



Hoof Care for Goats

By Jackie Nix

Hoof health probably doesn't top the top ten lists of worries for most goat owners. But did you know that lameness reduces the overall profitability of your goat operation? Lamé goats do not travel freely to water and forage and thus have lower feed intakes than goats with healthy hooves. This translates into less milk production, slower growth rates and even diminished conception rates. Lamé bucks will not actively seek out does in heat and may not breed even if they do mount. Fortunately, most lameness can be significantly reduced or eliminated with proper management.

Proper Hoof Trimming

Many foot and leg problems in goats are either caused by a lack of trimming or improper trimming techniques. Trimming hooves is a simple task that can be easily learned, however, the hard part comes in committing oneself to follow through in a timely manner. The amount of time between trimmings depends on many factors, such as type of terrain, the goat's age, level of activity, nutritional level and even breed. Goats raised in relative confinement and on small acreages may require more frequent trimmings than goats raised in vast pastures. Generally, foot trimming should be done on an as needed basis. Once you become familiar with how the hoof is supposed to look, this will become obvious to you. A properly trimmed hoof should look like that of a newborn kid.

The tools for hoof trimming include: gloves, a set of hoof shears and a hoof knife, both with sharp edges. The first step in trimming is to clean off the foot, so that it is free of dirt, stones, rot and manure. Besides being easier to see and more pleasant to handle, a clean foot will not dull a knife's edge as fast as a dirty foot. The next step is to remove any rim or excess growth from the walls of the foot. The wall may have grown and folded back under the foot. In this case some of the overlapped toe will have to be cut back so that the rim of the wall can be removed properly. The trimming of the wall and toe should be done with the shears, while the heel and sole can best be cut with a hoof knife. When using a hoof knife, always cut away from the goat and yourself. The sole should be trimmed down in thin slices until the heel; sole and wall form a flat surface upon which the goat should stand at a correct angle of about 45°. Stop trimming as soon as the sole begins to appear a pinkish color. Any further trimming goes into the "quick" and the foot will begin to bleed. In many cases, the weight of the goat itself will put pressure on the cut and stop any bleeding.

If the goat's feet have been neglected for some time, and the toes are very long it is usually not practical to try to bring them back to normal in one trimming. It is generally better to trim the feet a little and then gradually bring them back to proper shape, size and angle with frequent trimmings. A general rule to keep in mind about trimming goat's feet is that the hoof's hairline should be almost parallel to the ground and the more often trimming is done the less time and energy per trimming it takes, and the more well behaved the goats will be during the trimming. Also, there is a smaller chance of the goat developing foot problems such as hoof rot if the owner is working with the goat's feet regularly and frequently.

Foot Rot and Lameness

Lameness is commonly caused by the development of foot rot. This disease is caused by a mixed infection of two bacteria, *Fusobacterium necrophorum* and *Bacteroides nodosus*, which are brought into an area by way of contaminated feet. Wet, muddy areas and filth increase the possibility of disease outbreaks. Also, injuries to the feet enhance foot rot transmission. Foot rot doesn't usually occur when the soil temperature is less than 40° F (4.5° C). Generally, this disease starts as an inflammation between the toes of the foot, later spreading under the horn. As it continues, it causes a separation between horn and skin, causing varying degrees of pain and lameness.

The foot rot bacteria require an anaerobic (without oxygen) environment to survive. Therefore, in order to correct this problem, the hoof must be trimmed back to the point of separation so that the area will be exposed to the air. This also rids the hoof of a potential "pocket" in which dirt and manure could pack to form an anaerobic environment. The foot is then treated with an antibiotic spray, or soaked in a 10% formalin, copper sulfate or zinc sulfate solution and kept off contaminated fields or muddy yards for at least two weeks to avoid reinfection. A walk-through foot bath filled with saturated copper sulfate or zinc sulfate solution will also aid in maintaining sound, healthy feet; provided the foot bath is kept free of contamination from manure, rain and run-off. Prevention of foot rot includes minimizing filth and wet, muddy areas in goat pens and pastures; proper nutrition and regular and proper hoof trimming;

An added benefit to proper hoof trimming is that some foot and leg problems can be "cured" by corrective trimming. If the hindlegs are postlegged or too straight, leaving the toes a little long may help give the leg more angle. Vice versa, a sickle hocked leg will benefit from trimming the toes short to a greater than 45° angle. If the legs toe out, trimming the total inner claw shorter and lower on each foot will help. If hooves have spread claws, then cutting the inner walls more than the outer walls, is good corrective hoof trimming, provided it is done frequently and in short intervals.

Proper Nutrition for Improved Hoof Health

Proper nutrition is essential for healthy, strong hooves. Nutrition is also one of the more easily manipulated factors affecting both infectious and non-infectious causes of lameness. Amount grain and/or roughages in the diet affect development of lameness. Additionally, proper trace mineral nutrition is critical for maintaining sound hooves.

Relationship Between Grain and Hoof Health

Grains (corn, barley, oats, etc.) are feedstuffs high in energy content. Energy is needed to drive all metabolic actions in the body, including hoof growth and proper maintenance. However, feeding excess energy can create hoof and lameness problems. Low roughage diets or sudden access to a large amount of high-energy feed can cause laminitis (founder) in goats resulting in disrupted blood flow in the hooves. In severe cases, laminitis causes severe lameness, fever and feet that are hot to the touch. Goats may be observed, "walking" on their knees. Goats exhibiting laminitis should receive veterinary attention. A second, incendiary relationship between grain (energy) and lameness relates to obesity. Goats on high grain diets overwhelmingly tend to become obese. Obesity results in increased pressure on the hooves and joints and can lead to chronic lameness. So the take home message is to limit the amount of high-energy and/or low roughage feeds in a goat's diet for proper hoof health.

Relationship Between Trace Minerals and Hoof Integrity

Several trace minerals play key roles in the growth and maintenance of healthy hooves, but zinc, copper and selenium are especially important. **Zinc** plays a role in the synthesis and maturation of keratin (claw horn tissue) and is also vital for rapid wound healing, epithelial tissue repair and cellular integrity. **Copper** plays an important role in the formation of strong horn and connective tissue in the hoof.

Animals suffering copper deficiency are more susceptible to hoof cracks and foot rot. Zinc and copper must be provided in the diet in the proper ratio for optimum availability and utilization. **Selenium** acts as an antioxidant to prevent and repair cellular damage in the hooves. Many soil types across the United States tend to be moderately to severely deficient in all three of these minerals. Due to the slow growth of hooves, it is critical that a properly balanced mineral supplement for goats be provided year-round to promote growth and maintenance of healthy, sound hooves.

In summary, lameness will reduce overall productivity and profitability within your herd. Fortunately, most causes of lameness can be corrected with proper management. Proper management techniques that help to reduce lameness include: frequent, properly performed hoof trimming, elimination of wet, muddy areas in goat pens and proper nutrition.

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