

Maryland Small Ruminant Page

An introduction to feeding small ruminants

Feed is the single largest cost associated with raising small ruminants, typically accounting for 60% or more of total production costs. It goes without saying that nutrition exerts a very large influence on flock reproduction, milk production, and lamb and kid growth.

Late-gestation and lactation are the most critical periods for ewe and doe nutrition, with lactation placing the highest nutritional demands on ewes/does. Nutrition level largely determines growth rate in lambs and kids. Lambs and kids with higher growth potential have higher nutritional needs, especially with regards to protein. Animals receiving inadequate diets are more prone to disease and will fail to reach their genetic potential.

Small ruminants require energy, protein, vitamins, minerals, fiber, and water. Energy (calories) is usually the most limiting nutrient, whereas protein is the most expensive. Deficiencies, excesses, and imbalances of vitamins and minerals can limit animal performance and lead to various health problems. Fiber (bulk) is necessary to maintain a healthy rumen environment and prevent digestive upsets. Water is the cheapest feed ingredient, yet often the most neglected.

Many factors affect the nutritional requirements of small ruminants: maintenance, growth, pregnancy, lactation, fiber production, activity, and environment. As a general rule of thumb, sheep and goats will consume 2 to 4 percent of their body weight on a dry matter basis in feed. The exact percentage varies according to the size (weight) of the animal, with smaller animals needing a higher intake (percentage-wise) to maintain their weight.

Maintenance requirements increase as the level of the animals' activity increases. For example, a sheep or goat that has to travel a farther distance for feed and water will have a higher maintenance requirements than animals in a feed lot. Environmental conditions also affect maintenance requirements. In cold and severe weather, sheep and goats require more feed to maintain body heat. The added stresses of pregnancy, lactation, and growth further increase nutrient requirements.

The following chart gives the nutritional requirements for various classes of sheep and goats:

Production class	%	
	TDN	CP
Maintenance, 154-lb. ewe	57.6	9.6
Late gestation, 180-220% lamb crop	66.7	11.2
Lactation, twin lambs	64.5	14.8
Early weaned lambs, 66 lbs., moderate growth potential	75.8	14.5
Lamb finishing, 88-lbs, 4-7 mos.	77.1	11.7



The energy, as well as protein content of hay depends upon the maturity of the forage when it was harvested for forage. Proper curing and storage is also necessary to maintain nutritional quality of hay.

Silage

Silage made from forage or grain crops has been successfully fed to both sheep and goats; however, special attention must be paid to quality, as moldy silage can cause listeriosis or "circling disease" in small ruminants. As with fresh forage, the high-producing animal often cannot consume enough high moisture silage to meet its nutritional needs. Silage is typically fed on large farms, due to the need for storage and automated feeding equipment.

Concentrates

It is oftentimes necessary to feed concentrates to provide the nutrients that forage alone cannot provide. This is particularly true in the case of high-producing animals. There are also times and situations where concentrates are a more economical source of nutrients. Creep feeding and supplemental feeding of lambs and kids has been shown to increase growth weight, but should only be done to the extent that it increases profit.

There are two types of concentrate feeds: carbonaceous and proteinaceous. Carbonaceous concentrates or "energy" feeds tend to be low in protein (8-11%). They include the cereal grains --corn, barley, wheat, oats, milo, and rye. It is not necessary to process grains for sheep and goats unless the animals are less than six weeks of age and lack a functioning rumen.

One of the problems with feeding a lot of cereal grains is that they are high in phosphorus content, but low in calcium. Feeding a diet that is high in phosphorus and low in calcium can cause urinary calculi (kidney stones) in wethers and intact males. Inadequate calcium can lead to



