Specialist for University of Maryland Extension. Please direct questions to Susan at sschoen@umd.edu. Additional spreadsheets are available from the Maryland Small Ruminant Page at www.sheepandgoat.com

Intro Feed Inventory Maintenance Gestation Lactation Parlor Bucks Kids Voluntary Exercise

Ration Balancer

Welcome back, Lori Vickers | [Help](#) | [Change Password](#) | [Logout](#)

File

Edit

View

Feeds

Feeding Information

Yardage Calculator

Water

Notes

Calculator

Reports

Ration

Animal

Feeds

Feeding Information

Yardage Calculator

Water

Notes

Calculator

Reports

Add Feeds

Edit

Remove Feeds

Create Mix

Uncreate Mix

Show Mix

Print

Ratios

NOTE: All nutrients must be entered on a dry matter basis.

Feed Name	As Fed (lbs)	DM Fed (lbs)	As Fed (%)	DM Fed (%)	NEM (Mcal/kg)	NEG (Mcal/kg)	Protein (%)	Calcium (%)	Phosphorus (%)	Cost As Fed (\$/lb)	Unit Weight (kg/lb)	Magnesium (%)	Potassium (%)	Sulphur (%)	Sodium (%)	Chloride (%)	Salt (%)	Vitamin A (IU/lb)	Vitamin D (IU/kg)	Vitamin E (IU/kg)	Copper (mg/kg)	Manganese (mg/kg)
<div><div><</div><div>></div></div>																						
Dry Matter Intake	Minimum(kg)	Recommended(kg)	Supplied(kg)	As Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)	DM Fed(kg)
	1.20	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Results	Dry Matter	NEM (Mcal)	NEG (Mcal)	Protein (g)	Calcium (g)	Phosphorus (g)	Cost (\$/kg DM)	Copper (mg)	Magnesium (g)	Potassium (g)	Sulphur (g)	Sodium (g)	Chloride (g)	Salt (g)	Vitamin A (IU)	Vitamin D (IU/kg)	Vitamin E (IU/kg)	Copper (mg/kg)	Manganese (mg/kg)			
Recommended Nutrients Per Day		1.04	0.89	0.00	88	2.8	2.0	0.0000	4	0.9	4.8	1.7	0.5	0.0	1.3	4144.8	414.5	212.0	4	15		
Supplied in Feed		0.00	0.00	0.00	0	0.0	0.0	0.0000	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0		
Diet Concentration(DM)	DM(%)	(Mcal/kg)	(Mcal/kg)	(%)	(%)	(%)	(%)	(mg/kg)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(IU/kg)	(IU/kg)	(IU/kg)	(mg/kg)	(mg/kg)		
	0.0	0.00	0.00	0.0	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0		
Ratios	Ca:P	K(Mg):Ca	NDF as %NDF	Forage DM as %NDF	Pasture DM(%)	Feed Gain(%)	Total Nitrate %															
	0.0	0.0	0.0	0.0	0.00	0.0	0.0															
Quilms	Ca:K(Mg):Ca:K	Ca as %NDF	N:Ca(%)	Concentrate Forage	OP as % of TDN	N:Ca																
	0.0	0	0.0	0.0	0.00	0.0	0.0															

www.sheepbytes.ca

www.sheepandgoat.com



Body condition scoring

- **IMPORTANT**

- Prevents starvation
- Best management tool for improving production
- Evaluate at least three times a year

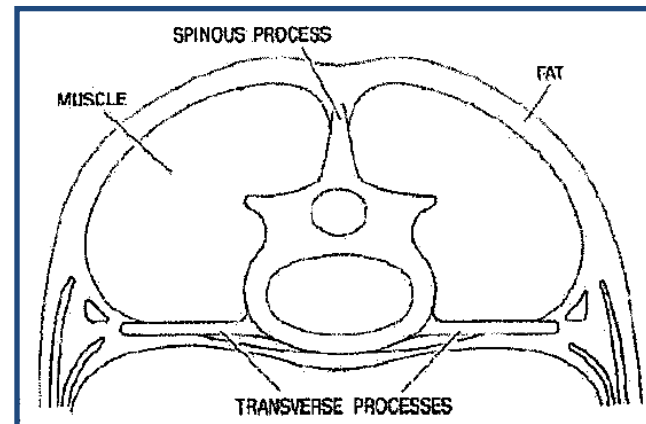
Body Condition Score Goals:




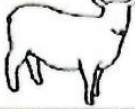

FEMALE	Late Gestation Weaning / Drying off Breeding	⇒ Score 2.5 - 3.5 ⇒ Score 2+ ⇒ Score 3
MALE	Pre-Breeding Summer	⇒ Score 3 - 3.5 ⇒ Score 2+



Body Condition Scoring

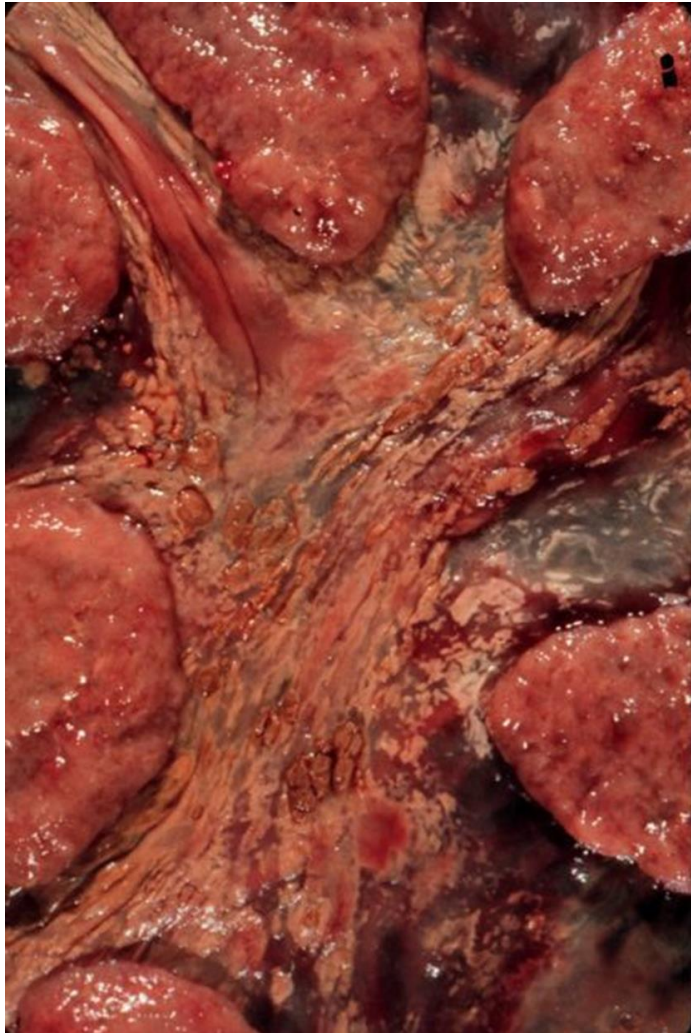
1. Spinous process – run fingers down backbone
2. Transverse process – push fingers down alongside backbone
3. Assess amount of muscular and fatty tissue below transverse process - pass fingers under the ends of these bones
4. Fullness of eye muscle in the angle above and between spinous and transverse process
5. Score



Score		Description	
1		Spine sharp, back muscle shallow,	Lean
2		Spine sharp, back muscle full, no fat	
3		Spine can be felt, back muscle full, some fat cover	Good Condition
4		Spine barely felt, muscle very full, thick fat cover	Fat
5		Spine impossible to feel, very thick fat cover, fat deposits over tail and rump	



Abortions



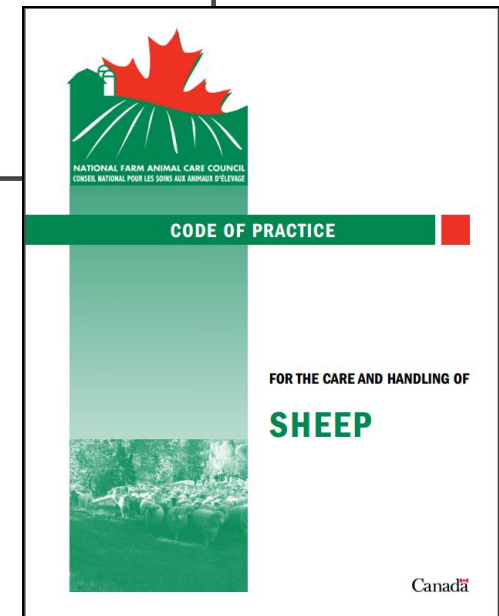
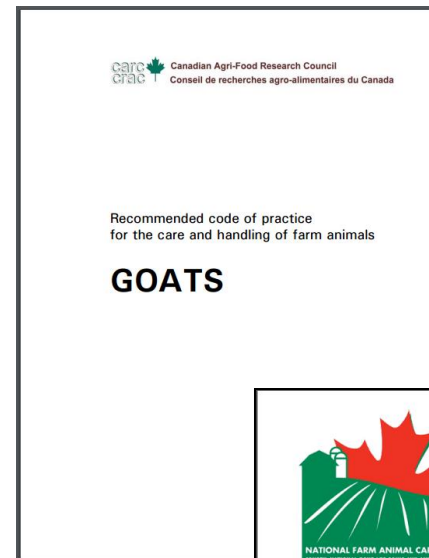
The top three infectious causes of abortion in sheep and goats can cause life-threatening disease in pregnant women and result in fetal death or malformation.



- To avoid the risk of infection, pregnant women:
 - Should not help to lamb or milk ewes/does
 - Should avoid contact with aborted or newborn lambs/kids or with the afterbirth
 - Should not handle clothing, boots etc. which have come into contact with lambing/kidding ewes/does or newborn lambs/kids
 - Potentially contaminated clothing will be safe to handle after being washed on a hot cycle.

Available Resources

- Resources available in BC, programs, regional/local contacts
 - Animal Health Centre
 - Regional Agrologists
 - AgriServiceBC@gov.bc.ca
- Code of practice for the care and handling of sheep and goats



BC Sheep Federation

- Voice of the industry
- Represented on Canadian Sheep Federation, National on Farm Food Safety program, National Animal Welfare program, Provincial Farm Animal Care Committee....
- Free advertising for your farm on the Buyers Guide
- N'Ewes 3x year

\$35/ year <http://www.bcsheepfed.com>



BC Goat Association

- Increase public awareness of the value of goats and goat producers, circulate information, encourage young people with goats and 4H
- Breeders Directory
- GoatKeeper Magazine 6x year

\$45/ year for and individual

\$60/year for a family

<http://www.bcgoat.ca>



Questions?



When to supplement vitamins and minerals?



Pasture

- Green pastures and sunlight great source of vitamins minerals
 - Vitamins stored in fat for 3-4 months



Hay

- Fat soluble vitamins (ADEK) need to be supplemented as rumen can't make them
- Can vary in mineral content = supplementation usually needed

Salt?

- How and why do you buy your supplements?
 - Pelleted, textured, loose, blocks
- Common minerals:
 - 1:1
 - 2:1
- With or without salt
- Watch shelf life
 - Vitamins expire without antioxidants!

