

## **New to Goats? *By Lyn Batt***

Goats are so cute cuddly and full of laugh filled antics - who wouldn't just love them ! Many people see the fun side and do not think of the daily chores- 365 days a year, before purchasing goats. Goat owners know that any animal needs to be fed more than once a day and that dairy goats need to be milked 2X a day. Goats need to be bred and kids are born at all times of day and night which means holidays, weekends, birthdays and anniversaries are not off limits to these events. Most goat owners will tell you that the goats are well worth the things that get delayed and never attended. This is mentioned so you are aware in advance and it will prevent family disputes.

There is a lot about life that is learned through a goat herd. Responsibility, good nutrition, sacrifice, reproduction, birth and even about death. As most of us know goats enter our lives and we love them. We love them all even those cute buck kids that dairy producers have no use for so they are sold to others that see the cute baby goat not realizing that in just one year he will be a blubbering, nasty smelling, self satisfying buck that they must put up with or sell with broken hearts. A few responsible goat owners sell cute little disbudded wethers (castrating at a young age can prevent buck behavior) and the new owner can enjoy the wether for a time but needs training on how to manage them to prevent urinary calculi (blockage of the urinary tract causing a potentially deadly stop to the flow of urine) and on understanding that goats can live for up to 16 years. Some owners keep the buck kid intact and sell them to the meat market for those who hunger for goat meat. Whichever you do we must realize that we can't keep all of the goats we have born in our care before we buy our first goat. We need to consider the fact that not all pet homes are good homes for that cute baby goat. Remember the story of Elmer that circulates each spring.

One of the necessary things to have when you begin in goats is an experienced goat person to teach you. You can ask the person selling you the goat or join a goat club (adult clubs or 4-H). You will learn a lot going to meetings and hearing what fellow goat owners have to say. You can ask your vet if he knows of a local person knowledgeable in goats. An experienced goat herdsman is of great value to you when you begin.

### **Housing**

Goats are creatures that can be housed in a variety of ways the basics needed are to keep them dry and draft free. Good ventilation is a must to prevent pneumonia. The water should not freeze if possible where not possible you may need to water more often so it is available to them. The floor of the she needs to be easily cleaned and dry to prevent disease and foot root. Putting them out on a leash or tether is not safe or acceptable as they can tangle themselves and fight it till they die or a dog or other predator will find them an easy meal.

Fencing around the shelter has to be tight as the goat will find any flaw and go to the other side to

explore. Electric fencing works well if constructed correctly. You will need a good electric fencer either solar or plug in. You will also need to educate some of the herd to the results of touching the fence.

## **Feeding**

Goats have a reputation of eating anything but that is not true. They are natural browsers and love tree and tree products, such as paper. The goat like a baby will explore with their tongue and mouth but they may be very picky on what they really eat. One of the main things needed is all feed be clean mold free. A good quality hay and grain is needed to supple nutrients to the goat. Hay or corn fermented in silos or bales can be used BUT you run a GREAT risk of unseen molds that will cause disease and death to your goats and is not recommended feed.

There is grass hay and alfalfa hay in the Western New York area. Hay is the main roughage in your goat's diet. Whether you should feed grass or alfalfa depends on the age, sex, and stage of lactation of your goat. Alfalfa is good for milking does and young doe kids as it is higher in essential nutrients than grass hay. Alfalfa is not good for bucks as it is higher in calcium and can contribute to urinary calculi. The herd sires should have a high quality grass hay.

How do you tell the quality of hay? Your 5 senses can give you a good idea. Look at it. Is it green to pale green or tan to brown? A good hay should be greenish. Feel it - soft or prickly? Can you hear a crunch when you bent a stem of it over? This means that it is turning woody or "lignified". Goats cannot get much nutrition from forage that has become "lignified". Instead the hay needs to be harvested while still immature enough for the stems to be thin and pliable. Hay that is put in the barn at the right stage of maturity is enjoyable for goats to eat. If too stick- like they will go hungry and leave it in the feeder. Smell it - does it smell musty, moldy or is it dusty? Does it make you sneeze? If yes, do not get it. A good hay should smell good to you.

Put it all together - a good quality hay should be green with a sweet grass or alfalfa smell and free of dust and mold. Your hay dealer or local farmer is worth gold to you treat him as such and you will be glad you did.

You have found your supply of good hay for the winter but how can you be sure of its contents? Ask your feed dealer or if on DHIR ask them to test it. For a small fee you can know what your hay has and what you need in your grain to make up a total ration for your herd.

## **Water**

Water is a very important ingredient in any living beings diet man, beast or plant. Your goat needs free access to clean cool water twenty four hours a day. If using buckets it also means the buckets are cleaned routinely and there is enough of them that even the low goat in the herd can drink all it wants. Living beings are about 90% water then remember you lose water with each breath, when to eliminate waste from your body, sweat, and produce milk. I use to roughly figure four to five gallons a day per goat and twenty five a day average for a cow. This may change for many reasons such as lactation, weather, illness, feed sources (dry hay vs. pasture) and more.

## Supplements

There are many nutritional supplements in the market place some are placed into feed or on the hay. Some like selenium and vitamin B or E are injectables. What you need will depend on where your hay is grown, the quality of your feed. In western New York we have a low amount of selenium and we need to give this once or twice a year but be careful of the dose because if too much is given it may be deadly. Be careful to get BoSe and not MuSe as MuSe is around 10 times stronger and may kill if the same milliliters are given. If you have general reproductive problems or weak kids at birth suspect a selenium deficient. Kids will die if they are deficient this is called white muscle disease. White muscle disease can be controlled by giving injection of selenium/E during the last month of pregnancy. Some goats will have an iodine deficiency and develop goiter and may need to be supplemented with a special edible iodine called Luigels solution your veterinarian will need to diagnose and prescribe the medication.

## Hoof trimming

Your goats' feet will grow rapidly so they need to be trimmed every six weeks to help keep the bones in the feet and pasterns aligned. If the feet are let go for too long the risk of infection called foot rot is greater and you also run the risk of breaking the pasterns down from the foot being forced into the wrong angle to a length of time. When you have new kids the hoof is flat across the bottom. When you finish trimming the adult the foot should look like that. To do this you can use many tools from hoof rot sheers to hoof trimming sheers to jack knife or box cutters (I have scars from all the different ones I used). The tool must be sharp, clean, and rust free to work it's best. Ask an experienced person to first show you then supervise you when you start to trim feet. You need to clean to dirt and manure to begin. Then pick up tool of choice and take off the excess toe to begin with. Look for the pink underneath as you trim avoiding cutting into the blood supply. Then the heel should be flattened either by rasp or cutting tool. This prevents the goat from rocking backward on the heel contributing to poor pasterns. (see diagram below)



[http://home.vicnet.au/~goats/dgavictoria/hoof\\_trimming.htm](http://home.vicnet.au/~goats/dgavictoria/hoof_trimming.htm)

## Disbudding

Kids start to grow horns within days to weeks after birth depending on the breed. As soon as horn buds can be felt they should be disbudded. If you wait longer it will be more trauma as there will be more horn tissue to destroy.

If you decide to do the disbudding your self have an experienced person or your vet teach you the art of disbudding and supervise at least one disbudding that you do.

Afterward give the kids a little bottle and the world will be well again for them. Watch the burnt area for signs of infection such as swelling, odor, increased tenderness. To lessen the chance of infection shave the area around the horn buds prior to disbudding. You also need to watch for re-growth of horn bud caused by taking the iron away to early. If a horn begins to grow you will need to disbud them again, this growth is called scurs and may grow into the skull at times.

## **Tattooing and Identification of goats**

All goats need to have a individual identification. In Dairy goats the tattoo is the preferred method. In other breeds of goats, an ear tag can be used for the animal. When you tattoo your goal is a clearly read tattoo that can be easily read for the life of the goat. This is how I would do the chore of tattooing goats.

First step load the tattoo pliers and try the tattoo on a clean piece of paper to make SURE it is the correct sequence of letters and numbers. The bottom of the registration application is a good one so you can compare the two to make sure it is correct. Remember that the goats left is your left if you are FACING the SAME DIRECTION !!

Next clean the ear well with rubbing alcohol and allow to dry this kills bacteria that would cause infection and cleanses the ear so you can avoid blood vessels. Use a goat box to control baby goats or a stand with a station that will help control the movement of the goats head.

Place the pliers from the bottom of the ear up (so they will be right side up) and so the needles are on the inside of the ear. When in position and the goats head movement is well controlled squeeze the pliers as hard as you can and release. Look at the impressions if they are not torn( from head movement during the hole making process) then apply paste ink with a tooth brush and scrub it into the ear. If you spread the ink first and the goat pulls the ear scratching the tattoo needles across the ear you have no where to re-tattooing so put the ink in after you inspect the stamping of the tattoo and really scrub it in with a tooth brush. I preferred the green paste ink and wear rubber gloves on my hands during inking the ear.

The goat will not be practically happy about the tattooing process but if done correctly it will only need to be done one time. What size of pliers should you use? I would suggest 5/16 or the large letter/number set for goats with ears to tattoo and the smaller set for those that do tails. For tails make sure it is cleansed well know if you are doing the tail web (sides of the tail) or the center of the tail before you plan the tattoo as you have to notify the ADGA for the herd sequence from the association herd book .

## **Milking**

After a doe freshens (has her babies) her udder will fill with clostridium and after about three day she will make milk. Regardless if you choose to feed your kids by hand or let them nurse you need to empty the udder twice a day to check the health of the mammary and to relieve her udder of the milk she has made. If you are allowing the kids to nurse you will catch if one is not eating well or is getting sick due to the amount you get will increase sharply. You will also see if mastitis is present by the color of the milk ( some will cause pink coloring due to blood in the milk) and presents of lumps in the milk.

### **Choosing a Veterinarian**

When starting into goats you want to choose a veterinarian interviewing them to find out if they treat goats, if they are interested in goats and goat diseases, and if they will come to the farm or want you to bring you goat to them if too ill to walk( did you ever try to carry a 200 pound goat to the car??). You may also want to know the cost of visit to the office and to the farm before you make you final decision. You can also ask experienced goat herd owners in the area on which vet to use. Your vet like

your own doctor needs to see the herd when well at times so contact them for instance for rabies shots and get suggestions on your program. This is done before you have the first need for a vet to see a sick goat. Your vet is an excellent source of education for you, they are a very important resource.

## **Diseases**

The best way to catch what is happening to your goat when she is becoming ill is to observe them when they go about the healthy daily lives. When becoming sick their routine will change and with careful observation you may catch illness in the early stages when the cure is easier and more successful. Below you will find articles from good resources so they are accurate for you also a few that I have written for you.

### Upper Respiratory diseases

As humans we get virus and bacterial infections in our respiratory systems some bacterial infections start out as viral then weaken the immune system till we have a bacterial infection. Remember bacteria love a warm moist dark place to live and multiply and our lungs are perfect for them !! As both humans and goats are mammals it is not much different for the goats. In drafty areas that are poorly ventilated and moist the goats immune system is compromised and they may come down with a viral or bacterial infection in their lungs. There are times that the infection may be not showing but present in the system (sub clinical) then when a stressor happens (like shipping or going to fair) the goat becomes very ill.

The first signs may be lack of appetite (not eating as well or not at all) fever (normal goat temp may be between 101 and 104), general malaise (laying around not interested in their environment), depressed (standing with head down, not eating), ruff coat, trouble breathing, cough, nasal discharge, or eye discharge.

Like the human cold viral infections do not respond to antibiotics but the antibiotic will assist the goat with bacterial infections. Some comfort measure for severe respiratory pneumonia can be putting Vicks Vapo Rub or similar product in a bucket with boiling water to make a vaporizer with (do not let the goat drink it). Give them a few treats to eat so encourage food intake. Keep the eyes and nares clean of mucus. Blanket the animal to prevent chilling. Remember that animals can not take Tylenol as it will shut down their kidneys so they need to just have aspirin for fever and comfort. Contact your Vet for other prescription products.

### Polio

The main cause of this is a thiamine deficiency (a vitamin B1) either by lack of thiamine or due to the stopping of thiamine activity in the rumen (Mauldin). Thiamine activity can be stopped by many things such as: by rumen acidosis caused by over feeding grain, moldy feeds, some wormers and ferns, over dosing of Amprolium (Corid) or feeding a high molasses grain.

The decreased thiamine activity decreases the activity in the rumen that digests the carbohydrates and amino acids in the rumen this leads to abnormal brain function from swelling and death of some of the cells. The symptoms are from the brain swelling include depression, lack of appetite, diarrhea, neurological symptoms such as nervousness, staring with head up or off into space, aimless wandering possibly in circles, muscle tremors and blindness if not treated they may lead into convulsions and

involuntary eye movement.

The treatment is Thiamine and Penicillin IM. It is a good practice to keep thiamine and penicillin on hand at all times.

### Bloat

Goats being ruminants have four stomachs (or four chambers to their stomachs) The four chambers are named the reticulum, the rumen, the omasum and the abomasums. Bloat happens in the rumen. The rumen is full of micro flora that work on the breaking down of the cellulose in the roughage the goat eats and then turning it into sugars and proteins for nourishment. Ruminants then with the help of the gas that the process creates brings up the cud to chew and mix with more saliva to help the bacteria work and re swallow the cud. If the diet the goat is on is too high in sugars damage to the bacteria may occur changing the acid balance of the rumen's environment and the gas begins to build up as the good bacteria die. This gas is very painful and can cause shock and death if left untreated.

Prevention: avoid raw sugars and large quantities of high molasses grain, slowly introduce fresh spring grasses by feeding hay a before they are turned out and limiting time on pasture, increasing the time each day.

Treatment : walk the goat and keep her walking . You can give her pepto, milk of magnesium, mineral oil or olive oil I have also heard of gas-x. You also need to give the goat a shot of thiamine, and consider yogurt and pro-biotics to repopulate the good bacteria in the rumen. If the goat is in considerable pain do not hesitate to call your vet for assistance to save your goats life.

### Diarrhea

Diarrhea is more often a symptom of a disease process or health problem rather than the disease it's self. Diarrhea may be recognized by watery and loose stools often seen on tail and legs, weight loss, lack of appetite are often noticed. A kid may even bloat due to the causative factor. Kids with diarrhea are especially prone to dehydration, loss of electrolytes and low blood sugar. These are due to the loss of fluids, electrolytes in the stool and the lack of appetite and mal-absorption of contents in the bowel. During episodes of diarrhea and the kids may get acidosis. The treatment as in humans is encourage oral fluids give anti diarrhea's and determine and treat the cause. Some over the counter treatments for diarrhea include oral electrolyte solutions broad spectrum antibiotics, Pepto-Bismol , or Kayopectate.

Possible causes of diarrhea in goats are parasites, especially Johne's. viral and bacterial infections. To diagnose the cause the vet may want a stool sample to check for parasites such as coccidian and worms. The most suspected cause in kids is coccidia as with their immature immune systems they are very susceptible to coccidia. In adults the over feeding of grain and a heavy load of parasites are most often suspected causes.

### Johne's

Johne's disease, or paratuberculosis, is caused by Mycobacterium avium subspecies paratuberculosis, an acid-fast bacterium recently renamed because DNA studies have shown it to be very similar to M. avium. Mycobacterium paratuberculosis is capable of causing disease (Johne's disease) in all ruminants, and paratuberculosis has been described in several wild and captive exotic species. It may survive for extended periods in the environment in soil, water, and manure, and it is resistant to many common disinfectants. It may be killed by cresylic acid compounds and sodium orthophenylphenol (i.e., One

Stroke EnvironT - available in many farm outlets). Worldwide, various "strains" have been isolated from cattle, sheep, goats, and from farmed red deer in New Zealand. The existence of "strains" is now well documented in the scientific community as is the difficulty in growing some of them in the laboratory. Contaminated feed, water, bedding, and soiled udders are thought to be the major routes of spread of the organism. Young animals less than six months of age are thought to be the most susceptible to infection.

(Ohio State Fact Sheet)

### **CASEOUS LYMPHADENITIS**

By: Lionel Dawson, D.V.M

Caseous Lymphadenitis (CL) is a chronic contagious disease affecting mainly sheep and goats. This disease is also called pseudotuberculosis or often "abscesses," and has been referred to as the curse of the goat industry throughout the world. CL is an infection of goats, caused by *Corynebacterium pseudotuberculosis*. It is also referred to as "abscesses", because of the peripheral swelling, rupture, and drainage of pus from affected lymph nodes. The prevalence of CL in the commercial goat herds may be as high as 30%. If abscesses affect more than one lymph node, the carcass will be condemned at slaughter. Decreased body weight and milk production also occurs, and reproductive efficiency is often lower when these animals have developed internal abscesses.

#### Clinical Signs:

Most commonly, symptoms are palpable enlargements of one or more of the superficial lymph nodes. The morbidity of the infection rate in goat flocks increase with age, and may approach 70%.

The enlarged lymph nodes have a very thick wall and are filled with thick greenish pus. The most common lymph nodes affected are mandibular (A in figure 1), prescapular (B), prefermoral (C), and supramammary (D) lymph nodes. Less common is involvement of lymph nodes internally in the chest and abdomen. As the animal gets older, abscesses often develop around the lungs, heart, liver, kidney, and spinal cord. They may cause weight loss, pneumonia, and neurological signs.

#### Pathogenesis:

*C. pseudotuberculosis* is spread in the environment by broken and draining external abscesses. The organism survives in the environment for at least one year and can be spread on such items as shearing blades, fences, and feeders. The organism enters the goats body through small breaks in skin or mucous membranes and eventually becomes localized in a regional lymph node. Heavy environmental bacteria contamination occurs in confinement operations and around feeders, goat dairies seem to have a high prevalence of CL. There is some evidence that the organism can penetrate intact skin and mucous membrane.

#### Diagnosis:

1. Presence of a firm to slightly soft subcutaneous swelling in the location of a lymph node.
2. Herd history of CL.
3. Culture: aspiration of the swelling and sending it to the diagnostic lab for isolating and identifying the organism.
4. Serology: serologic tests such as bacterial agglutination test and synergistic hemolysis - inhibition test are valuable in identifying goats with early stage of the disease (no abscess yet developing). Serologic testing may not be accurate due to the presence of antibodies in previously exposed non-diseased or from cross - reactivity of diagnostic antigens with antibodies against other bacteria.

#### Treatment:

1. Separate and isolate the affective animals.
2. Ripened abscesses lanced and flushed with 7% iodine solution.
3. The pus should be flushed down a drain, or collected and burned.
4. Wear gloves to prevent skin infections in humans.
5. Wash hands well after handling infected animal.
6. Surgical removal of the encapsulated abscess offers the advantages that the treated animals need not be quarantined.
7. antibiotic treatment has not been effective.

#### Eradication:

Herd eradication requires diligent management.

Purchase animals from known non-infected herds.

Quarantine and monitor new animals at least 60 days.

Monitor and cull animals with multiple abscessed lymph nodes

Housing free of sharp objects

Clean and disinfect feeders and pens regularly.

Disinfect equipment like de-horners, scalpel blades, tattoo numbers/letters, castrating instruments and other surgical instruments.

Use a new hypodermic needle for each animal.

Cull animals with chronic respiratory and wasting disease.

Bedding cleaned out regularly.

Pus should be collected and burned.

#### Vaccination:

A vaccine is available and should be considered in management of CL in infected herds. Vaccine should be considered if you're previously described eradication methods haven't worked or failed. Colorado Serum Company is marketing Caseous-DT, an immunoprophylactic product composed of formalin-killed organisms and toxoided culture supernatant fluid. (Also contains toxoids for clostridium perfringens type D and tetanus toxin.) Which has an efficiency of 70-80% in preventing the clinical manifestations of the disease.

The vaccine may cause severe reactions in infected animals, and also interferes with serologic testing for CL. <http://www.goatworld.com/articles/cl/cl.shtml>

## **Caprine Arthritis Encephalitis (CAE)**

CAE symptoms are swelling of the knees, difficulty ambulating, loss of weight and engorged hard udder that often does not produce milk. CAE is contact with an infected goat (saliva and blood) or through milk from an affected goat. Semen was not a concern in the information I have read.

Treatment is separation and isolation from herd strict care of kids at birth such as being present cleaning the off well separating them from the dam not allowing the kids to nurse at all and not using her milk for goat consumption. Culling the affected goats from the herd is also a good practice, as these goats will have considerable pain in the joints worsening as the time goes by. It is more humane to send them for meat when you know they are infected with CAE than waiting until they can not walk due to the pain in their joints. If allowed to continue CAE pain will worsen and the joints will freeze rendering the extremity useless.

## **Ketosis**

**This article was copied from the Onion Creek Ranch Web site :**

Ketosis is a pregnancy-related illness in does which can occur either right before or shortly after kidding. Ketosis is the result of producers not providing proper nutrition for pregnant does. The bred female does not receive adequate protein to feed both her and her kids in utero, so either just before or immediately after she kids, her body begins to draw upon its protein reserves so that she can provide milk for her offspring. Deadly ketones are produced as a by-product of this process, as her own body tissues begin to starve.

Treatment is simple. Oral administration of propylene glycol, molasses, or Karo syrup is necessary. The doe will dislike the oily propylene glycol, but it is by far the best product available for treating ketosis. Dosage is based upon weight of the animal.

Prevention is easy. Feed the doe properly during gestation as well as after kidding. Bringing a doe back from a bout of ketosis is difficult, and death often results.

## **Milk Fever**

Milk fever is an imbalance of calcium usually found in the doe around freshening when her body is going into production but it may come before the doe gives birth or occasionally during lactation. Her hormones are trying to activate the mobilization of calcium store to prepare for lactation and if her diet is high in calcium she can not mobilize her calcium stores. Think of it this way every cell in the body needs calcium to contract and potassium relax as it causes the impulse so if the doe can not mobilize calcium and her blood levels go down the muscles have difficulty contracting making the bowel slower and skeletal muscles weak.

Unlike the name the doe will not have a fever but a low body temperature. The symptoms are lack

of appetite especially grain or concentrates, difficulty getting up and standing , may not be able to get up, poor labor weak contractions, constipation, dragging one or both hind feet. If the kids are delivered they may be weak and apportioned (from inability of weak muscles to put or keep them in position).

Treatment is IV or sub-q administration of calcium solutions, followed in severe cases by oral calcium treatments or more IV or sub-q solution.

Prevention is in the feeding of the doe during the dry period, dry does should be fed more grass hays and less alfalfa hay this puts the places her system slightly negative allowing her to mobilize the calcium storage easily as her hormones tell her to produce milk. In any herd you should avoid abrupt changes in the does diet to avoid digestive complications and always try to ease into a new feed.

### Ringworm

Ringworm is a fungal infection that shows a red to grayish white ring shaped thickening on the skin hair thins or is absent. If untreated enlargement of areas may be noted. This is very contagious and may spread through out the herd and may spread to humans.

Treatment: anti fungal creams as directed on the label. Other treatments include blue coat, 1% iodine, 1:300 solution of Captan, 1:10 solution of Clorox applied daily for 5 days the once a week until healed.

### Sore mouth (Orf)

Sore mouth is a highly contagious disease that can spread to humans so extreme caution must be used in the care of animals with sore mouth. If sore mouth gets into a cut on your hand it will take months to heal, one person I knew had to have a skin graft to close her wound after it healed. Wear gloves, and wash you hands carefully !!!!!

Sore mouth may start as pimples or lesions around the eyes mouth ears anus and hoofs. They turn to blisters quickly and break open to ooze a sticky liquid that form a crust or scab. Much like the human chicken pox these scabs are carrying the virus that spreads this disease. Treatment is comfort only as this needs three weeks to run its course. Antibiotics are only needed if the sores become infected with bacteria and drain pus. Support for kids to prevent dehydration and hypoglycemia as they may not want to eat with very sore lips (and gums).

Sore mouth is extremely contagious and can be carried to other herds on clothes exposed to affected goats or sheep. I have heard of one farm tracing an out break to getting hay from a haymow above the infected goats in the story below.

Prevention: You may vaccinate for sore mouth but it gives the goats sore mouth at the site (not injected but placed on scratched inside thigh). Most goat owners do not vaccinate but try to avoid sore mouth. Once the goats have it they are immune for life.

### Worms

Worms are parasites. Gastrointestinal worms adhere to the intestinal wall and drink the blood of the goat and stealing the nutrition the goat worked to digest. This caused general unthriftiness, poor coat, anemia and will eventually kill its host (the goat). To assess the goat for parasites take a stool sample to your vet . Also watch the under the eye lids of your goats to see the color change from healthy pink to pale this will show you anemia in your goat. Worm your goats as symptoms appear using alternating products to get the most of the worms. There is a large problem in the US today with the worms becoming stronger and not being destroyed with the same medicating if used all the time so discuss this

with your vet on the products the vet recommends.

### Coccidia

Coccidia is a single celled organism that attacks stressed or young goats. They will most likely be off feed, have loose or watery stools, run a fever, rapid weight loss, dehydration and may strain as if needing to still pass stool. If left untreated the kid will dehydrate rapidly and die.

Prevention: Keep kidding area clean and dry. Keep kids pens clean and dry, use disinfectant routinely when cleaning when animals are changing pens. The use of a preventive in the feed is recommended. .Because young kids do not consume enough grain it can be placed in the milk or given to each kid orally each day.

Treatment: There is multiple treatments for coccidia some use pediatric sulfa, corid, Biosol to name a few. Talk to the breeder you get your goats from to see what they have found to work in their herd. Always treat kids when you move them from another herd to your herd as stress triggers cocci to activate as much as stress from and illness does.

### **Floppy Kid Syndrome**

Floppy kid can show up with in a few days after birth with the kid becoming suddenly depressed, weak to flaccid uncoordinated (drunken like appearance) may show abdominal distention. The symptoms may be caused by metabolic acidosis and treatment needs to start as soon as you note the first symptoms to save the kid. If untreated the kid will die.

Treatment: #1 The treatment is one-half teaspoon baking soda mixed with electrolytes and one- half teaspoon of Pepto Bismol. Repeat in 6 hours and again in 12 hours from first treatment. (Mauldin)(<http://www.jackmauldin.com/diseases.htm>)

Treatment #2 If the kid can still walk but is wobbly then give 2cc long-acting penicillin orally and 500MG thiamin ( it is imperative to the kids recovery that the two be mixed) give once a day for 3 days (Mauldin)(<http://www.jackmauldin.com/diseases.htm>)

The exact cause is still being investigated.

### **Resources**

Mauldin, J (2009), Goat Polio [http://www.jackmauldin.com/health/goat\\_polio.htm](http://www.jackmauldin.com/health/goat_polio.htm)

And <http://www.jackmauldin.com/diseases.htm>

Ohio State Fact Sheet <http://ohioline.osu.edu/vme-fact/0003.html>

Gusparroto Onion Creek Ranch <http://www.tennesseemeatgoats.com/articles2/mastitisketosis.html>

Spahr, L(2009), Tattooing Goats by Linda

<http://bedford.extension.psu.edu/agriculture/goat/Tattooing%20Goats.htm>

Stewart, P (downloaded 9/6/10) Bloat: Causes and treatments in goats

<http://www.helium.com/items/1385725-avoiding-and-treating-bloat-in-the-goat?page=2>

## **VITAMIN AND MINERAL DEFICIENCIES IN GOATS**

**from Onion Creek Ranch website**

Proper vitamin and mineral levels are essential to the good health of goats. Although no single mineral can be singled out as more important than others, copper, zinc, and selenium levels are especially critical. The interaction of minerals is astoundingly complex. The most difficult task in raising goats is getting nutrition right, and vitamins and minerals are key. Most producers are not knowledgeable enough to formulate their own feed ration with appropriate levels of minerals and vitamins included. Achieving this is a complex task that is best left to a trained goat nutritionist.

**Selenium:** Major portions of the United States have soils that are deficient in selenium. Selenium deficiency is widespread in most of the eastern coast of the U.S., into the Great Lakes area, and throughout the northwestern part of this country. Plants grown in these soils are selenium deficient and therefore cannot provide adequate selenium to the goats that eat them.

Selenium deficiency, like Vitamin E deficiency, can cause white muscle disease (nutritional muscular dystrophy), causing the goat to have difficulty controlling its muscles. Newborns with weak rear legs may be selenium-deficient. Kids may be too weak to nurse their dams. Pneumonia may result from weakness in muscles that control breathing.

Producers raising goats in areas having selenium-deficient soil must make sure that this mineral is added to feed. Many producers give BoSe injections to newborn kids, as well as to adult goats. BoSe is a vet prescription item. Contact the local county extension agent or your veterinarian for information on your particular area or google 'selenium levels United States' for data.

**Zinc:** Zinc is needed in the synthesis of proteins and DNA and in cell division. Excessive salivation, deformed hooves, stiff joints, chronic skin problems, abnormally small testicles, and reduced interest in mating are some of the signs.

**Copper and Molybdenum:** Unlike sheep, for whom copper is toxic, goats must have copper in their diet. Inadequate copper levels can cause loss of hair color, coarse hair that has hooked end tips, abortions, stillbirths, anemia, frequent bone fractures, poor appetite, weight loss, and decreased milk production. Molybdenum and copper amounts must be balanced or health problems appear. More than 3 ppm of molybdenum binds up copper and creates a deficiency of copper in the goat.

It is also possible to cause copper toxicity in goats by feeding too much copper. Researchers and producer experiences seem to be proving that goats need more copper than originally believed. Make sure that the copper level in feed is correct for your goats by consulting a trained caprine nutritionist knowledgeable about your area.

**Water:** Yes, water. The goat's body is normally more than 60% water. Rumen contents must be about 70% water to function properly. Even a slight dip in water consumption can result in a goat with fever and off feed.

**Iron:** Unless a goat is anemic, iron deficiency is generally not a problem in foraging goats. Certain onion-type plants can, however, cause anemia. Stomach worms, sucking lice, and blood loss are common causes of anemia in goats. Goats that are seriously ill with anemia may be supplemented with injectable iron (Ferrodex 100) or oral administration of Red Cell. Conversely, an excess of iron can contribute to decreased fertility in goats.

**Iodine:** Iodine is as essential in goats' diets as it is in humans. Goiters are the most visible sign of iodine deficiency. Newborns whose dams are iodine deficient can be born with goiters. Commercial feeds and minerals contain non-iodized salt, so it may be necessary to offer iodized salt on a free-choice basis. A quicker method of getting iodine into the goat is to paint 7% iodine on the hairless tailweb and to offer kelp (seaweed) free choice.

**Calcium and Phosphorus:** Calcium and phosphorus must be in proper balance or serious illnesses can occur. Female goats that have been bred at too young of an age can develop lameness and/or bowed legs if they are calcium deficient. Calcium is essential to bone formation and muscle contractions (including labor contractions). A calcium-to-phosphorus ratio of 2-1/2 to 1 is proper and helps prevent urinary calculi. Too much phosphorus in relation to calcium causes urinary calculi. An imbalance of calcium and phosphorus can result in birth defects.

**Salt:** If a goat lacks salt in its diet, it may be seen licking the ground -- trying to get salt from the dirt. Offer salt as part of an appropriate mineral mix on a free-choice basis. Do not force-feed salt by mixing it with processed feed; this procedure is used to limit feed consumption. Salt is often used as a feed limiter, as heavily salted rations cause goats to eat less. A pregnant doe who consumes too much salt may have udder problems -- edema (subcutaneous accumulation of fluids).

**Sulfur:** Excessive salivation may be a sign of sulfur deficiency. A properly balanced loose mineral and vitamin mix is required. Direct supplementation of sulfur can result in the binding up of iron and copper.

**Potassium:** Goats on forage usually get all the potassium they need. Penned animals need potassium added to their processed grain mix. Emaciation and muscle weakness are signs of severe potassium deficiency.

**Magnesium:** Goats deficient in magnesium have lowered urine and milk production and may become anorexic.

**Manganese:** Slow growth rates in kids (especially buck kids), reduced fertility and abortions in does, improperly formed legs, and difficulty in walking are general signs of manganese deficiency. Too much calcium interferes with manganese absorption.

**Vitamin A:** Inadequate amounts of Vitamin A in a goat's diet can lead to thick nasal discharge, difficulty in seeing or blindness, respiratory diseases, susceptibility to parasites, scruffy hair coat, and diarrhea. Kids with coccidiosis need more Vitamin A because they have reduced intestinal absorption of nutrients. Adults are likely to be less fertile and more susceptible to diseases if they do not have adequate levels of this essential fat-soluble vitamin.

B Vitamins: A sick goat must be supplemented with B vitamins, particularly Vitamin B 1 (thiamine). The B vitamins are water soluble, so they need to be replenished daily. One of many conditions that depletes the goat's body of B vitamins is diarrhea (which is a symptom of greater problems). Goats whose rumens are not functioning properly or have had their feed regimen changed should be supplemented with B vitamins, particularly B1 (thiamine).

One of the most common examples of Vitamin B1 (thiamine) deficiency is polioencephalomalacia (goat polio). Thiamine must be given to counteract severe neurological problems. Thiamine-deficient goats display rigid bent necks that won't straighten and a loss of eye focus. This disease usually results from eating moldy hay, feed, or silage; however, it occasionally occurs because the organism exists under certain environmental conditions and a susceptible goat picks it up. The symptoms mimic those of tetanus and dehydration. Because all B vitamins are water soluble, it is difficult to overdose them. Vitamin B12, an injectable red liquid requiring a vet prescription, is essential in the treatment of anemia. Vitamin D: Enlarged joints and bowed legs (rickets) are a result of Vitamin D deficiency. Penned goats must have Vitamin D added to their feed.

Vitamin E: Feeding silage or old hay can produce Vitamin E deficiency and result in white muscle disease. The injectable prescription product BoSe contains both selenium and vitamin E and is often given to newborns in selenium-deficient areas. Vitamin A-D-E Gel is available for supplemental oral use.

#### Conclusion

This list is by no means comprehensive but is intended to provide a producer overview. If you get nothing else from this article, understand that proper goat nutrition is very complex and not for amateurs.

For producers affected by Tall Fescue Toxicity, several companies around the USA make a fescue-balancer loose mineral. If mineral deficiencies are widespread in your herd, Mineral Max II is available. An injectable cobalt-blue colored liquid that must be obtained from a vet, Mineral Max II contains zinc, manganese, selenium, and copper in chelated (timed-release) form. It is given to goats IM (into the muscle) usually one injection per year and in decreasing amounts as the goat ages. Mineral Max II is made by Sparhawk Labs in Lenexa, Kansas for RXV Products in Westlake, Texas. It may be available under other brand names. Do not give BoSe and Mineral Max II together.

Producers who live near a feed mill that makes commercial goat feed are encouraged to use their services and purchase their products. Such firms employ livestock nutritionists who have knowledge of the nutritional needs of goats in the areas for which they manufacture their products. If such mills are non-existent in your area, contact your county extension agent or closest agricultural university for assistance. These folks should have knowledge about feed mixtures that the average producer does not possess. Find out what your area is deficient in and make sure that is added into your feed supply. Do not attempt to formulate your own feed unless you are a trained goat nutritionist. If such expertise is not available in your area, locate and hire a goat nutritionist to formulate a feed ration for you. This service is not expensive but you may be required to buy four to six tons of feed, so contact your neighboring goat producers about working together on this purchase. There are computer programs

into which the nutritionist can input information unique to your farm and your management techniques to develop a feed mix specifically for your needs. The health and well-being of your goats are depending upon your making wise decisions about their nutrition. Find a place to cut costs other than goat nutrition. You cannot starve a profit out of a goat.

Suzanne W. Gasparotto

ONION CREEK RANCH 5-11-09

#### POISONING/TOXICITY TREATMENTS FOR GOATS

Grain overload and plant toxicity are probably the two most common poisonings that producers will encounter.

Essential products that producers must have on hand: injectable C&D anti-toxin, Milk of Magnesia, ruminant electrolytes (Bounce Back, ReSorb), activated charcoal (Toxiban), UAA gel (universal animal antidote), adult goat stomach tube and mouthpiece, 60 cc kid syringe and stomach tube, prescription Banamine or generic equivalent, mineral oil, and injectable tetanus anti-toxin.

Jeffers carries all of these products except prescription Banamine and the adult goat stomach tube and mouthpiece for which directions to make are on my website. Purchase these products and have them on hand. You won't have time to round them up when an emergency hits and goats will die. Order for Monday shipment so that perishable biologicals are not in transit long.

There is no substitute for Colorado Serum's C&D anti-toxin. Dose SQ every 12 hours according to directions on the bottle. This product is one of the few medications approved for use in goats. Dose Milk of Magnesia orally at 15 cc per 60 pounds bodyweight every four to six hours until the goat's feces turns clumpy then back to normal pills. The goal is to use this laxative to push through as much of the toxic substances as quickly as possible. Keep the goat hydrated with electrolytes; laxatives are dehydrating. When associated with poisoning/toxicity, diarrhea is good. Remember: Diarrhea is a symptom of a problem and not the problem itself.

Note: Pepto Bismol is not a laxative. Some people think of Milk of Magnesia and Pepto Bismol as similar products. Not true. Pepto only coats the stomach lining.

Only if you have a stomach tube available, mineral oil can be used instead of Milk of Magnesia. You must stomach tube mineral oil because it has no taste and can easily be aspirated into the lungs if the goat doesn't swallow properly. Dosage and frequency : 15 cc per 150 pounds bodyweight every 12 hours. Remember to keep the goat hydrated with electrolytes.

Injectable Banamine should be used for pain and discomfort, dosing at 1 cc per 100 pounds bodyweight no more often than every 12 hours.

Do not offer textured or pelleted feed. Feed only green leaves, clean top-quality grass hay, and electrolytes until the goat is well and then ease it onto prepared rations, Do not give probiotics until treatment is completed and goat is back to normal. If the goat can stand, make it get up and walk twice a day. Although not the normal situation, I've seen it take a week for a goat that overate on shelled corn to clean out and for diarrhea to stop.

Suzanne W. Gasparotto  
ONION CREEK RANCH  
5-12-09

### Web site Resources

The Dairy Goat Journal <http://www.dairygoatjournal.com/>  
Purdue University <http://ag.ansc.purdue.edu/sheep/goatlinks.html>  
The Miniature Dairy Goat Association <http://miniaturedairygoats.com/>  
The National Saanen Breeders Association <http://nationalsaanenbreeders.com/>  
Hamby Dairy Supply [hambydairysupply.com](http://hambydairysupply.com)  
American Meat Goat Association <http://www.meatgoats.com>  
National Pygmy Goat Association <http://www.npga-pygmy.com/>  
Nigerian Dwarf Goat Association <http://www.ndga.org/>  
Nigerian Goat Society <http://www.andda.org/>  
You Tube - Raising Dairy Goats : <http://www.youtube.com/watch?v=yWMNc0cxOjk>  
Sample cost for a 500 Dairy Goat Operation <http://coststudies.ucdavis.edu/files/dairygoatsnc05r.pdf>  
Pre/Post Kidding Preparations for dairy goat does kids <http://www.goats4h.com/Pigman.html>  
American Dairy Goat Association <http://adga.org/>  
American Goat Society <http://www.americangoatsociety.com/>  
Hoegger Supply Co. <http://www.hoeggergoatsupply.com/xcart/home.php?cat=55>  
Pet goat Health Problems <http://www.pethealthandcare.com/blog/domestic-pets/goat-health.html>  
Animal Care [http://www.vetmed.ucdavis.edu/vetext/INF-GO\\_CarePrax2000.pdf](http://www.vetmed.ucdavis.edu/vetext/INF-GO_CarePrax2000.pdf)  
Kid care [http://www.dairygoatjournal.com/issues/85/85-2/Deb\\_Mangelsdorf.html](http://www.dairygoatjournal.com/issues/85/85-2/Deb_Mangelsdorf.html)  
Khimaira Farm <http://khimairafarm.com/>  
The National Goat Hand Book <http://khimairafarm.com/>  
Lets Compare Dairy Goats and Cows [http://oklahoma4h.okstate.edu/projects/literature/N-24\\_web.pdf](http://oklahoma4h.okstate.edu/projects/literature/N-24_web.pdf)  
Herd Management software <http://www.dairylive.com/DL/Home.asp>  
Artificial Insemination of Dairy Goats [http://aces.nmsu.edu/pubs/\\_d/d-704.pdf](http://aces.nmsu.edu/pubs/_d/d-704.pdf)  
Natural-Goat\_Milk\_Soap.com <http://www.natural-goat-milk-soap.com/dairy-goats.html>  
National Agricultural Library Sheep and Goats  
[http://riley.nal.usda.gov/nal\\_display/index.php?info\\_center=8&tax\\_level=2&tax\\_subject=10&level3\\_id=](http://riley.nal.usda.gov/nal_display/index.php?info_center=8&tax_level=2&tax_subject=10&level3_id=)

[0&level4\\_id=0&level5\\_id=0&want\\_id=483&topic\\_id=1735&placement\\_default=0](#)

Dairy Goat Management <http://www.milkproduction.com/NR/rdonlyres/406CFA59-481B-45DD-ACD3-E260EA8E5CA8/0/Bestmanagementpracticesfordairygoatfarmers.pdf>

Fort Valley State University <http://www.ag.fvsu.edu/publicat/commoditysheets/fvsu005.htm>

Boer Goat Home [http://www.boergoatshome.com/why\\_meat\\_goats.php](http://www.boergoatshome.com/why_meat_goats.php)

National Sustainable Agriculture Information service Meat Goats: Sustainable Production  
<http://attra.ncat.org/attra-pub/meatgoat.html>

Boer and Meat Goat Information Center <http://www.boergoats.com/clean/coverpage.php>

New York State 4-H Meat Goat Project Fact Sheet #2  
<http://www.ansci.cornell.edu/4H/meatgoats/meatgoatfs2.htm>

You Tube :Making Money with Meat Goats <http://www.youtub.com/watch?v=SC54UJnDgLY>

Southwest Florida Research & Educational Center  
[http://www.imok.ufl.edu/animal\\_sci/meatgoat/index.htm](http://www.imok.ufl.edu/animal_sci/meatgoat/index.htm)

Breeds of Goats <http://www.ansi.okstate.edu/breeds/goats/>

Home Study Course (Penn State)  
<http://bedford.extension.psu.edu/agriculture/goat/Goat%20Lessons.htm>

Nutrition of Meat Goats [http://www.cals.ncsu.edu/an\\_sci/extension/animal/meatgoat/MGNutr.htm](http://www.cals.ncsu.edu/an_sci/extension/animal/meatgoat/MGNutr.htm)

Ohio State University Fact Sheet <http://ohioline.osu.edu/as-fact/0014.html>

Establishing the Meat Goat Facility <http://www.famu.edu/goats/UserFiles/File/Facilities.pdf>

Meat Goat Blog <http://www.meatgoatblog.com/>

The Empire Meat Goat Association <http://www.esmgpa.org/committees/starting.html>

Diseases ( Merck Manual) <http://www.jackmauldin.com/diseases.htm>

Raising and Showing Meat Goats (Colorado)  
<http://livestock.colostate.edu/youth/documents/Sheep/Meat%20Goat%20Manual.pdf>

Sheep Goat Marketing. info  
<http://sheepgoatmarketing.info/PageLoad.cfm?page=education/starting.htm>

HobbyFarms.com <http://www.hobbyfarms.com/livestock-and-pets/raising-meat-goats-25028.aspx>

Managing Goat Diseases :Goat Care [http://www.ehow.com/video\\_4974815\\_managing-goat-diseases.html](http://www.ehow.com/video_4974815_managing-goat-diseases.html)

Common Diseases in Goats <http://www.goatworld.com/articles/health/commondiseases.shtml>

Goats <http://www.goats4h.com/Goats.html>

General Care <http://www.sheepandgoat.com/articles/generalhealthcare.html>

Goat Wisdom <http://www.goatwisdom.com/>

Hoof Care and Diseases <http://www.sheepandgoat.com/footrot.html>

Goat Care and Diseases <http://www.sevenhillstallarook.com.au/goat-care>

Keeping Goats Facts about Goat Diseases  
<http://www.zimbio.com/Country+living/articles/0vYrjw3c8vX/Keeping+Goats+Facts+Goat+Diseases>

Langston University Housing your goat [http://www.luresext.edu/goats/library/fact\\_sheets/g02.htm](http://www.luresext.edu/goats/library/fact_sheets/g02.htm)

Waste Management Animal Manure- Managing Sheep and Goat Manure  
[http://goatconnection.com/articles/publish/article\\_85.shtml](http://goatconnection.com/articles/publish/article_85.shtml)

Tattooing Goats <http://bedford.extension.psu.edu/agriculture/goat/Tattooing%20Goats.htm>

Cyber Goats <http://www.cybergoat.com>

Goat World.com <http://www.goatorld.com>

Purdue University Extension Goat Links <http://www.americangoatsociety.com/>

Jack & Anita Mauldin's Boer Goats Associating Symptoms to Possible Problems

<http://www.jackmauldin.com/symptoms.htm>

Goat Bloat <http://goat-link.com/content/view/16/29/>