

Goat & Sheep News

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IMPORTANCE OF SALT IN THE DIET OF SHEEP AND GOATS

*By Helen Swartz, Ph.D., Small Ruminant &
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The importance of sodium (salt) in goat and sheep nutrition is second only to water. It is essential to maintaining osmotic pressure and controlling water metabolism. Of the basic mineral elements in the blood serum of goats and sheep, it represents 93% of the total mineral elements. Sodium regulates blood pH in goats and sheep. Muscle contraction, nerve impulse transmission and heart rhythmic contractions require sodium in the diet of goats and sheep. All goats and sheep have a craving for salt. When salt is inadequate, weight loss and decreased milk production may be observed. Poor feed utilization is a result of reduced amino acids and energy metabolism (Underwood and Suttle, 1999) followed by death in severe cases. Lactating does and ewes and heat stressed animals develop symptoms at a faster rate. Wool sheep will chew on their wool during winter confinement if suffering from a sodium deficiency. The hair coat on hair sheep and goats will appear rough.

Sodium concentration needs listed in the National Research Council (NRC, 1982) tables of feed composition were found by Berger (1995) to be unreliable. The NRC values were reported two to 10 times greater than analyzed values in corn, barley, wheat, cottonseed, hay, and brewers and distillers grains. Underwood and Suttle (1999) reported low values in sodium concentrations in feedstuff caused by weather, temperatures, soil, fertility, stage of maturity of plants, storage conditions and variety of crops. Goats and sheep have a natural appetite for sodium choice salt. Grazing is highly recommended to insure the sodium requirement is sufficient to meet their needs.

Berger, L.L. 1995. Why do we need a new NRC data base? *Amin. Feed Sci. and Tech.* 53:99-107

Underwood, E.J. and N.F. Suttle. 1999. *The Mineral Nutrition of Livestock.* 3rd Ed. Published by CAB 1, New York, NY P. 185-212



THE KATAHDIN HAIR SHEEP INTERNATIONAL EXPO TO BE HOSTED BY LINCOLN UNIVERSITY FARMS

The Katahdin Hair Sheep International Exposition (KHSI) annual conference will be held at the Lincoln University George Washington Carver Farm, Jefferson City, Missouri, on September 16-18, 2010. Sheep for sale will arrive on September 16, and be sold on September 18. Demonstrations, lectures, and a general meeting of the KHSI membership will take place on September 17. Also on September 17, at 7:30 p.m., there will be a Hospitality-Katahdin Fellowship gathering at the Best Western Capital Inn.

KHSI is sponsoring this conference. It is open to all individuals interested in the Katahdin breed and the sheep industry in general. Lunch and dinner will be provided on the 17th as a part of the registration fee. Tours of the State Capitol and the surrounding area may be provided, depending on interest. For additional information concerning the conference, or for consigning or purchasing Katahdin sheep, visit the KHSI website, Katahdin.org, or contact Jim Morgan at KHSI Operations. He can be reached at info.katahdin.org or by phone at (479) 444-8441.

SODIUM'S ROLE IN NUTRITION IN SHEEP
AND GOATS HAS SHOWN ADVERSE EFFECTS
IN REPRODUCTION IN THE FEMALES, BOTH
DOES AND EWES.

MULTI-SPECIES GRAZING WITH SMALL RUMINANTS CAN IMPROVE UTILIZATION OF PASTURES

By Jodie Pennington, Ph.D.

Multi-species grazing is the practice of using two or more species of livestock together or separately on the same land in a specific growing season. With an understanding of the different grazing behaviors of each species, various combinations of animals can be used to more efficiently utilize the forages in a pasture. Different species of livestock prefer different forages and graze them to different heights (Table 1).

Cattle tend to be intermediate grazers. They graze grasses and legumes, and bite with their mouth and tongue. Sheep and horses graze closer to the ground than cattle. Goats and sheep eat forbs (brushy plants with a fleshy stem) and leaves better than cattle or horses. Many weeds in a grass pasture are forbs. Cattle and horses tend to graze grasses better than small ruminants such as goats and sheep.

Goats are browsers and prefer to graze with their heads up. Browse is the tender shoots, twigs and leaves of trees or shrubs that are acceptable for grazing. Goats browse like deer if given the opportunity. They will eat higher growing plants such as forbs and shrubs, as well as high-growing grasses. With their mobile upper lip, goats can select individual leaves and strip bark off of woody plants. Their unique lip allows them to eat the parts of a plant that are highly nutritious, while leaving behind the less digestible parts such as the thorns and branches of blackberries and multi-flora rose. Both goats and sheep will eat weeds, although goats prefer browse more than sheep.

Brush and weed management is the most noticeable benefit that producers see from multi-species grazing with cattle and small ruminants. Although research indicates that multi-species grazing can contribute to more efficient and uniform use of pastures, the results will vary with the type of pasture. Land that includes grasses, forbs and browse are best utilized with multi-species grazing. Land that is uniformly in grass may best be utilized for cattle or horse production. Multi-species grazing can improve utilization of forages by less than five percent to more than 20 percent depending primarily on the type of vegetation on the land and the mix of animals used.

In past times, cattle and sheep have usually been the combination used for multi-species grazing. This practice, in part, was due to greater multi-

species grazing in western states where there is greater diversity of plant species and elevation of land than in eastern states. However, with the increase in popularity of goats in states such as Missouri, they now are often used with multi-species grazing. Horses also may work well with goats in a multi-species grazing scheme.

Varying terrain also lends itself to multi-species grazing. If the terrain is steep and rough, goats and sheep are superior to cattle for handling the terrain. They also eat more forbs and browse than cattle because goats and sheep are well adapted to grazing rough borders around an otherwise relatively level pasture. Cattle prefer to graze grass and prefer more gently sloping land. It is the combination of grasses, forbs and browse that provides for the more efficient use of multiple species for grazing, sometimes increasing meat production per acre by over 20 percent.

Although there are individual preferences, data does not define if forages are utilized more efficiently if small ruminants graze before or after cattle. Some prefer to graze small ruminants before cattle so that the goats and sheep are less likely to be exposed to larvae from internal parasites on taller-growing plants. Cattle and small ruminants also may be grazed at the same time. Usually small ruminants are used to eat weeds and browse that cattle do not eat in a multi-species regime.

Concerns with multi-species grazing involving cattle and small ruminants include predator control and fencing for the goats or sheep. Labor also can be an issue since the species may be grazing at different times. In such cases, additional labor is needed to move the livestock from field to field. Depending on the environment, small ruminants may require a more extensive program to control internal parasites than cattle, which adds to labor demands.

Some type of predator control program is essential with goats and sheep as they are more susceptible to feral or local dogs and coyotes than cattle. Cattle may serve as a deterrent to the roaming canines, but extra precautions are usually needed. Livestock guardian animals are most commonly used to protect the small ruminants from predators. Dogs such as the Great Pyrenees or the Anatolian Shepherd are most used as guardians, but donkeys, mules, mustangs and llamas are also

Species	Grass (%)	Weeds (%)	Browse (%)
Horse	90	4	6
Cattle	70	20	10
Sheep	60	30	10
Goats	20	20	60

Table 1. Dietary preferences for different livestock species (From "Nutrient management in mixed specie pastures for goats," Ann Peischel, 2005 Nutrition Conference, University of Tennessee, Knoxville).

used. If a guardian animal does not protect the herd, it should be replaced.

Usually more exterior fencing is needed to keep unwanted canines away from small ruminants, as well as to keep the small ruminants in the field compared to cattle. Goats require a little more extensive fencing than sheep to keep them confined. However, even more extensive fencing is required to keep the coyotes out of the field where the sheep and goats are grazing. Reinforcing existing fencing with electric fencing is usually the most economical method. The expense of additional fencing is usually the most costly part of multi-species grazing.

As with all livestock, there may be personality conflicts with mixed species of animals. If this occurs, the least desirable animals involved in the conflict are best culled from the herd.

Another problem with grazing of multiple species is the feeding of minerals. Usually goats and cattle can use the same mineral unless there appears to be a health concern. However, sheep do not tolerate as high a level of copper as do goats and cattle if the animals are being co-mingled.

Multi-species grazing can have additional benefits other than greater pounds of meat per acre. Weed control and the decreased costs of controlling weeds and brush in the pasture are the most noticed extra benefit. Additionally, internal parasites may be reduced in the small ruminants. Because gastrointestinal parasites from goats or sheep cannot survive in the stomach of cattle and vice versa, multi-species grazing may decrease internal parasite loads. The decreased level of parasites should result in fewer treatments for worms

which could slow resistance of parasites to conventional dewormers, an increasing problem with small ruminants. In a field infected with a high load of larvae from sheep and goat parasites, cattle should be grazed first to pick up the larvae of parasites, and then goats or sheep could graze with less danger of parasite infestation. In other situations, producers may prefer to have small ruminants graze before cattle as most of the larvae of internal parasites are located on plants within 4 inches of the ground.

In summary, producers with cattle can obtain greater pounds of meat per acre and can reduce weeds and brush in a pasture when adding small ruminants for multi-species grazing. These benefits need to be compared to the additional costs for labor and fencing for the small ruminants plus the costs of predator control for sheep and/or goats.

SALE OF RAW MILK IN MISSOURI

Farmers can sell raw milk and cream to the final consumer either on the farm or through delivery without being required to have a permit. Those interested in selling raw milk and cream other than on-farm or through delivery (e.g., farmer's markets) must obtain a Grade A retail raw milk permit from the State Milk Board and must have state approved bottling equipment on the premises. In addition, farmers with a Grade A retail raw milk permit must comply with State Milk Board labeling regulations.

INFORMATIONAL WEBSITES

www.extension.org/goats

www.cop.extension.org/wiki/Goat:_Extension_Resources

www.sheepandgoat.com/articles/ethniccalendar.html

www.mda.mo.gov



IMPORTANT DATES

September 4, 2010: World Sheep and Fiber Arts Festival, Bethel, Missouri.

www.worldsheepfest.com/info

September 10, 2010: Southwest Center Field Day, Mt. Vernon, Missouri.

www.aes.missouri.edu/swcenter/fieldday

September 12-15 National Goat Conference, Tallahassee, Florida.

www.famu.edu/goats for registration

September 17-18 National Katahdin Conference, Lincoln University, George Washington Carver Farm, Jefferson City, Missouri.

September 25, 2010: In Touch with Nature Field Day at Alan T. Busby Farm in Jefferson City, Missouri from 10 a.m. to 4 p.m.

www.khsi.org for registration.

For more information on all Missouri fairs and festivals visit www.missourifairsandfestivals.org

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SCRAPIE REGULATION UPDATE

All goat and sheep that are to be exhibited must be free of clinical signs of an infectious or contagious disease. All sheep, including wethers, must be accompanied by a Certificate of Veterinary Inspection (Health Certificate) showing official individual identification (including eartag, electronic implant or registration tattoo accompanied by registration paper) as defined in Part 79 of the Code of Federal Regulations. If electronic implants are used for identification, the owner/manager must provide the electronic implant reader.

Goats and sheep to be sold at Missouri livestock markets are required to have an official eartag.

Eartags for the Scrapie Program are free and available by contacting the USDA office at (866) USDA-TAG or the local USDA office at (573) 636-3116.

For further information visit: www.mda.mo.gov/animals/health/exhibitionreq.php

Veterinary inspection is required on all goats and sheep prior to sale.