

Developing a Flock/Herd Health Program



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A close-up photograph of a white goat's head and neck. The goat is looking over a dark, weathered metal fence. Its eyes are dark and alert, and its ears are large and pinkish. The background is slightly blurred, showing more of the goat and some straw bedding in a barn setting.

Topics

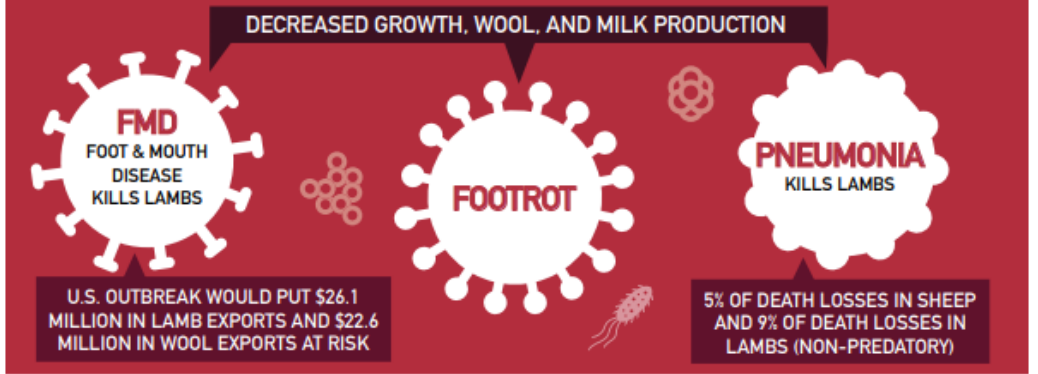
- Biosecurity
- Vaccination Program
- Parasite Control
- Foot care and diseases
- Extra label drug use
- Vet-Client-Relationship
- OTC antibiotics

Biosecurity

- Biosecurity is a series of management practices designed to prevent the introduction, delivery, and spread of disease pathogens that can harm or adversely affect livestock, crops, environments, and people.
- These practices may also help eliminate or control diseases already existing on the premises.

PROTECT YOUR SHEEP

COMMON & FOREIGN ANIMAL DISEASES HARM ANIMAL HEALTH AND ARE COSTLY



SHEEP DISEASES ARE SPREAD BY



NEW OR REPLACEMENT ANIMALS



VEHICLES, ANIMAL TRANSPORT, EQUIPMENT



CLOTHING, FOOTWEAR, HANDS

KEEPING DISEASES OUT



HAVE A BIOSECURITY PLAN AND ENFORCE IT



SEPARATE NEW ANIMALS AND SICK ANIMALS, LIMIT PEOPLE ACCESS



CLEAN PENS, EQUIPMENT, VEHICLES, CLOTHING, FOOTWEAR, HANDS

New or replacement animals

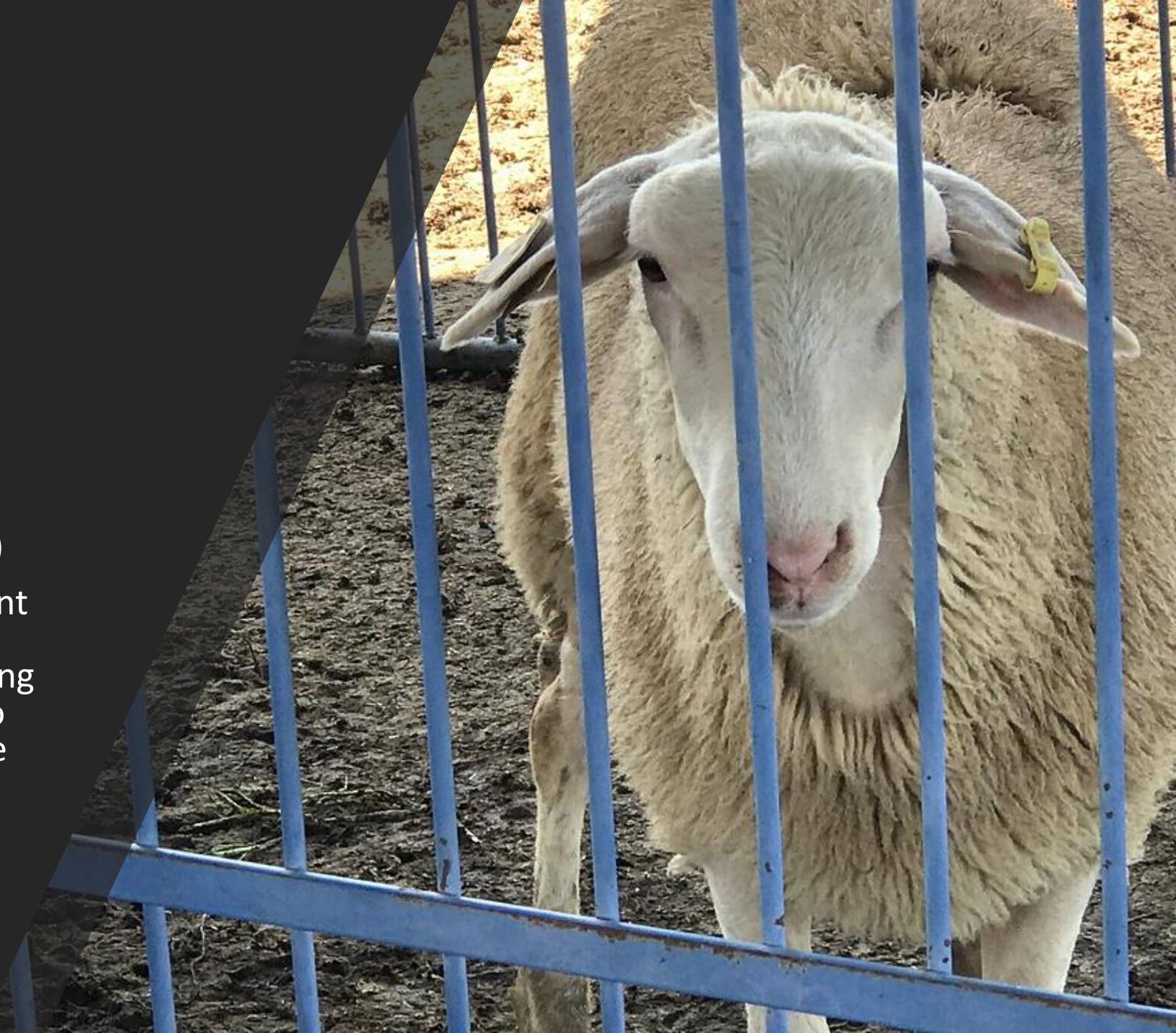
- Only buy from reputable breeders and sales
 - Do not buy breeding stock from sale barn or sales without health papers.
 - Observe animals for signs of contagious diseases, such as foot rot, soremouth, pink eye, and abscesses.
 - Ask about their flock/herd health program, including vaccination and deworming histories
 - Favor farms that test for diseases: OPP, CAE, Johne's, CL
 - Favor scrapie-free flocks/herds.
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Quarantine

- Quarantine new or returning animals for at least 14 days, preferably 30.
- No fence line contact with other animals; feed/water last.
- Carefully examine all hooves, trim (if necessary), and spray with a solution of zinc sulfide (or similar)
- To prevent introduction of resistant worms: deworm with drugs from each chemical class. Consider giving COWP, too, especially to goats (do before and after FEC to determine efficacy of treatments).

Observe, observe, observe



Secure Sheep & Wool Supply (SSWS) Plan

- The Secure Sheep and Wool Supply (SSWS) Plan for Continuity of Business provides opportunities to voluntarily prepare before an FMD (foot and mouth disease) outbreak.
 - Voluntary participation
 - <https://seuresheepwool.org/>
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Guide to the Secure Sheep and Wool Supply (SSWS) Plan



Vaccinations

- Vaccines are inexpensive “insurance policies” against diseases that commonly affect small ruminants.
 - There are many diseases for which sheep/goats can be vaccinated.
 - The only universally-recommended vaccination is for the clostridial diseases.
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Vaccine types

TOXOID

- Used to prevent disease
- Provide long-term protection
- Take time to become effective
- Usually require multiple doses and annual boosters to ensure maximum immunity.
- Sometimes cause injection-site knot or abscess.

ANTITOXIN

- Use when problem already exists
- Use in medical emergencies
- Provide immediate short-term protection.
- Immunity lasts about 7-14 days
- Example: give tetanus antitoxin at the time of docking, castrating, or disbudding, if dam not vaccinated.

Clostridial vaccines

CDT

Enterotoxemias

- 1) *Clostridium perfringens* type C
hemorrhagic enteritis, bloody scours, struck
- 2) *Clostridium perfringens* type D
“Classic” overeating disease
Pulpy kidney disease
- 3) *Clostridium tetani*
Tetanus, lock jaw

Covexin[®]-8

- 1) *Clostridium perfringens* type B
- 2) *Clostridium perfringens* type C
- 3) *Clostridium perfringens* type D
- 4) *Clostridium tetani*
- 5) *Clostridium chauvoei*
Blackleg
- 6) *Clostridium septicum*
malignant edema
- 7) *Clostridium novyi*
Black disease
- 8) *Clostridium haemolyticum*
Red water disease

When to vaccinate for clostridial disease

EWES-DOES

- Goal is to maximize “passive” immunity in nursing lambs/kids.
- Annual booster
- Last 4-6 weeks of pregnancy
- Two shots, if not previously vaccinated or vaccinated status is unknown.

LAMBS-KIDS

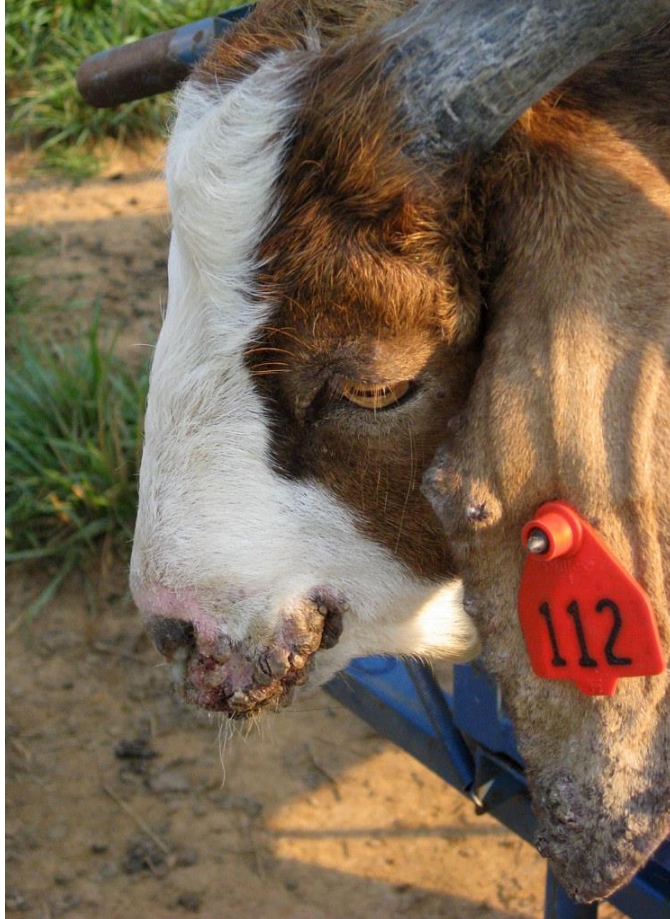
- First shot at approximately 8 weeks of age, followed by a booster 4 weeks later.
- Artificially-reared lambs/kids should be vaccinated more frequently.
- Lambs/kids entering feed lot should be vaccinated for enterotoxemia (type D).
- 4-H/FFA lambs/kids should have been vaccinated twice for CDT.



Other vaccines

- Abortion
Chlamydia and *Campylobacter*
- Caseous lymphadenitis (CL)
- Footrot
- Mastitis - staph infections in goats
- Pneumonia
Pasteurella, parainfluenza/PI-3^{Rx}
- Rabies
- Sore mouth (live vaccine)

Vaccine approvals for sheep/goats



Disease condition	Sheep	Goats
Abortion	✓	ELDU
Caseous lymphadenitis	✓	do not use
Texas Vet lab - CL		✓
CDT	✓	✓
Covexin-8	✓	ELDU
Foot rot - need import permit	✓	
Mastitis	ELDU	✓
<i>Pneumonia - Pasteurella</i>	✓	✓
<i>Pneumonia - PI3</i>	ELDU	ELDU
Rabies	Vx	ELDU
Sore mouth	✓	✓

ELDU = Extra label drug use (Rx)

Best management practices for vaccines

- Follow labeled instructions
- Change needles frequently or use a clean needle for each animal.
- Use clean needle when filling a syringe from the vaccine bottle.
- Use proper sized needles, usually 18 or 20 gauge, ½ - 1 inch in length.
- Use proper injection technique, usually SubQ.
- Observe proper withdrawal periods (usually 21-28 days).
- Store vaccines properly.
- Do not use outdated vaccines.



Parasite control

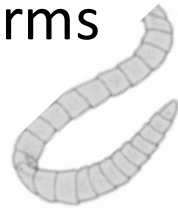
Many different kinds of parasites can infect sheep goats.

INTERNAL

- Worms



- Nematodes – roundworms
- Cestodes – flat worms
- Flukes



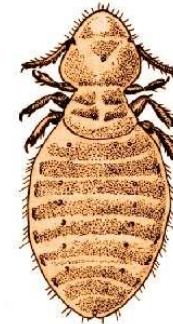
- Protozoa

- Coccidia
- Giardia
- Cryptosporidium



EXTERNAL

- Ticks
- Lice
- Mites
- Flies



Two primary internal parasites

Haemonchus contortus Barber pole worm

- Roundworm
- Blood feeder (abomasum)
- Causes anemia and bottle jaw
- Causes chronic or acute disease
- Short, direct life cycle
- Female is very prolific egg layer
- Animals get infected when they consume infective third stage worm larvae on pasture plants (seldom a problem in confinement).
- Sheep and especially goats slow to develop immunity.

Eimeria spp. Coccidia

- Single-cell protozoan parasite
- Harms lining of intestines, affecting nutrient absorption.
- Causes scours and general ill thrift.
- More complex life cycle
- Transmission is oral – fecal route.
- Bigger problem in confinement but can also occur on pasture, especially under intensive grazing situations.
- Sheep/goats develop immunity sooner than for roundworms.

Integrated parasite management (IPM)

MANAGEMENT



DRUGS (ANTHELMINTICS)



Pasture and grazing management

- Short duration grazing
- Long pasture rest periods
- Clean pastures
- Annual forages
- Forages containing condensed tannins: sericea lespedeza
- Minimum grazing height
- Browsing
- Mixed species grazing



Other management options

- Maintain good body condition
- Nutritional supplementation
 - +Protein: resistance
 - +Energy: resilience
- Feed BioWorma® to reduce pasture contamination and prevent reinfection.
- Manage periparturient period
- Zero grazing (confinement)
- Genetic selection
- Good sanitation



Proper dewormer use

- Targeted selective treatment (TST)
 - FAMACHA© system
 - Five Point Check©
 - Performance criteria
 - Combination treatments
 - Test for dewormer resistance
 - Before and after fecal egg counts (individual or pooled)
 - DrenchRite® test
Louisiana State University
Currently unavailable
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Deworming best management practices

- Give all oral treatments (drenches)
- Give combination treatments to clinically-parasitized animals.
- Don't overdose.
- Dose based on accurate weight or calibrate dose for heaviest animals in a group.
- Calibrate equipment
- Use proper drenching technique
- Use less stress handling techniques
- Don't mix products.
- Properly store (and dispose of) unused dewormer.
- Don't use significantly expired dewormer



Prevention and treatment of coccidiosis

PREVENTION

- **Good sanitation, nutrition, and management.**
- Timely use of coccidiostats* in feed, mineral, water, and/or milk replacer.
 - Lasalocid (Bovatec®) - sheep
 - Monensin (Rumensin®) - goats
 - Decoquinate (Deccox®) - both
 - Corid® - Extra label
- Timely feeding of sericea lespedeza

*toxic to equines

TREATMENT

- No drug is FDA-approved to treat coccidiosis in sheep/goats, so extra label drug use is required.
- Individually dose animals with Corid® or sulfa antibiotic (sulfadimethoxine) for 5 days (or more).



Hoof care and diseases

- Hoof care is an integral part of flock/herd health management.
- Overgrown hooves are one of the primary reasons sheep/goat owners are reported to local humane societies.
- Hooves affect health, welfare, and productivity of sheep/goats.



Hoof trimming

- Need for hoof trimming varies from every few months to never; probably averages at least once per year for most sheep/goat farms.
- Need for hoof trimming varies by species, breed, and individual.
- Need for hoof trimming is affected by environment and diet.

Tools for hoof trimming

- Hoof shears/trimmers
- Hoof knife
- Brush
- Disinfectant
- Gloves
- Method of restraint



Restraint for hoof trimming



Two primary hoof diseases

FOOT SCALD



FOOT ROT



Hoof disease

Fusobacterium necrophorum + *Dichelobacter nodosus*

FOOT SCALD

- Infection or inflammation of the tissue between the hooves.
- Caused by soil-borne bacteria that can survive in the environment for an extended period of time.
- Precursor or facilitator of foot rot.

FOOT ROT

- Infection of the hoof tissue
- Can be benign or virulent
- Requires second bacteria: usually introduced to the farm via infected animals and less commonly from contaminated vehicles or footwear.
- Bacteria that causes foot rot can only live about 14 days outside of the hoof.
- Highly contagious.



Treatment of foot rot / scald

- Hoof trimming
- Foot baths and soaks
- Dry chemicals
- Topical medications
- Vaccination
- Antibiotics

Treatment and eradication of hoof disease

FLOCK/HERD

- Inspect hooves
- Trim, if necessary; avoid overzealous hoof trimming.
- Soak feet in bath of 10% zinc sulfate.
- After soaking, put animals in drying area.
- Separate clean from infected animals and put in clean barn area or on clean pasture (14 or more days without sheep/goats).
- Repeat, as needed

INDIVIDUAL ANIMALS

- Inspect hooves
- Trim, if necessary; avoid overzealous hoof trimming.
- Spray feet with 20% solution of zinc sulfate or soak in 10% zinc sulfate bath.
- Apply topical treatment to infected hooves; wrap hoof or use boot to protect hoof.
- Repeat as necessary

Topical medications

to prevent and treat foot disease

- Zinc sulfate (20%)
- Copper sulfate
- Kopertox™
- Dr. Naylor Hoof 'n Heel®
- FootCure™ (gel)
- Penicillin
- Oxytetracycline
- Various other sprays



Antibiotics to control foot rot

with or without hoof trimming

- Most organisms that cause foot rot are very responsive to systemic antibiotics.
- Oxytetracyclines and penicillin are the antibiotics most commonly used to treat foot rot in sheep/goats.
- Long-acting antibiotics are preferred, e.g., Zactran[®], Draxxin[®]
- Extra label drug use is required, as there are no antibiotics FDA-approved to treat foot rot in sheep/goats.





Importance of culling

- Cull animals which get re-infected (carriers).
- Cull animals which fail to respond to treatment.
- Cull animals with excessive or abnormal hoof growth.

Extra label drug use (ELDU)

- Extra label drug use is use of any drug in a manner that is not specified on the label: species, disease, dose, method, or frequency.
- Not many drugs are FDA-approved for small ruminants, especially goats.
- Only a licensed veterinarian has the legal right to use or prescribe a drug extra label.
- For a veterinarian to prescribe a drug extra label, there must be a valid veterinarian-client-patient relationship.



Conditions for extra label drug use

- 1) There must be no animal drug approved for the intended use.
- 2) The approved animal drug for the intended use does not contain the necessary active ingredient.
- 3) There is an approved animal drug for the intended use, but it is not available in the appropriate form.
- 4) There is an approved animal drug for the intended use, but it is not available in the required concentration
- 5) The approved drug is clinically ineffective.

Extra label drugs can only be used if the health of the animal is threatened; they cannot be used to enhance performance.



Veterinarian-Client-Patient relationship (VCPR)

- A VCPR is one in which the veterinarian has assumed responsibility for the health and treatment of the animal(s);
- Has sufficient knowledge of the animal(s) being treated and is available for follow-up.
- Requires “timely” visits to the farm are part of a valid VCPR (this may vary by veterinarian).





Other-the-counter access to antibiotics is going away.

- Beginning in June 2023, all medically-important antibiotics will require veterinary oversight.
- Antibiotics currently available over-the-counter (OTC) will require a veterinary prescription.
- These include penicillin, oxytetracycline, tylosin, spectinomycin, and cephalosporins (mastitis tubes).
- Previously, antibiotics put in the feed or water were put under veterinary oversight and the feeding of antibiotics for performance purposes was banned.



Dealing with the new policy

- Many commonly used antibiotics already require a veterinary prescription, e.g., Nuflo[®], Excenel[®], and Zactran[®].
- Many OTC antibiotics are used in an extra label manner, thus already require veterinary involvement (even if you haven't been following the rules)..
- You can reduce your dependence on antibiotics with better management and genetics.
- Make sure you have a valid veterinarian-client relationship.

Thank you. Questions? Comments?



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