

Management of Goats

It is my opinion that 95% of death loss in goats is directly related to lack of knowledge and management skills.

First importance is to be ready for the animals. Adequate fencing is very important. There is nothing like hunting goats that don't know where they live because they are new. I prefer the sheep and goat net wire that has 12" wide stays, spaced in a graduated fashion from ground to top, with the narrowest at the bottom, and 2" apart to 6" at the top. A goat that hangs her head in this can turn her head sideways, and get out of the fence. Square fencing with 6" squares is dangerous. They will get hung in it and you could find the goat dead, and if she is alive, you will be very tired of having to check fence all the time. There is a new type of wire called tite lock that has small squares, and is very strong.

Electric fence is adequate if they are trained to it prior to putting them in pastures fenced with electric. I prefer at least a minimum of two wires, spaced at 12" off of the ground, and 18" above that wire. Goats KNOW when it is off, and will take a stroll if it is off, or shorted out. I prefer to have permanent fences on perimeters, and cross fences, but electric cross fences are an option.. Electric wires can be used to augment existing barbwire fences.

Shelter: A three sided shed is fine for pasture situations. If no shelter is available, there should be heavy brush or wind break available. Barns that can be closed to retain heat may be necessary in colder climates. Be sure ventilation is adequate to prevent respiratory problems in the animals and yourself. Ammonia can be a real problem if the weather is cold for a prolonged period.

Water should be available at all times. In extremely cold weather, it is advisable to warm the water with heaters if necessary. Animals that must drink icy water use the calories they consume to warm up after they drink cold water. This is expensive in terms of amount of feed necessary to maintain the animal's body condition, pregnancy, and lactation. Cold can precipitate pregnancy toxemia if the doe is carrying a multiple pregnancy, and is not drinking enough to aid the kidneys in the excretion of toxins produced by the pregnancy. It compounds the problem, when feed consumed is used to produce warmth instead of maintaining the pregnancy, and body functions. Water is integral to all body functions, and must be kept as clean as possible.

Minerals: Calcium Phosphorus ratio should be 2:1 for optimum goat utilization, and prevention of urinary calculi.

Trace minerals are very important, mineral products should have adequate trace minerals added. In some areas there is not enough Selenium, this trace is added at a minimum to mineral preparations, since Selenium can be toxic in excess. White muscle disease can be prevented by adequate Selenium. Injectable sources: BoSe is the most commonly used. Usually 1cc SQ or 2cc SQ or oral of BoSe are an adult dose. Check with your vet for regional requirements. Frequency of dosing and dosing of newborns is dependent on the area, and deficiency of that area. Ask your local vet for dose recommendations for your area. Selenium can be added to fertilizer of pastures at 4 grams per acre. It can be added to salt, or mineral supplements.

To prevent white muscle disease goats can be given 5 mg orally, or parenterally (injected) 4 weeks prior to kidding. White muscle disease in its severest form: kids so weak they never nurse, or die in a few days after birth. Kid may be given .5mg orally or

parenterally within 2-4 weeks after birth, and then monthly if there is no other supplement for their dams. Vitamin E is synergistic with Selenium. Kids with spraddle legs may be given 400 units per day (the human capsules punctured, and the oil squirted in the mouth) oral for 3-4 days and the kid should stand in a day or two.

Parasites: Stomach worms can suck the blood of the goat causing acute anemia, and death when the goat appears to be in good body condition and fat. The most common of these is *Haemonchus contortus* (most common in summer), *Ostertagia circumcincta*, *O. trifurcata*, *Trichostrongylus axei* (more common in winter). An infection of *Haemonchus* can cause death in a short a time as one week when there is heavy infestation, with relatively few symptoms. The acute infection is characterized by edema usually starting under the jaw, and moving to chest, belly, and legs. The eyelids will be white or very pale pink. *Haemonchus* does not cause scours. Treatment of the severe infection, when edema is present is done with care. A white wormer (these are less effective) should be used in a triple dose to kill some of the worms but not all. I prefer to use a 1,000 lb dose of safeguard on a grown doe. Anemia can be treated with molasses. Old fashioned blackstrap molasses has as much iron as many of the over the counter treatments, is safe, and has most of the constituents to help the goat with energy, and to feel better. Ferrodex or Iron Dextran can be used IM at 1cc IM per 100lbs body weight once a week until the goat is pinker. Vitamin B12 2cc IM is recommended at the same time as the injectable iron product.. Healthy goats produce their own B vitamins, but when they are sick, the rumen bacteria that perform this function are dead. B12, Cyanocobalamine is the center of the molecular structure of the red blood cell. Red cells can not be made in the bone marrow without it.

After 5-7 days, you can worm with Cydectin, which will kill all of the worms. Continue to treat for anemia. Replace rumen bacteria with live probiotics.

Do not put anemic goats back in a pasture until they are pink. If turned out into contaminated pasture, and infected again while anemic, they are likely to die.

Make sure to dry lot the goats 24-48 hours so that worm eggs are dumped in the lot, not in the pasture, then put them on fresh pasture with vegetation at least 10" tall..

Goats not acutely ill can be wormed with a full dose of Cydectin or Ivomec orally. I use Cydectin 1cc/10 lbs orally of the pour on product, and 4cc/ 100lbs of the injectable given oral, Ivomec cattle injectable at a dose of 4-5cc/100lbs orally.

Trichostrongylus will cause scours, weight loss, poor hair coat, and general loss of condition. They are treated as above. There are more stomach worms than presented here, but these can be treated with the above.

Tape worms: *Monesia Expansa*, is the most common tape worm of goats and sheep. The intermediate host is the mite that stings your arms when you handle fresh hay. The tape worm is not supposed to be pathogenic; however, I have seen tape worm infection cause severe scours in young kids, poor hair coat, weight loss, and emaciation. I usually use Synanthic to treat tape worms. I use it on pregnant does, and kids at double the cattle dose: 5cc/100 lbs orally. Dead tape worms can be seen in the feces in 24-48 hours. I recommend worming three days in a row to be sure of the worm kill. Valbazen will kill tape worms, but is not safe for pregnant animals. Synanthic is safe and I triple dose the label recommendation, it will also kill tape worms. Valbazen will kill liver flukes also, but again, is not safe for pregnant does. Safeguard is the only wormer currently approved for goats, and unfortunately it no longer is effective unless used at a triple dose three days in a row. Hook worms, *Bunostomum Trigonocephalum*, is significant in warmer

climates, and can be controlled with Ivomec or Cydectin. What I have used recently is Quest plus horse wormer. It has Moxidectin (Cydectin) and Praziquantel (which kills tape worms). I double the dose on the plunger.

Liver fluke: *Fasciola Hepatica*- The intermediate hosts are aquatic snails, and slugs. Goats, sheep and cattle consume vegetation near water contaminated by encysted cercariae. Cattle can be asymptomatic, but sheep and goats with severe infection can die in 6 weeks from contamination. Symptoms are abdominal distension, edema, and anemia. Flukes enter the liver capsule, and wander in the liver tissue destroying it as they go, causing hepatitis and liver failure. They migrate to the gall bladder and lay eggs. Valbazen, or Ivomec plus are treatments.

Management to prevent or limit parasites:

Do a fecal to determine type and severity of worm infection.

Wormer should be administered at a dose that is for the largest goat in the group. Example: does range from 180-210 lbs, I worm them all for the heaviest goat. Under dosing causes more problems by permitting some worms to live, that then are resistant to the wormer used. Worm every goat in the group. Dry lot them in an area with dry hay for 24 preferably 48 hours to permit worms and eggs to be dumped into the dry lot, and not pasture. Put the goats into a fresh pasture. This will help to limit contamination of pastures. Sanitation of barns, pens etc. is significant in the reduction of worm contamination. Quarantine all new goats for 7-10 days. Worm them for both tape worms, and stomach worms; then do a fecal before you turn them out. You do not want to contaminate your premises with resistant worms.

Controlled burns can be used in late winter/early spring to kill worms. Contact your extension service office for their help in coordinating the local fire department.

Hoof rot can be an issue in cold and or wet climates. Quarantine goats, trim feet, dip in chlorine bleach, or use Koppertox on the feet. Be sure there are no signs of hoof rot for the 7-10 days they are in quarantine. Vaccinate as needed for chronic conditions. Sulfa drugs in water can be used to treat hoof rot or hoof scald. Hygiene is a real factor in keeping this controlled.

Lice can be a problem, but are treated by use of Ivomec, Cydectin, or Dectomax. Sucking lice are relatively easy to control. Chewing lice, as in the type angoras get are not easy to control, and dips are the most effective. Some pour-ons such as Cyvence work well if goats are not in need of worming.

Coccidiosis is very significant in the goat population, and is one of the most significant causes of failure to thrive in young goats. *Eimeria arloingi*, *E. christenseni*, and *E. ninakohlyakimovae* are the most pathogenic in kid goats.

I prefer the use of Rumensin (monensin) for prevention. Rumensin is the one Ionophore that will pass through the milk of the dam, and protect that kid from having infection by the *Eimeria* spp. Feed can be purchased that contains Rumensin, Sweetlix has a mineral that has Rumensin now, and is very palatable. Rumensin also enhances feed absorption, and feed efficiency at a gut level: Kids grow faster, and goats on pasture remain in better condition with lower quality forage. I have used the Rumensin blocks for cattle for this purpose for 20 years.

Treatment of kids not on a preventative program: Sulfa drugs according to label instructions. There are many different brands of sulfa drugs available. Treatment dose is different depending on the manufacturer. Goat kids can scour and die in hours if not treated. Biosol (Neomycin 200 mg/ml) can be used orally in a weight appropriate dose, along with Pepto Bismol to stop scouring and dehydration. Spectam Scour halt is also an effective treatment.

Pneumonia: The organisms that cause the most loss in goats are the Pasturella species: Specifically (Mannheimia now) Pasturella hemolytica, P. Multocida, and Haemophilus Somnus. I prefer to vaccinate goats for the prevention of this disease.

Treatment: Nuflor is the drug I prefer: 6cc/100lbs SQ as a first dose, followed by 6cc/100lbs SQ each day for at least 5 days. Goats are smaller, they have faster metabolisms, they need to be treated every day or they tend to relapse and die. They do not respond as per cattle recommendations on the label. To augment the treatment, I use Polyserum 10cc SQ per 100lbs for 5 days. The product comes in several names depending on manufacturer. It usually has Actinomyces Pyogenes, P. multocida, P. hemolytica, Salmonella, and E Coli in it. If no response to Nuflor is seen in 24 hours, I add Septra to the treatment: 5cc oral per 50 lbs body weight. Septra is Sulfadimethox with Trimethoprim, given oral twice a day. It comes in a pill or the oral suspension. I prefer the suspension, as it is cherry flavored, and easy to dose.

Polyserum or Bovi Sera are antibodies to the diseases, as CD antitoxin is antibodies to Enterotoxemia. Banamine can be used at the dose: 1cc/100lbs body weight to alleviate respiratory distress, and as an antiendotoxin to help prevent damage to kidneys and liver by toxins produced by bacteria. It is also anti-prostaglandin, and will help prevent the secretion of prostaglandin, that will precipitate abortion secondary to injury or illness. Prostaglandins are secreted in response to pain. I prefer to vaccinate to prevent these diseases. I use the Super Poly Bac B Somnus, by Texas Vet Labs. This is a cattle vaccine, and the goat dose is 1cc SQ booster with .5cc (half a cc) in 2-3 weeks. It is very effective to prevent pneumonia. It protects against P. Hemolytica, Multocida, and P. A6, Haemophilus S. and Salmonella. Goats with a history of pneumonia get a third dose: .5cc in 14 days after the first booster.

Enterotoxemia: Bloat is the most common symptom. The kids die very quickly. Grown goats take a little longer, but still die if not treated. Depending on size, I treat a 50 lb kid with 5cc CD antitoxin SQ, 5cc SQ long acting penicillin, 5cc orally of Penicillin, and 15cc orally of Pepto Bismol. Usually the kid will be significantly better in an hour. I repeat the Pepto Bismol later in the day. On day two, I give CD antitoxin 5cc, 5cc SQ penicillin, and a dose of live probiotics. Vaccinate in 5 days after last CD antitoxin.

Does can be vaccinated 2-3 weeks prior to kidding; to have colostrum immunity, that protects kids until they are 12 weeks, and old enough to vaccinate. I use Covexin 8, to vaccinate for the Clostridial diseases.

CL: Caseosa Lymphadenitis: Causative organism: Corynebacterium Pyogenes sometimes called Pseudo-tuberculosis.

This is a disease endemic around the world. Other species than just sheep and goats can have the infection.

Symptoms are usually abscesses of the lymph system. Most common are abscesses under the jaw or other lymph areas. Abscesses can be internal affecting any or all organs of the

body, and can be found in the udder, or testicles. These infections are significant in reduction of vigor, and ability to thrive. Goats with internal abscesses frequently have a wasting condition that can mimic other diseases.

Prevention is simply to vaccinate. The ground can be contaminated on the premises where goats are kept, and any broken skin or quicked hoof can permit entry of bacteria. Positive goats can be vaccinated with an Autogenous vaccine, and the disease suppressed. These animals are not contagious if they do not have an abscess. Clean animals can be protected from infection through a conscientious vaccination program. If does are vaccinated a month prior to kidding, then there is enough colostrum immunity to protect them until they are 12 weeks and old enough to vaccinate.

Blood tests for detection are not always effective in guaranteeing clean animals. Goats can be exposed on day 5-10 prior to testing, and still test negative, yet they are positive. Many producers think they are safe buying tested goats, when this is not a guarantee of anything. The only safe option is to vaccinate, booster in three weeks, and then annually for the life of the goat.

Positive herds can be cleaned up by vaccination, and suppression of the disease. Kids protected through colostrum of the vaccinated does, and subsequent vaccination of keeper kids by 12 weeks. As time passes, the older positive does can be culled, and only clean animals retained. Prevention is still the safest method, as treatment is not always successful.

Culling is a very important issue in management. I cull does that walk away from their kids, or kick one off. A doe with triplets may kick one kid off, and that is not a culling issue if she does not have milk for three kids. Does that need to have kids pulled more than one pregnancy are a liability. Does that have an udder that a newborn kid can't nurse without human intervention, will not raise that kid if you are not there, and often that udder structure is inherited? I keep my doe kids at the headquarters, and they are monitored during the first kidding. If they have a problem, they go to the auction, since I put them on pasture after that, and they will die if they have a problem.

A goat needs to have a good mouth. I cull any goat that has a bite in which the teeth do not meet the dental pad. No exceptions. They must eat to live.

Goats with bad legs or feet, feet that grow excessively, and or other bony structural abnormalities, go to the auction. Bucks need to have two large well formed testicles of

This is how I do it.

Coni Ross, RN, Rancher, goat raiser for 37 years

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