

Alpaca & Llama Care for Beginners – A Primer

In order to recognize the abnormal, one must first be familiar with the normal. The best advice that I can give as an alpaca and llama breeder is to know your own animal's behavior well. Inconsistent behavior may indicate a problem. Therefore, before discussing illnesses, emergencies, and treatments, I will provide a brief overview of the alpaca and llama.

Alpacas are fairly small, averaging around 160 pounds as adults. Llamas are larger, averaging twice the weight of an alpaca. They both have very strong herd orientation and are more intelligent than most farm animals. Alpacas and llamas are smarter than horses, and more like dogs in their intelligence. Yet it is important to remember that dogs are predators, and camelids are prey out in the wild. Thus their "psychology" is very different. There are four kinds of South American camelids, which will all interbreed with each other when given the chance. The four kinds are alpacas and llamas (the domesticated ones) and vicunas and guanacos – their somewhat undomesticated counterparts. Alpacas and llamas are docile and quiet, and because of their soft pad and toenails (as opposed to hooves), they are earth friendly. They can live up to 25 years. Because alpacas were imported into the US for the first time about 20 years ago, we are learning much more about their health care and lifespan. Llamas have been in the US longer.

In South America, llamas were used primarily as "beasts of burden" – carrying heavy loads and pulling carts. Llamas are not large enough to ride like a horse. Because llamas were domesticated to work more with people than alpacas, who were domesticated mostly for their fleece production, llamas can be more people friendly and less frightful/flighty than alpacas. (Yet some alpacas can be extremely friendly too.) Some llamas make excellent guard animals. Their bigger size and curious interest can bring them very close to other animals in proximity (many llamas don't have a concept about "personal" space, and thus will invade another's personal space quite readily). These behaviors will often scare off an intruder.

The primary use for alpacas in South America is fleece or fiber production. Llamas can also have very fine fleece, but in general, alpaca's fleece is much finer, softer, and has significantly less guard hair. In the United States, alpaca and llama farms generally make their most income by selling the animals. Due to the alpaca's and llama's sweet and gentle disposition, many owners consider them companion animals and pets. Alpacas and llamas are considered modified ruminants. While they are similar to cows and other ruminants, there are a few major differences as described below:

	<u>South American Camelids</u>	<u>Other Ruminants</u>
<u>Foot</u>	Toenails and a Soft Pad.	Hooves and Sole.
<u>Digestive System</u>	Stomach has 3 Compartments. Resistant to Bloat. Foregut Fermenter with Regurgitation, Rechewing and Reswallowing.	Stomach has 4 Compartments. Susceptible to Bloat. Same Foregut Fermenter with Regurgitation, Rechewing, and Reswallowing.
<u>Reproduction</u>	Induced Ovulator (by sexual activity). No Estrous Cycle. Follicular Wave Cycle. Prone Position Copulation. Placenta Diffuse. Prolonged Ejaculation.	Spontaneous Ovulation. Estrous Cycle. No Follicular Wave Cycle. Standing Position Copulation. Placenta Cotyledonary. Short & Intense Ejaculation.
<u>Parasites</u>	Unique Lice and Coccidia. Share Gastrointestinal Nematodes With Cattle, Sheep, and Goats.	Unique Lice and Coccidia. Share Gastrointestinal Nematodes.
<u>Infectious Diseases</u>	Minimally Susceptible to TB. No Known Natural Bovine Brucellosis. Mild Susceptibility to Foot & Mouth Disease. No Clinical Disease with Other Bovine Viral Disease.	Highly Susceptible to TB. Highly Susceptible to Bovine Brucellosis and Foot & Mouth Disease.

Basic Requirements to Set-Up an Alpaca and/or Llama Farm are Simple!

Llamas and alpacas need the same considerations:

- 1) **Shelter**
- 2) **Fencing**
- 3) **Forage**
- 4) **Clean Water**
- 5) **Free Choice Minerals**
- 6) **Grain Supplement (for some animals in certain situations)**

1) Shelters

- a) Shelters do not need to be elaborate!
- b) Depending on the climate, a three sided shed can be adequate.
- c) Colder climates may need more protection.
- d) Animals need protection from the sun, snow, and wind.
- e) Unless you live in severe climates, most barns are “overkill” for human comfort and are not necessary.
- f) Keeping alpacas warm and dry in the winter, and cool in the summer are your primary concerns.

2) Fencing

- a) “No Climb” Fence is the best to use with alpacas, especially if you plan on breeding and birthing. This is 2 inch by 4 inch woven wire.
- b) We do not recommend high tensile fencing, with or without electric current. Alpacas and llamas can get their legs tangled in it, and crias can roll under it very easily. We have seen crias severely burn their eyes with electric fencing, and some adults even seizure when inadvertently touching it.
- c) If you already have board fence, then add wire fencing to it or between the boards to keep young alpacas in and dogs or other predators out. The main purpose of fencing is to protect your herd and keep unwanted or dangerous critters out. Most camelids do not challenge fencing unless you have an open female and established herdsire next to each other. Since alpacas and llamas are very herd oriented, if one were to get out of the fencing my accident, more than likely it will remain right there with the herd, and not run off.

3) Forage

- a) Forage (good orchard grass) is the primary and best food source for alpacas and llamas.
- b) A diet of around 10-12% protein is suitable for most alpacas and llamas.
- c) Males may require a little lower protein, especially in the summer, whereas lactating females may need closer to 14% protein to maintain good body condition. Therefore, it is very important to have your hay analyzed for protein content and digestibility. In cold weather, or when there is not much pasture to eat, it is especially important to feed good hay.
- d) *I can not overemphasize the importance of adequate forage in the diet!* Without it, your herd will be susceptible to many health issues. With good forage, you will have healthier and happy animals, and thus less expensive vet bills and many fewer problems.

Alpacas and llamas prefer a soft, leafy, and grassy hay. If it is too “stemmy” and tough, you will end up with lots of bedding and waste, as well as an animal with potentially inadequate nutrition. Orchard grass hay is our absolute favorite. You never want to feed more than 20% alfalfa, even to a lactating female, as too much alfalfa can cause a mineral imbalance. It is important to learn the difference between grass hay, alfalfa, clover, timothy, and straw. Many “city dwellers” turned farmer are not aware of the subtleties. They are most important to learn! Most alpacas do not prefer Timothy, due to its rough nature. The seed heads on Timothy can also get caught in fleece and create quite a mess! Alpacas also love clover, but too much of it can cause big belly aches. Try to stick with orchard grass.

Endophytes in certain fescue grasses are known to cause many problems with pregnant llamas and alpacas, resulting in sick or dead crias, and uterine prolapses. Use an endophyte free fescue for their pasture.

4) Water

- a) Clean water is an absolute necessity.
- b) An average 150 pound alpaca drinks between 4.0 and 8.0 liters of water per day. An average sized llama will drink twice this amount. Yet this can be very dependent on ambient temperature and humidity. A lactating female may even drink more than 9.0 liters of water a day on average.
- c) Water buckets need to be elevated somewhat, since buckets placed on the ground are very inviting to alpacas to use as foot baths (especially during warm weather). We recommend hanging buckets on fences and barn walls.
- d) Dirty water caused by soiled feet (especially after using the communal poop pile) is the number one source of coccidia infection in crias.
- e) Automatic and heated waterers are a wonderful investment, and will save you lots of time if you have numerous animals. Yet they are not required.
- f) Access to a pond or stream is not recommended, as most alpacas and many llamas love water. They will love to sit and lay around in water especially during hot and humid weather. This will cause the fiber on the animal's legs and belly to rot, along with potentially causing fungal/yeast and bacterial infections on their skin.
- g) In the winter, alpacas and llamas also appreciate warm water.

5) Minerals

- a) Free choice minerals allow the alpacas to make up for what their diet is lacking. Access to the proper minerals is critical for their optimum health. *Not having adequate minerals available for pregnant and lactating females can be deadly!*
- b) In the winter, when there is no pasture and the diet is predominantly hay, alpacas and llamas will consume lots of minerals.
- c) In the spring, when pastures are lush, they may barely touch the minerals.
- d) Therefore, it is best to offer the minerals "free choice", rather than just putting them as a dressing for grain (especially since these minerals are somewhat expensive).
- e) We recommend using a deep feeder, like one of the hanging buckets used for feeding grain.
- f) Fill the feeder about ½ full with minerals, and then store the remainder of the minerals away from moisture and excessive heat.
Keep the feeder in the same place in the barn, away from exposure to the elements, so the animals know where to go for them at all times.
We recommend Dr. Evan's Blend E Minerals for Alpacas and Llamas, which can be purchased at Southern States or ordered through your local farm supply store.

6) Grain

- a) Grain is a very controversial subject.
- b) There are several alpaca feeds on the market. These are meant to be fed as a supplement only.
- c) One of the risks of feeding grain is the risk of choking.
Choking is a very serious emergency; one you should be equipped to handle if necessary.
- d) Another drawback to feeding grain is the risk of obesity through over feeding. This can also negatively affect their reproductive health.
- e) Overweight females can have difficulty in getting pregnant, and their milk production is reduced.
- f) Some alpacas are very easy keepers, and thus do not need grain supplements at all, most especially when pastures are rich, and the weather is warm.
- g) *Therefore, it is extremely important to get your hands on your alpacas and llamas as much as possible, so that you can "body score" them.*
- h) A pregnant and lactating female with a low body score needs more grain and excellent forage.
- i) Older alpacas may also need more grain and good forage to maintain a healthy body score.
- j) You may need to increase your grain consumption in the winter and cold climates.
- k) *Make sure that when feeding larger amounts of grain, the animal also has an adequate supply of high quality forage and hay. Too much grain in the diet in terms of the ratio between grain and adequate forage can add physiological stress on the animal, and can cause ulcers in ruminants.*

Body Scoring is One of the Most Important Things an Owner Can Do to Determine Overall Health!

It is essential to learn how to body score alpacas and llamas to know if the protein content in the diet should be raised or lowered. In order to raise protein content, increase grain and increase the quality of your hay/forage. You must feel the body of the animal with your own hands; you can not just “view” the animal from a distance to get an accurate body score. This is especially true of huacayas, where their fluffy fleece is very deceiving. An animal can appear “fat” due to its heavy fleece, yet can be truly emaciated underneath all their hair!

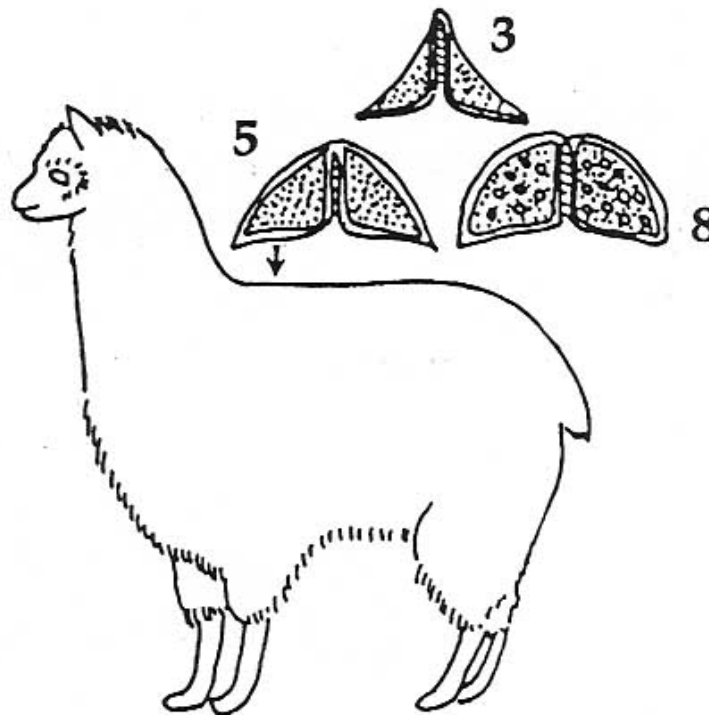
- 1) A body score of “5” is ideal. “10” is obese, and “1” is terribly (deathly) thin.
- 2) Put your hand below the base of the neck, about one third the way down the alpaca’s or llama’s back.
- 3) If it feels like a gentle upside down “U” shape, then the number is closer to a “5”.
- 4) If the back is completely flat (like a table), then the animal is overweight (with a body score closer to “10”).
- 5) If the back feels more like an upside “V”, then the animal has a low body score and is thus too thin and needs more food.
- 6) An alpaca’s and llama’s udder should also be visible between the back legs in an animal of good body condition. Too much fat would impede visualization.

Score 1 to 10

1 = Thin

5 = Ideal

10 = Obese



From a Veterinary Standpoint, raising alpacas and llamas is fairly simple. Once you have provided good nutrition as discussed above, basic care includes the following:

- 1) Parasite Control
- 2) Vaccinations
- 3) Toe Nail Trimming
- 4) Shearing
- 5) Teeth Trimming
- 6) Observing any Abnormal Behavior
- 7) Record Keeping – This includes the weights and body scores.

1) Parasite Control

(Please review my other articles on my website under Alpaca Health Care for treatment of these parasites. The articles are titled: Alpaca and Llama Parasite Treatment and Camelid Health Program.)

Meningeal Worm

If you live in areas where there white tailed deer are endemic, it is absolutely necessary to give an injectable dewormer. Deer carry a parasite called meningeal worm which can be fatal to alpacas.

This situation can be prevented if you give injectable Dectomax or injectable Ivomec. It may sound like a lot of work, but it really only takes a few minutes. This is also a good time to weigh, body score, and check teeth.

Meningeal worm infestation occurs when snails are out. Alpacas eat the snails climbing up the blades of grass. In severe winters and dry, hot summers, there are no hiding places for the snails in barren pasture.

Stomach Worms

Parasites such as stomach worms are sometimes a problem in alpacas, especially if the pastures have been grazed by sheep and goats. The best way to manage parasites is to have some feces tested for parasite eggs. If eggs are found, then your veterinarian can provide you with the appropriate anthelmintic to kill that particular parasite.

Since these worms require pasture to complete their life-cycles, alpacas are infected mostly in the Spring and Fall.

It is a good idea to deworm alpacas with an oral medicine such as Panacur in early Spring to reduce pasture contamination with eggs.

Whipworms and Coccidia

Whipworms and coccidia are more of a dry lot or barn issue, as they don't need pasture to complete their life cycles. Cleaning barns and loafing areas at least daily helps to control transmission of these parasites.

Whipworms are harder to diagnose than other parasites because their eggs don't readily float to the top with standard flotation mediums.

Centrifugation techniques are the best ways to diagnose whipworms in alpacas.

The best thing you can do for parasite control is to remove the poop from your barns and fields every day. Don't just move the poop to another place in the field (where animals are living) by pushing it on the ground with a tractor. Remove the poop completely and take it far away from where the animals live. This will also significantly help with fly control too (especially in the Summer!) When I just had around 30 animals, I removed all of the poop from every field and the barns every day. Now that I have over 90 animals, I remove the poop in the barns and close to the barns (where they travel and areas they use the most) every day. Once a week, I now remove all the poop from all the fields, even in the Winter.

2) Vaccinations

Alpacas and llamas require a few vaccinations once a year. Crias will get more vaccinations, along with vitamin shots (generally given IM). Depending on the area and soil conditions in which you live, you may need to give Selenium to your animals. Selenium can be a very dangerous mineral/element; too much can be deadly, and "not enough" can be lethal too, especially to crias and dams. Check with your local veterinarian, as this is important.

It is imperative that you ask your veterinarian which vaccines he/she suggests. Vaccination types and protocols will vary as to what part of the county you live in.

In Southern Maryland, Rabies is prevalent, so alpacas and llamas should be vaccinated once a year for rabies. We suggest 2cc given IM (IMRAB 3). The rabies vaccine must be kept refrigerated. In Maryland, a licensed veterinarian must give the rabies vaccine for it to be considered “legal”. In other states, such as Virginia and Delaware, you can give the rabies vaccine yourself to your own farm animals/livestock.

Also in Southern Maryland, we need to give vaccines for clostridium and tetanus (CDT) given 2cc SQ. You can easily purchase CDT from your local farm store or Southern States, and it is not expensive. This vaccine must also be kept refrigerated. Other areas of the country need to vaccinate against leptospirosis.

It is best to use a small needle for “thin” or very liquid type vaccines. Why cause more pain for your animal if it is not necessary with a thicker or bigger needle? Rabies, CDT, and B-Complex vitamins can easily be given with a 22 or 23 gauge needle due to the low viscosity of the drugs. Dectomax, Ivomec, and some “thicker” vitamins such as A/D require a bigger gauge needle (20 gauge) due to its high viscosity. The lower the number gauge of the needle, the bigger the diameter of the needle (which can be more painful).

It is also important to remember that all these drugs which we use on alpacas are considered “off-label” – meaning that the USDA has not tested these drugs specifically on alpacas or llamas. We have learned what works best for these animals by our own experiences.

If you will be doing many injections, my recommendation is to purchase your syringes and needles thru a veterinary supply company. I purchase them in boxes of 100. This can really save you some money. My preference for syringes is the luer lock type, which is thrown away after each use. Just remember that you need to tighten most needles onto the syringe before you pull your drug into the syringe. Otherwise, if the needle is not “tight” on the syringe, it could easily be “left” in the skin of the animal when you give the injection. Obviously, this is not a good situation.

Please contact me directly, if you would like a list of my vaccination protocols and timing of vaccinations for crias and pregnant females.

3) Toe Nail Trimming

Trimming toenails just takes a few minutes every other month or so. This is generally accomplished during “herd health” procedures.

Trimming toenails is simple, maybe simpler than cutting a dog’s toenails – alpacas only have two nails per foot. In fact, I prefer cutting alpaca toenails over dog toenails, since it is easier to cut into the “quick” in the dog’s nails and cause bleeding and discomfort, which terribly upsets me.

If you cut too close on an alpaca, you can also cut them. It just seems to be easier to see the area on an alpaca so this doesn’t happen.

Some alpacas (especially the white ones with white nails) have toenails which need to be trimmed every two months. Other alpacas (especially the black or dark colored ones with black or dark nails) tend not to need it often at all (maybe 2 or 3 times a year).

The best recommendation I can give is to put “pavers” or some type of rough surface that the alpacas must walk on a few times a day (entrances to barns, near the water, around feeding areas and hay troughs). If you have enough rough surface like this to help “wear down” the nails, you may never need to trim toenails (or just at shearing time). This is fantastic if you can accomplish this, and well worth the time and money spent on the pavers!

Some alpacas and llamas really don’t like to have their feet touched. This is understandable since they use their feet to run away from predators. If you mess with their feet, you have inhibited one of their best defense mechanism to protect themselves from harm. It is important to realize that alpacas are considered “prey” out in the wild. They have a totally different psychology than dogs or cats who are natural predators. Once you understand this better, some of these animal’s behaviors make more sense.

4) Shearing

Shearing should be done every year in most of the U.S.

Heat stress can result if alpacas are left in full fleece.

Heat stress can cause permanent sterility and even death.

If you see an alpaca wobbly, open mouth breathing, nostrils flaring, not eating, or not wanting to get up on a hot day, think heat stress immediately!

Heat Stress

The best treatment for heat stress is to get the fleece off the body first, then the neck.

The quickest method of cooling an alpaca is to pour isopropyl alcohol over the body and place the alpaca in front of a fan.

If you do not have isopropyl alcohol, a cold water hose over the body or (if possible) a cold water bath in a kiddie pool will help to reduce body temperature.

Don't run a hose over a full fleeced huacaya, as it will mat the fiber and not allow any heat to escape, making the situation worse!

Monitor temperature via a rectal thermometer.

No cold water enemas when using the rectal thermometer.

Once body temperature has gone down to 100 degrees, stop your cooling process.

Heat stressed alpacas also have trouble thermoregulating.

If you go too far, too quickly, you may have the opposite problem.

Once you have shorn the alpaca and appropriately cooled off its body, you may want to call your vet.

Heat stressed animals often require injectable treatments too, like Banamine and B-Complex shots.

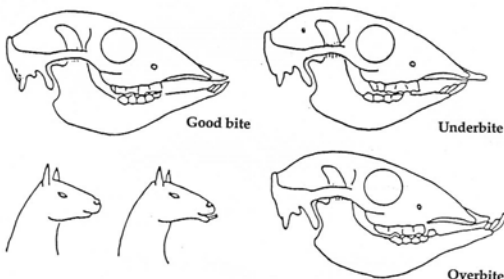
5) Teeth Trimming

Some alpacas may require their front incisors to be periodically trimmed. Some alpacas with perfect bites may never need to have their teeth trimmed.

Always use sedation when working on teeth. Thus if you need to work on a female alpaca, it is best to do this post-partum and before she is bred back. Excessive heat produced when filing teeth can cause permanent damage to the tooth, so flood the area with cool water often (making sure the water doesn't go into the lungs or airway).

Male alpacas (and sometimes an older female) have fighting teeth that erupt between 18 months and three years of age. This can be dependent on their testosterone levels. These "canines" have very sharp hooks on them which are capable of actually castrating another male. Depending on the male, he may have one or two fighting teeth on each side of his mouth, *both top and bottom*. These fighting teeth need to be filed flat under sedation by a veterinarian. It is not recommended to completely remove the teeth, especially on a ruminant. Filing the teeth flat is the best treatment, either with a wire or dremel tool. (I prefer using a dremel tool with proper sedation.)

Most male alpacas will only need this done once or twice in their lifetime, but some require it more. If you see "bloody" necks in your adult male alpaca group, make sure you check for the presence of fighting teeth on everyone in that group.



Below is a List of recommended Supplies:

Thermometer	Stethoscope	Nolvasan Solution	Vitamin A/D
Peptobismol	60cc syringes	12cc Oral Syringes	B-Complex
Probiotics	KY Jelly	Betadyne Scrub	Box of Disposable Rubber Gloves
Dental Floss	Dewormers	Banamine	Zinc Oxide Cream
Vet Wrap	Bandage Tape	Gauge Sponges	Antibiotic Ointment/First Aid Cream

Foal Nasogastric Tubes
Hand Clippers or Electric Shearers
3cc Syringes with 20 Gauge and 22/23 Gauge Needles
Electrolytes: Biolyte
Re-Sorb (Oral Hydration for Scouring Calves)
Gatorade and Pedalyte are not recommended due to high glucose content.

Warning Concerning Anything with Cortisone!

Do not use cortisone products or anything with even the smallest amount of cortisone around pregnant females and their crias! Even using a cortisone product topically may cause the pregnant alpaca or llama to abort her fetus! Please talk to your veterinarian concerning this!

Once you have started having crias, these supplies are important:

Rubber Feeding Tubes
Dental Floss
Measuring Cups
Towels
Blankets
Hair Dryer
Cria Coat
Nipples (Pritchard Nipples work best)
Empty Pediatric Enema Bottle
Nasal Aspirator
Oxygen Tank
Frozen Plasma (Llama Plasma is available from Triple J Farms in Bellingham, Washington.
This can be used on both llamas and alpacas.)
Cria Scale

Equipment Requirements are Basic:

Absolute Necessities are:
Scales
Shearing Equipment: Hand Shearers or Electric Clippers
Toenail Trimmers
Fans
Feeders for Hay, Grain, and Minerals
Halters and leads
Water Buckets (Heated in the winter, cool in the summer)

Additional Amenities:

Vet Area
Catch Areas
Feed Storage
Hay Storage
Transportation

Little Things to Think About:

- a) ***Have a good catch area! This area needs to be “small”.***
A chute is not necessary, but it can be very helpful at times.
- b) **Beware of poisonous plants (especially wilted leaves from a wild cherry tree).**
- c) **Shade for Barns and Three Sided Structures (Orientation may be critical!)**
- d) **PDZ or Powdered Lime to Put on Cleaned Poop Pile Areas in the Barn – Odor Control in Barns**
- e) **Well Lighted Areas**
- f) **Warm Water in the Winter**
- g) **Vitamin A, D, and E in the Winter**
- h) **Selenium Requirements**
- i) **Fly Control:**
 - Cylence is a great product to use for fly control on the animal.***
 - Only use on animals over 3 months of age.***
 - Only use in the Summer or when the flies are bad.***
 - For adult alpacas, dribble 3cc’s on their top-not, back of neck and lower back.***
 - For alpaca crias over 3 months, dribble 1cc.***
 - For adult llamas, dribble 5cc’s.***
 - For llama crias, dribble 2cc’s.***
- j) **Sunburn Prevention**
 - This is most often a problem right after shearing**
(especially shearing later in the Summer in July and August).
 - We recommend shearing in April and May in Maryland, not only to protect against heat stress,**
but also to help prevent sunburn later in the Summer when sun is stronger (due to time for fleece
regrowth).
 - Just keep an “eye” on this and watch your animal’s behavior.**
 - Use a child’s sunscreen if you see this is a problem, and/or keep animals inside during the**
worst/sunniest hours of the day.
 - Bad sunburns can cause real problems with infection and “fly-strike”.**
 - Skin infection resulting from this may need systemic treatment with antibiotics.**
 - Sometimes, the skin can be “permanently” scarred which yields other problems down the**
road (fleece loss and/or fleece grows back a different color).
 - Excessive stress and pain can cause miscarriages.**

Excellent Resources to Have On Hand:

My absolute favorite book: The Alpaca Field Manual
By C. Norm Evans, D.V.M.

Another great resource: The Alpaca Book – Management, Medicine, Biology, and Fiber
By Eric Hoffman and Murray E. Fowler, D.V.M.

Some empirical data and drawings presented in this paper came directly from these two excellent books:
Medicine & Surgery of the South American Camelids –
Llama, Alpaca, Vicuna, and Guanaco
By Murray Fowler, D.V.M.

The Alpaca Book – Management, Medicine, Biology, and Fiber
By Eric Hoffman and Murray E. Fowler, D.V.M.