Vaccination Programs, Common Diseases, and Medication Availability for Goats and Sheep

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Preventative Health Care

Good nutrition and feeding management
Parasite control program
Vaccination program
Hoof care
Biosecurity
Predator management
Good Biosecurity

- Start with healthy stock
- Buy from reputable breeders
- Isolate new animals for at least 30 days
  - Maintain a closed herd if possible

http://www.sheep101.info/201/biosecurity.html
Biosecurity for Goat Farms

- Don’t mix your goats with other goats (or sheep).
- Don’t loan goats.
- Don’t board goats.
- Don’t loan equipment.
- Limit access to your farm and animals.
- Control dog, cat, rodent, fly, and bird populations.
Basic Herd Health Supplies

- Thermometer
- Record book
- Alcohol
- Balling gun for oral dosing of bolus medication
- Syringes and needles of various sizes and gauges
- Sharp's container for used needles (old soda bottle)
- Ear tagger and tags
- Wound dressing
- Deworming or drench gun
Basic Herd Health Supplies

- Dewormers (anthelmintics)
- Antibacterials/antibiotics (penicillin and tetracycline are most commonly used) - Not for organic production
- Biologicals (Tetanus antitoxin, Tetanus toxoid, C. perfringens toxoid)
- Injectables (vitamin A, D, & E, vitamin B complex, BoSe)
Health Program for Goats

- A veterinarian should be consulted to tailor a health program for your specific herd.

- Very important since many products are not labeled for goats or sheep.
Veterinarian/Client/Patient Relationship

A very specific relationship:
A veterinarian has **assumed responsibility** for the need for medical treatment.

Veterinarian is **personally acquainted** with the keeping and care of the animals

Veterinarian is **readily available** for emergency and follow-up evaluation
## Antibiotics FDA-approved for sheep

(source: [Animal Drugs @ FDA](http://www.sheep101.info/201/drugs.html))

<table>
<thead>
<tr>
<th>Trade name</th>
<th>Drug ingredient</th>
<th>Labeled dosage</th>
<th>Withdrawal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aureomycin®</td>
<td>Chlorotetracycline</td>
<td>20-50 g/ton (lambs)</td>
<td>OTC</td>
</tr>
<tr>
<td>Biosol®</td>
<td>Neomycin sulfate</td>
<td>10 mg/lb, ≤ 14 days</td>
<td>OTC</td>
</tr>
<tr>
<td>Micotil®</td>
<td>Tilmicosin Phosphate</td>
<td>10 mg/kg SQ single treatment</td>
<td>RX</td>
</tr>
<tr>
<td>Naxcel®</td>
<td>Ceftiofur sodium</td>
<td>0.5-1.0 mg/lb. IM for 3 days</td>
<td>RX</td>
</tr>
<tr>
<td>Pro-Pen G</td>
<td>Penicillin G Procaine</td>
<td>1 ml/100 lbs. IM ≤ 4 consecutive days</td>
<td>OTC</td>
</tr>
<tr>
<td>Terramycin®</td>
<td>Oxytetracycline</td>
<td>10-20 g/ton feed 10 mg/lb.</td>
<td>OTC</td>
</tr>
</tbody>
</table>
### Sheep: Extra label antibiotics
(source: [Animal Drugs @ FDA](http://www.sheep101.info/201/drugs.html))

<table>
<thead>
<tr>
<th>Trade name</th>
<th>Drug ingredient</th>
<th>Use in other species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cefa-Dri® / Tomorrow®</td>
<td>Cephapirin Benzathine</td>
<td>For use in dry cows to prevent mastitis</td>
</tr>
<tr>
<td>Cefa-Lak® / Today®</td>
<td>Cephapirin Sodium</td>
<td>For use in lactating cows to treat mastitis</td>
</tr>
<tr>
<td>Excenel®</td>
<td>Ceftiofur Hydrochloride</td>
<td>Rx antibiotic for cattle and swine</td>
</tr>
<tr>
<td>Nuflor®</td>
<td>Florfenicol</td>
<td>Rx antibiotic for cattle</td>
</tr>
<tr>
<td>LA-200®</td>
<td>Oxytetracycline</td>
<td>Long-acting OTC antibiotic for cattle</td>
</tr>
<tr>
<td>Pen BP-48</td>
<td>Penicillin G Benzathine; Penicillin G Procaine</td>
<td>Long-acting penicillin for cattle</td>
</tr>
<tr>
<td>Scour-Halt®</td>
<td>Spectinomycin</td>
<td>OTC antibiotic for treating scours in pigs</td>
</tr>
<tr>
<td>Sulmet®</td>
<td>Sulfamethazine</td>
<td>OTC antibiotic for cattle and horses</td>
</tr>
<tr>
<td>Tylan® 50</td>
<td>Tylosin</td>
<td>OTC antibiotic for cattle and swine</td>
</tr>
</tbody>
</table>
Essential Vaccines

- **Clostridial diseases (CD-T)**
  - *Clostridium perfringens*:
    - type C affects kids < 1 month
    - type D affects kids > 1 month
  - Most critical for farms which feed a lot of grain or allow instant access to lush pasture
  - “Overeating Disease”
- **Clostridium tetani** – tetanus
Vaccination Program for Goats

- **Combination Products:**
  - Labeled for Goats:
    - Essential 3+T (Colorado Serum Co)
    - Vision CD/T (Intervet)
  - Labeled for sheep/Cattle:
    - Bar Vac CD/T (Boehringer Ingelheim)
Other Vaccines *
Consult your Vet!

- Soremouth (live)- ONLY in infected herds
- Pneumonia
- Footrot
- Chlamydia or Campylobacter (vibrio)- in infected herds
- Rabies
- Caseous lymphadenitis
  - beware of CaseBac in pregnant does

- Autogenous
  vaccine made from bacteria isolated on a specific farm.

* not labeled for goats
# Vaccines labeled for sheep and lambs

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Dosage</th>
<th>Withdrawal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Campylobacter</strong></td>
<td>5 ml SQ shortly before breeding, repeat in 60-90 days. Revaccinate annually (single dose)</td>
<td>21 days</td>
</tr>
<tr>
<td><strong>Case-Bac™</strong></td>
<td>2 ml SQ, repeat 2 ml dose in 4 weeks, revaccinate annually (single dose)</td>
<td>21 days</td>
</tr>
<tr>
<td><strong>Caseous D-T™</strong></td>
<td>2 ml SQ, repeat 2 ml dose in 4 weeks, revaccinate annually (single dose)</td>
<td>21 days</td>
</tr>
<tr>
<td><strong>C &amp; D antitoxin</strong></td>
<td>Suckling lambs, 5 ml SQ, feeder lambs, 10 ml SQ; for treatment double doses</td>
<td>21 days</td>
</tr>
<tr>
<td><strong>CD-T</strong></td>
<td>2 ml SQ, repeat in 21-28 days revaccinate annually</td>
<td>21 days</td>
</tr>
<tr>
<td><strong>Covexin™-8</strong></td>
<td>5 ml SQ, followed by a 2 ml dose in six weeks, revaccinate annually with 2 ml</td>
<td>21 days</td>
</tr>
<tr>
<td><strong>Chlamydia</strong></td>
<td>2 ml SQ 60 days prior to breeding, repeat dose 30 days later, revaccinate annually (single dose)</td>
<td>60 days</td>
</tr>
<tr>
<td><strong>Epididymitis</strong></td>
<td>2 ml SQ, repeat dose in 30-60 days Annual booster</td>
<td>21 days</td>
</tr>
<tr>
<td><strong>Footvax®</strong></td>
<td>1 ml SQ prior to anticipated outbreak, repeat 6 weeks to 6 months, booster bi-annually</td>
<td>60 days</td>
</tr>
<tr>
<td><strong>Ovine Ecolizer™</strong></td>
<td>5 ml orally within 12 hours of birth</td>
<td>21 days</td>
</tr>
<tr>
<td><strong>Pasteurella</strong></td>
<td>2 ml SQ, repeat in 2-4 weeks</td>
<td>21 days</td>
</tr>
<tr>
<td><strong>Rabies</strong></td>
<td>2 ml IM, annual revaccination</td>
<td>21 days</td>
</tr>
<tr>
<td><strong>Sore mouth</strong></td>
<td>Apply one drop to scarified area</td>
<td>21 days</td>
</tr>
<tr>
<td><strong>Tetanus antitoxin</strong></td>
<td>1,500 units for prevention 3,000-15,000 units for treatment</td>
<td>21 days</td>
</tr>
<tr>
<td><strong>Volar footrot bacterin</strong></td>
<td>3 ml SQ or IM, repeat in 3-4 weeks, booster annually or prior to anticipated outbreaks</td>
<td>21 days</td>
</tr>
</tbody>
</table>

[http://www.sheep101.info/201/drugs.html](http://www.sheep101.info/201/drugs.html)
Health Program-Does

- Good nutrition-
- Body Condition Score of 3-3.5 prior to kidding
- Deworm based on FEC or FAMACHA
- Check udder, teats, teeth, feet-cull for chronic disease
Vaccination Program for Mature Goats

- **Does**
  - Vaccinate 1 to 2 months prior to kidding for *Clostridium perfringens* type C & D plus Tetanus toxoid.
  - Two shots are necessary the first time an animal is vaccinated or if more than a year has elapsed.
  - Selenium 1 month prior to kidding in deficient areas

- **Bucks**
  - Vaccinate annually
Health Program-Kids

- Colostrum!!
- Observe daily for signs of diarrhea or respiratory disease
- Castrate males before 3 months of age (market?)
Vaccination Program for Kids

- **Kids**
  - Vaccinate at approximately 4-6 weeks of age with *Clostridium perfringens* type C & D plus Tetanus Toxoid
  - Booster in 3-4 weeks
  - Vaccinate earlier if dams were not vaccinated
  - Use tetanus antitoxin at the time of castration or disbudding if dam was not vaccinated
Site of Administration
Subcutaneous Injections

- Meat goats
  - Prefer injections in neck
- Breeders
  - Prefer the axilla area (behind the elbow)
  - Nodular mass not as visible
  - Not readily mistaken for caseous lymphadenitis
Handling Livestock Safely
Small animal chute, minimum bending
Biosecurity for Goat Farms

Incoming Program: Unknown History

- Individually catch, identify and examine for health problems
- Set up a separate isolation area for sick goats (Take temperature/record)
- Fecal sampling of at least 10% of animals to know where the group is relative to parasites
- Isolate from other animals and pasture for 1 month
Biosecurity for Goat Farms

Incoming Program: Unknown History

- Observe for well being at least twice a day. Wear coveralls, rubber boots and gloves. These animals should be handled last.

- Vaccinate against tetanus and *Clostridium perfringens* C & D (overeating disease)

- Deworm and Trim Feet

- Clean and disinfect pens when goats leave
Goat Health Management

Know how they look and behave normally
Normal Range for Goat Physiological Parameters

- Temperature, rectal 103 - 104° F
- Heart rate 70 – 90 beats per minute
- Respiration 12 – 20 per minute
- Rumen movements 1 – 2 per minute
- Puberty 4 – 10 months
- Estrous cycle 21 days
- Estrus (standing heat) 12 – 48 hours
- Gestation 150 days
Common Health Problems

- Internal parasites
- Digestive/Nutritional
- Respiratory complex
- Reproductive
- Hoof
- Skin
- May not show signs of illness.
Top 5 Causes of Death in Goats
LDDC 2009

- Haemonchosis
- Parasitism
- Coccidiosis
- Pneumonia
- Coccidiosis (Eimeria)
Gastro-intestinal parasites
#1 health problem affecting small ruminants

- Round worms
  - *Haemonchus contortus*
    - Barber pole worm
  - *Ostertagia*
  - *Trichostrongyles*

- Lungworms

- *Parelaphostrongylus tenuis*
  - Meningeal (deer) worm

- Coccidia
“Barber pole Worm”

*Haemonchus contortus*

Female has a red and white stripe spiraling down its body, like a barber pole.

The red stripe is the worm’s intestine full of blood and the white stripe is the uterus full of eggs.

Adult worms attach to lining of goat’s stomach, bore into stomach wall and suck blood.
Multi-Species Grazing
Overeating Disease

- *Clostridium perfringens* toxin
- Produces toxin when rumen pH drops and normal movement of intestine slows down
- Heavy grain feeding or allowed in lush, fast growing pastures
- Depressed, diarrhea, death
- Vaccination/Gradual diet change
Good nutrition and feeding management

- Feed balanced rations
- Feed according to production cycle and growth stage
- Separate animals according to their nutritional needs
- Supplement pasture and forage, when necessary and economical
- Make feed changes gradual
- Adequate feeder space
- Good feeder design
Selenium, Copper, Zinc
Se, Cu, Zn

- Disease resistance - immune response
- Reproductive function
Digestive/Nutritional

- Urolithiasis (Blocked buck / wether)
  - Formation of large crystals in the urethra called “calculi”
  - Strain to urinate, vocalize, colicky
  - Important Factors: Early castration, salt and water availability, Pygmies
  - WATER, WATER, WATER
  - 2:1 ratio of Calcium to Phosphorus
Pregnancy Toxemia

- Does carrying multiple fetuses in late pregnancy – Cannot consume enough calories to meet her needs
- Depression, off feed, down, neurologic signs of blindness, teeth grinding, tremors and death
- Proper nutrition-small portions, high E
Respiratory Disease

- Pneumonia
  - Primarily *Mannheimia hemolytica* and *Pasteurella multocida*
  - Begins after stress &/or viral infection
  - Fever, nasal discharge, coughing, death
  - Treatment - Antibiotics
Reproductive Disease

- Abortions (primarily late term) due to:
  1. Toxoplasmosis - Control cat population
  2. Chlamydia - Vaccinate
  3. Camphylobacter - Vaccinate

Bring or Send **fetus** and **placenta** to the Diagnostic Laboratory for diagnosis
Hoof

- **Foot scald (between toes)**
  - ♦ Environmental
  - ♦ One bacteria
  - ♦ Not contagious

- **Foot rot (in hoof)**
  - ♦ Infectious
  - ♦ Two bacteria
  - ♦ Contagious
  - ♦ Foul odor
Hoof Problems

- Treatment consists of:
  - Antibiotics
  - Proper care and trimming of foot
  - Environmental Control
  - Foot Bath

- Prevention—Rocks help
Proper Hoof Trimming

Go slow
Be careful
Skin

- CL- Caseous Lymphadenitis
- *Corynebacterium pseudotuberculosis*
- Swollen lymph node closest to entrance point
- Contagious!!
Caseous Lymphadenitis
Contagious Ecthyma (Orf)
Soremouth

Viral skin disease-scabs or blisters on the lips, nose, udder, teats

Will resolve on its own.
Vaccine is available-live virus applied to skin

Once soremouth is in an operation, it usually returns yearly
To susceptible animals
Zoonotic Diseases

- Rabies
- Q Fever- birthing fluids
- Anthrax
- Brucellosis- birthing fluids
- Tuberculosis
- Soremouth
- Leptospirosis
- E. coli
- Salmonella
Veterinary Emergencies

- Keep the animal calm, stop any bleeding, get a veterinarian ASAP
- Dog Attacks
- Uroliths
- Dystocia-no progress 30-60 minutes after water bag breaks
- Overeating/Grain Overload
- Severe Anemia
Emergency Kit

- Thermometer (Normal 101-103 F)
- Bandage Material
- Vet Wrap
- Betadine Solution
- Topical Medication (Neosporin)
- Towels
Useful Links

- http://www.luresext.edu/goats/training/Goatmeds.pdf
- http://www.luresext.edu/goats/training/MGCalendar.pdf
Useful Links

- Michelle.bilderback@uky.edu
- http://www.sheep101.info/201/drugs.html
Questions?