

## Key Components to Successful Flock Health

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## Goals of a Flock Health Program

- Improve overall health and welfare (relationship with vet)
- Decrease losses
- Increase productivity
- Maximize profitability of the flock
  
- HOW can we measure this and be better?
  - Analysis of production, health, and financial RECORDS
  - Then SET GOALS for production parameters
    - Morbidity, mortality, culling, and growth rates

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## VETERINARY CLIENT PATIENT RELATIONSHIP

- The veterinarian takes responsibility for medical and treatment judgments for the animal(s) and the client agrees to follow the veterinarian's instructions
- The veterinarian has close knowledge of the animal(s) and their medical condition obtained by examination and premise visit
- The veterinarian is available for follow up visits or has emergency coverage in the event of adverse reactions or failure of the treatment regimen

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### Why is the VCPR important?

- Advice and guidance in the appropriate use of medications
- A better understanding and working knowledge of your animal management practices
- Improved medical judgments
- Assist with withdrawal time determination
- Producers are not approved to make extra-label drug usage decisions

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### EXTRA LABEL DRUG USE (ELDU)

- Defined as
  - Use of a drug in an animal in a manner that is not in accordance with the approved labeling X
  - Includes but is not limited to X
    - Use in different species
    - Use for indications (disease and other conditions)
    - Use at dosage levels, frequencies, duration or routes of administration other than those stated in the labeling X
    - Deviation from labeled withdrawal times based on these different uses



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### STARTS WITH PREVENTATIVE Health Care!

- Biosecurity
- Vaccination program
- Good nutrition and feeding management
- Parasite control program
- Hoof care (Not covering)
- Predator management (Mr. Chad Fox)

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## Biosecurity

Practices that are put in place in order to protect the health of your animals!

- **Bio-exclusion:** Preventing disease entry
- **Bio-management:** Reducing the risk of animal infection and disease
- **Bio-containment:** Containing diseases that are on farm

Applies to everyone and everything used on the farm  
Encompasses disease management, excellent husbandry,  
and routine health care

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## What is your herds level of risk?

- **Lowest Risk**
    - Closed flock
    - Animal from known low-risk status flocks, single contact
    - Borrowing or lending animals with low-risk flocks, multiple contacts with other flock(s)
    - Animal from farm of unknown-health status
  - **Highest Risk**
    - Animal from sales barns or in contact with accumulations of animals (*shows*) of unknown health status
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## Design a Protocol Based on Your Flocks Level of Risk

- What steps can be taken to reduce risks?
    - Quarantine new or returning animals for one month; deworm/test/vaccinate
    - Vaccinate new animals entering the herd; vaccination protocols
    - Have treatment records for each individual animal
    - Animals are managed and handled in a specific order
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## Design a Protocol Based on Your Flocks Level of Risk

- More steps to reduce risks
  - Mortality/Abortions submit for diagnostic testing/correct disposal
  - Use rams from herd with high health status/vaccinate
  - Prevent contact with wildlife (cats, dogs also)
  - Contain number of people on farm; protective boots; entry from other farms
  - Clean and disinfect equipment, boots, and hands

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## Vaccination

- Clostridial (depends on risk of certain diseases)

- CD&T
- 7-Way (not a fan!)
- 8-Way

Group	Vaccination Timing (CD&T)
Ewes	4-6 weeks before lambing
Lambs	4-8 weeks of age
	Booster 7-11 weeks of age
Rams	4-6 weeks before lambing season 8-way: 4-6 weeks before breeding

- Timing depends on:

- Feeding regimen (at highest risk of CD during change in diet)
- Age at weaning (creep feeding)
- Unvaccinated/Unknown vaccination status (lambs 1-3 wks and booster)

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## Vaccinations

- Camphylobacter (Vibrio)/Chlamydia
  - Sharing rams with other farms
  - Control disease on farm with infection present
  - Vaccinate ewes one month before breeding season (Ewe lambs: 8 and 4 weeks before breeding season)
  
- Foot rot, CL, Rabies, Soremouth
  - Use to contain and decrease disease in the herd

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## Vaccination for Respiratory Disease (Pasteurella infection)

- Pneumonia is most often due to
    - Virus→Stress→Bacteria (Mannhemia aka Pasteurella)
  - Primary viruses involved
    - PI-3\*, Adenovirus, RSV (Respiratory Syncytial Virus)
  - Bacteria Involved
    - Mannhemia hemolytica, Biberstenia trehalosia, Pasteurella multocida
    - Cattle vaccines are not efficacious for bacteria
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- CURRENTLY NO APPROVED VACCINATIONS FOR SHEEP OR GOATS

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## Vaccination for Respiratory Disease

- Vaccination for viral components (controversial)
- Intranasal modified live cattle vaccines available
  - Use for PI-3 and RSV viral components (efficacy is not known)
  - Serotypes for cattle and sheep may not match up
  - Use in high risk herds (show animals, high incidence of pneumonia)
  - Vaccinate dams 4-6 wks before parturition (same time CD&T)
  - In lambs at 1-3 days of age, decreases morbidity
- Can use in the face of an outbreak
- Best to use in small subset of animals in herd first

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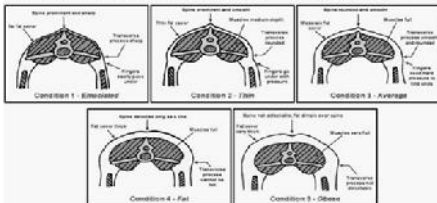
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## BODY CONDITION SCORING

### Best way to Make Nutritional Decisions!

- A tool for producers to increase production efficiency in their flocks

#### Body Condition Scores – Sheep/Goats



Adapted from "Body Condition Scoring of Sheep" by J.M. Pennington and H. Moor-Edwards. © 2004. UNIVERSITY OF KENTUCKY College of Agriculture Department of Animal Science

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## Body Condition Scoring

### Review Nutrition at Each Exam

Group	Timing	Ideal BCS	Other Herd Health Events
Breeding Ewes	Pre-Breeding	3	BSE, famacha, palpate udders
	Midpregnancy	2.5-3	US and sort, famacha
	Pre-Lambing Lambing	3 3+	CD-T, other vx, lambing management, famacha
	Weaning/Drying off	2+	famacha
Rams	Pre-Breeding	3-3.5	BSE, 8-way, famacha
	Summer	2+	famacha

\*Most cases of mastitis occur at weaning time

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## Research and BCS

### Oregon State University

- Ewes with a body condition score of 3 to 4 at lambing lost fewer offspring and weaned more pounds of lamb than those with a condition score of 2.5 or less
- There was a 33% difference in total weight of lamb weaned (64 versus 85 pounds per ewe) between ewes with pre-lambing body condition scores of 2.5 to 3.5

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## Fat and Thin Ewes

### Reasons and Consequences

- Why are ewes too thin?
  - Inadequate nutrition, parasitism, inadequate bunk space, inadequate grouping of animals, wasting diseases, chronic diseases, genetics, high milk production (multiple lambs), old (need to be culled)
  - This sets them up for: failure to conceive, less lbs lamb weaned, pregnancy toxemia, parasitism and disease
- Why are ewes too fat?
  - Were not culled, poor milk production (low wean wt), overfed in early-midgestation, dominant ewes
  - This sets them up for: pregnancy toxemia, fatty liver, dystocia, vaginal prolapse

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## Nutrition for the Pregnant Ewe

- Do not overfeed dams in early or mid-gestation
- Dry matter intake: 3.5-4% body weight in late gestation (increases w/ # fetuses)
- Forage must be good quality
  - If poor quality will only be able to eat 2-3% bw
- Increase concentrate slowly (140 lb ewes)

-6 weeks: 0.5-1 lbs

-4 weeks: 1-1.5 lbs

-2 weeks: 2-2.5 lbs

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## Gastro-intestinal parasites

#1 health problem affecting small ruminants

- Coccidia
- Round worms (aka Strongyles)
  - ✓ *Haemonchus contortus* Barber pole worm
  - *Ostertagia (Teladorsagia)*
  - *Trichostrongyles*
  - *Cooperia*
  - *Oesophagostomum*
- Lungworms
- *Parelaphostrongylus tenuis* Meningeal (deer) worm

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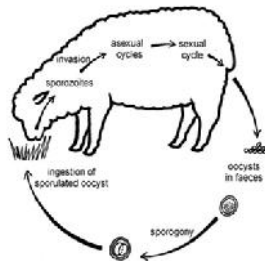
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## Eimeria species

- Protozoan
- Oocysts must sporulate outside the host to be infective
- Likes warm and moist conditions
- Can survive at wide range of temps for years
- Barns and over-crowding
- Hay rings and waterers



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## Clinical Sign

- Diarrhea (usually no blood)
- Chronic wt loss (low BCS)
- Straining (rectal prolapses)
- Weakness
- Rough hair coat
- Anorexia
- Dehydration
- Mild anemia/hypoprotecemia

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## Pathology

- Cause necrosis of the mucosal lining
- Can take weeks for mucosa to heal and malabsorption can persist
- Permanent scarring results in poor-doing lambs

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## Diagnosis

- Direct Smear , fecal float (bad)
- BEST: McMaster or Modified-McMasters
- 5,000 oocysts/gm (quantifies)
- Chronic coccidia- shed organisms at low numbers
- Remember number of oocysts does not correlate with severity of clinical disease (consumption does)

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## Treatment

- Amprolium (Corid)
- Best to treat individually (nursing lambs)
- 50 mg/kg (5 times the calf dose)
  - 2.25 mL/10 lbs orally 1x/day for 5 days
  - 5 mL/10 lbs orally 1x/day for 5 days (1:1 dilution)
  - Follow up with fecals
- Herd/Group treatment in water
  - 4 ounces/10 gallons water
  - Follow up with fecals
- Re-Treat in 3 weeks
- 24 hr meat w/d
- Block metabolism of B1 in protozoa EXTRALABEL USE!!
  - Thiamine: 0.25 mL/10 lbs 2-3x/day for 3-5 days

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## Control

- Sanitation!!
- COCCIDIOSTATS
  - Amprolium
    - Crumbles: 15 mg/kg/day for 3 weeks
    - Liquid: 2 ounces per 10 gallons for 3 weeks
  - Deccox (decoquinate)
    - 0.5 mg/kg/day
  - Bovitech (lasolacid)
    - 15-70 mg/head/day
- Need to be fed for 4 weeks (except corid)
- Use only during times of risk
- Prolonged use of coccidiostats can cause resistance, use fecals to monitor this

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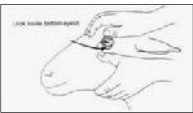


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### The FAMACHA® System

For assessing anemia and barber pole worm infection in small ruminants

Clinical Category	Color	PCV	Deworm?
1	Red	≥ 28	No
2	Red-Pink	23-27	No
3	Pink	18-22	?
4	Pink-White	13-17	Yes
5	White	≤ 12	Yes

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### Parasite Management Principles

1. Do not overstock pastures/pens
2. Don't overgraze (5" min)
3. Adequate nutrition increases immunity
4. Rest pastures sufficiently: Rule of thumb is 3 months
5. Practice selective deworming, not prophylactic deworming = "smart drenching"

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### Parasite Management Principles

6. Administer drugs properly (do not under dose)
7. Select sheep which are more resistant to internal parasites
8. Practice good sanitation
9. Use coccidiostats
10. Determine which drugs work on your farm (FECRT)

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## Fecal Egg Count Reduction Test

### FECRT

- Absolutely necessary test for every herd
  - Determines if the current dewormer is working in your herd (quantitative test)
    - Take fecal sample before deworming
      - Multiple animals in the herd (minimum of 10)
      - McMaster's performed and # eggs/gm recorded
      - Individual animal test
    - Take fecal sample 10-14 days after deworming
      - Take fecal from same animals
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### FECRT

- Should see 80-90% decrease in the fecal egg count from first to second sample if dewormer is working
  - If lower then this: Change Dewormer(s)
  - Can also use on an individual animal basis to evaluate fecal egg counts (McMasters)
    - Can help determine animals to keep (positive selection) and animals to cull (negative selection)
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## Combination Dewormers

- All herds have resistance to all dewormers to some degree (unless closed herd for >25 yrs)
  - Due to resistance to all dewormers, currently being used much more frequently
  - Recommended for clinical sheep (anemic due to hemonchus)
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## New Developments

- New drug hopefully coming soon
- Monepantel
- Amino-acetyl-nitrile (new class)
- Currently in hands of FDA/Novartis product
- Drug released in 2005 (NZ, AU)
  - Already seeing resistance in these countries

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## New Developments

- Sericea-Lespedeza pellets available \$\$
- Tannins may react directly with adult worms by attaching to their “skin”, causing them distress, or indirectly by improving protein nutrition of the goat and boosting the immune system
- Appear to reduce the hatching of fecal eggs and development of larvae, perhaps by binding to the larvae
- (Min et al., 2005).

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## A Little About Anthelmintics

**Anthelmintics commonly used in the U.S. sheep and goat industry**

1	<b>BZD</b>	Benzimidazoles	Thiabendazole Fenbendazole Albendazole Oxfendazole	TBZ® <sup>1</sup> Panacur®, Safeguard® <sup>2</sup> Valbazen® <sup>1</sup> Synanthic®
2	<b>IMID TETR</b>	Nicotinic agonists Imidazothiazoles Tetrahydropyrimidines	Levamisole Moralent Pyrantel	Prohibit® <sup>1</sup> , Levasol <sup>1</sup> , Tramisol® <sup>1</sup> Rumatel® <sup>2</sup> , Nematel® Strongid®
3	<b>ML</b>	Macrolytic Lactones Avermectins Milbemycins	Ivermectin Eprinomectin Doramectin  Moxidectin	Ivomec® <sup>1</sup> , Primectin™ <sup>1</sup> Eprinex® Dectomax®  Cydectin® <sup>1</sup> , Quest®

<sup>1</sup>FDA-approved for use in sheep. <sup>2</sup>FDA-approved for use in goats.

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## Questions?

- Great reference for parasite control and famacha
  - Southern Consortium of Small Ruminant Parasite Control
    - [www.scsrpc.org](http://www.scsrpc.org)
    - National Sustainable Agriculture Website
      - [attra.ncat.org](http://attra.ncat.org)
  - To attend FAMACHA course at VMRCVM
    - Email Dr. Hollie Schramm
      - [hschramm@vt.edu](mailto:hschramm@vt.edu)

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THANK YOU!

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