

## Introduction

A healthy goat herd is essential for a successful goat operation. This goal can be achieved with proper management of the herd and with a little support from your herd health adviser (i.e. veterinarian, goat specialist, etc.). Many goat herds encounter diseases that can have a major impact. Examples of some common health problems include footrot, parasites (internal/external), *Paratuberculosis* (*Johne's* disease), *Caseous Lymphadenitis* (abscesses/cheesy glands or CLA), *Caprine Arthritis and encephalitis* (CAE), *Pregnancy Toxemia*, *Contagious ecthyma* (ORF or Sore Mouth/Scabby Mouth), selenium deficiency and toxicity, pink eye, navel ill, zinc deficiency, copper deficiency (sway back) and toxicity, *Enterotoxaemia* (grain overload), and *Polioencephalomalacia* (goat polio). Some bacterial/viral infections and other stresses can cause abortions in goat herds. *Q fever* (*coxiellosis*), *Listeriosis*, *Vibriosis* and *Chlamydiosis* are the abortion diseases of major concern for the goat industry.

### Some things to remember before and after purchasing goats:

- Check out what disease problems occur on the seller's property.
- Thoroughly examine the goats you intend to buy.
- Provide an on-farm quarantine of new goats for about 4 weeks after moving from seller's property.

Healthy looking goats do not mean that they are free from problems you may have to deal with. They can be incubating unwanted infections or bring parasites that you cannot see into your existing herd. You should be aware of any previous illness in the herd, drenching history, vaccination status, reason the goats are being sold, production records, scours incidence history, kidding percentage, and any veterinary examination results.

Thorough examination before a purchase should include: foot evaluation for signs of foot rot or overgrown hooves, coat condition, lumps under the jaw and on lymph gland locations, pink color gums and conjunctiva, determine the age from teeth, and rule out any signs of mastitis. The breeding bucks should have sound reproductive organs.

Once the purchase is complete on-farm quarantine of new goats is the next important tool of health management. During quarantine keep all the new goats in an isolation area separate from the existing herd, administer necessary vaccines or drenches, regularly observe goats for 4-6 weeks for unusual attitude, consult your veterinarian for any necessary testing and clean and disinfect the isolation area after every batch. Make sure a bio-security protocol is in place throughout the operation.

## SIGNS OF DISEASE

**Appetite:** loss of appetite

**Attitude:** depression, weakness, no weight gain, drunken behavior, unusual gait

**Feces:** Diarrhea (watery, mucus, bloody, scant, frequent, straining) and compaction

**Body and Coat:** swellings, skin lesions, flank distention, hair coat (alopecia or discoloration), hair loss (e.g selenium toxicity)

**Respiration:** rapid, chronic cough, labored breathing, thick and coloured mucus discharges

**Eyes:** pale mucus membranes, reddened, corneal abnormalities, unusual secretions

**Udder:** tender, hot, hard, milk colour and texture

**Urine:** frequency, colour (red or brown), unusual smell

**Signs of pain:** grinding teeth, kicking, bellowing, screaming, aimless running, unease

**Hoof deformities:** cracks, lameness





### GOOD MANAGEMENT PRACTICES

Provide clean, dry and draught free environment

Provide drainage from the yard

Control rats, mice and insects

Provide fresh and clean water

Clean waterers weekly during summer

Avoid overcrowding

Minimize transport and handling stress

Provide ventilation in barns

Get the barns ready before harsh weather

### HEALTH RECORDS

Keep record of all treatments

Record mortalities

Follow withdrawal times

Cull goats with frequent treatments

Record vaccinations and dewormings

Record breeding and kidding data

## Control of Diseases

- Separate sick animals from the herd and provide appropriate treatments.
- Remove dead animals immediately and compost or burn the carcass.
- Examine aborted goats and submit to a veterinarian for necropsy if needed.
- Trim feet on regular basis to minimize risk of footrot or other foot deformities.
- Adopt mastitis control measures.
- Avoid handling of goats in case zoonotic disease is suspected, especially ORF, *oxoplasmosis* (especially if the handler is pregnant), and *fever*.
- Feed adequate colostrum to kids in the first 82 hours of birth. Doing so will reduce risk of infection in first 6 weeks of age.
- Disinfect the navel at birth with tincture of Iodine to reduce the risk of diseases like septicemia, omphalophlebitis, polyarthritis and pneumonia.
- Administer preventative medicine to 2 week old kids as they are susceptible to coccidiosis.
- Feed colostrum only from CAE free does.
- Vaccinate does during dry period for passing maximum maternal antibodies to the kids.
- Be familiar with the regulations before selling any animal product to the public.  
Web link to Manitoba as well as Federal meat inspection acts:  
<http://www.gov.mb.ca/agriculture/livestock/abattoir/bac10s02.html>

## Parasite Control

Many internal as well as external parasites can have an impact on goat health. Internal parasites include gastrointestinal worms (*haemonchus*, *ostertagia*), intestinal protozoa (*coccidia*, *cryptosporidia*), *liver flukes*, *lung worms*, *meningeal worms*, and *tapeworms*. External parasites include lice, mites, and ticks.

Internal parasites are the most detrimental to the health and production status of the herd. Goats become sick (diarrhea, fever, anemia), lose or just maintain weight, and can even die depending on the load of infestation.

No one control program can work for all herds. Planning is needed for individual herds to make it work. Pastures are the major source of internal parasite infestation and closed confining in barns or overcrowding is main reason for the spread of external parasites. Worms lay eggs that are passed in manure onto the pasture and larvae hatch from these eggs in suitable conditions (warm and wet). This can take a few days to a few months depending on the weather and the type of worm. Goats graze larvae from the pasture. The closer they graze higher number of larvae they tend to pick up. The larvae damage the stomach and some are blood sucking (*Haemonchus*). A heavy infestation with a blood sucking parasite can kill a goat in a short time. Different parasites have a different developmental stage, that is why the dewormers can not control all the parasites with conventional deworming techniques.

A high deer population is a prerequisite for the presence of *meningeal* worms as the larvae pass in deer manure. Snails pick up larvae from pastures and then are accidentally eaten by the goats while grazing. *Meningeal* worms do not affect deer but they can cause neurological problems in a goat.

*Coccidiosis* is another parasitic disease that can reduce the feed efficiency of goats to a great extent. *Coccidia* (*Eimeria*) can infest any age of goat. Young kids are affected the most. Goats can pick up *coccidia* while grazing as well as in the barn.



## **Pasturing of Goats (for parasite control)**

The closer the goat grazes pasture the better the chance of getting infested. Also the dryer the weather (hot or cold) the smaller the number of parasites on pastures. That is why it is extremely important to manipulate grazing protocols accordingly. Rotational grazing is one of the best management tools to keep the infestation levels low. As a rule of thumb grazing pastures below 6 inches should be discouraged. Move goats forward every 7-10 days and do not re-graze for 3 months.

### **General Deworming Schedule**

- Before turning goats onto a new spring pasture.
- Several weeks after turning onto a pasture.
- Early winter (broad spectrum medication)
- Another deworming may be necessary during long winters.

Parasites can over winter if the winter is not too harsh to kill the larvae on pasture as well as inside the goats if a broad spectrum dewormer was not used in early winter.

### **Detection and Monitoring**

- Regular fecal examinations and veterinarian consultation is an important step for the detection and monitoring of parasites in a goat herd.
- Fecal material attached to the hind end, no weight gains or gains at levels less than expected as well as pale gums and conjunctiva are clear signs of parasitic infestation.
- Eye membrane colour matching with FAMACHA card is helpful in diagnosing anemic goats due to the presence of blood sucking parasites.
- Examine withers and brisket/shoulder area to find biting and sucking lice respectively.
- Papules, pustules, wheals and ulcer formation indicate tick presence.
- Pruritic nodules on the head, and dermatitis around eyes, ears, neck, thorax, inner thighs and udder are signs of mange (scabies). If presence of mange mites is expected contact your veterinarian to confirm the diagnosis. Positive diagnosis must be reported to government authorities.

## **Castration and Disbudding/Dehorning**

Castration is usually performed to avoid strong flavour in the meat, to avoid odors, and above all to control aggressive behavior in male goats. Castration can be performed using any of the five methods (surgical, rubber rings, burdizzo, inguinal ring manipulation, sclerosing chemicals). Timing of castration is mainly dependent on the type of method in use, market, breeding plans, and ease of performing the procedure.

The main purpose of dehorning is to avoid injuries to the herdmates, to the owner, and for show purposes. Kids from polled parents are likely polled and do not require disbudding. Presence of swirled hair in bud spots of a kid is sign of horns. The best age for disbudding is the first week after birth. Destruction of the tissue that can grow into horns (Corium) is the objective of disbudding. Electric cautery, and cryosurgery are common methods of disbudding. Disbudding should be performed humanely and tetanus vaccination is a must.

### **ANTI-PARASITIC DRUGS**

#### **ANTHEMINTICS**

DORAMECTIN  
IVERMECTIN  
(INJECTABLE/DRENCH)  
MOXIDECTIN  
(INJECTABLE/DRENCH)  
FENBENDAZOLE (DRENCH)  
ALBENDAZOLE (DRENCH)  
LEVAMISOLE (DRENCH)

#### **COCCIDISTATS**

MONENSIN SODIUM  
(FEED PREMIX)  
LASALOCID  
(FEED PREMIX)  
AMPROLIUM  
(FEED PREMIX)  
DECOQUINATE  
(FEED PREMIX)

#### **FOR EXTERNAL PARASITES**

IVERMECTIN (INJECTABLE)  
LIME SULFUR (DIP)  
PERMETHRIN (SPRAY)  
TRICHLORFON (DIP)  
DICHLORVOS (SPRAY)  
COUMAPHOS (DUST)  
AMITRAZ (SPRAY)

**None of the above drugs/chemicals are approved for goats. Consult your veterinarian for extra label use as well as for dosage and administration and withdrawal times.**



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## **Prophylaxis or Vaccination**

Vaccines are for prevention only. When the disease occurs seek treatment. Currently there are no vaccines approved for goats. The vaccines approved for sheep and cattle can be used for goats off label with a veterinary prescription.

### **Vaccines in Common Use**

**Caseous D-T:** *overeating disease (type D), lumps/abscesses (Caseous Lymphadenitis) and tetanus.*

**Vision CD-T:** *overeating disease/enterotoxaemia (type C&D) and tetanus.*

**Case-Bac:** *or Caseous lymphadinitis(CLA or abscesses ).*

**Tasvax 7 or Vision 7 (7 way vaccine):** *overeating disease and/or enterotoxaemia (type C & D), tetanus, black leg, malignant edema, infectious necrotic hepatitis (black disease) and lamb dysentery.*

**Covexin 8 or Tasvax 8 (8 way vaccine):** *overeating disease or enterotoxaemia (type C & D), tetanus, black leg, malignant edema, infectious necrotic hepatitis (black disease), lamb dysentery, and bacillary haemoglobinuria.*

It is important to keep epinephrine or antihistamine on hand as some adverse reactions may occur after giving vaccine to the goats.

### **Vaccination Schedule for *Enterotoxaemia* and *Tetanus***

Breeding Bucks: Once annually

Breeding or mature does: 4-6 weeks before kidding, annually.

Kids: If breeding does were vaccinated 4-6 weeks before kidding then kids should get their first shot at 8 weeks of age. If the breeding does were not vaccinated or due to unknown status the kids should get their first shot as soon as possible, usually by 2 weeks of age. Kids should always get their booster shot 4 weeks after their first shot then 2nd booster 6 months after their first shot.

Consult your veterinarian or read the product label for dosage and administration.

## **Additional Resources**

**Goat Health (Prime facts) - Robert North & John Seaman, New South Wales, Australia. ( [www.dpi.nsw.gov.au/primefacts](http://www.dpi.nsw.gov.au/primefacts) )**

**Goat Medicine (1994) - Mary C. Smith DVM & David M Sherman DVM MS**

**Langston University Goat Research Website:**

<http://www2.luresext.edu/goats/index.htm>

**MAFRI Goat web page ( <http://www.gov.mb.ca/agriculture/livestock> )**

**Merck Veterinary Manual, Merck & Company, Inc. NJ**  
(<http://www.merckvetmanual.com>)