

FEEDING PROBLEMS WITH GOATS

by Damon A. Spencer¹

MOST of this article is concerned with the feeding of milk goats, though the essentials are briefly given for Angoras as well. Rations are suggested for milking does, young does, kids, and bucks, and for finishing goats that are to be sold for meat. A final section deals briefly with research needs in the nutrition of goats.

A LARGE PROPORTION of the goats in the United States are of Angora breeding. They are kept primarily for the production of mohair, and the majority of them are raised on fenced ranges of the Edwards Plateau in southwestern Texas (fig. 1), although they are fairly important in New Mexico, Arizona, California, Oregon, and Missouri, and a few are raised in several other States (1232).² California is the State most noted for the production of milk goats, the only other improved type (1174, 1175). There are fewer milk goats than Angoras, but they are more generally distributed over the United States (fig. 2) (765). The leading breeds of milk goats in this country are the Toggenburg, Saanen, Nubian, and Alpine (933).

The feed requirements of goats are similar to those of sheep (957). Goats of all types are browsers by nature, fond of leaves, twigs, and weeds (532). While they also relish good grass, they will select browse, if given an opportunity, to a greater extent than will sheep (1135). When browse and other forage of range and pasture are not available, goats can make good use of legume hay; or they can subsist on straw, corn stover, timothy hay (if cut when in early bloom), corn silage, sorghum silage, and other nonnitrogenous roughages if these are supplemented with about one-fourth to one-half of a pound per head per day of protein-rich concentrates such as cottonseed or linseed cake or meal. Corn, oats, barley, and similar grains may be fed to goats along with roughage in about the same way that grains are fed to sheep. Good legume hay, however, is one of the best of the stored feeds for goats (819).

Milk contains a relatively large amount of protein, and mohair

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² Italic numbers in parentheses refer to Literature Cited, p. 1075.



Figure 1.—Angora goats grazing and browsing on the Edwards Plateau, Tex.

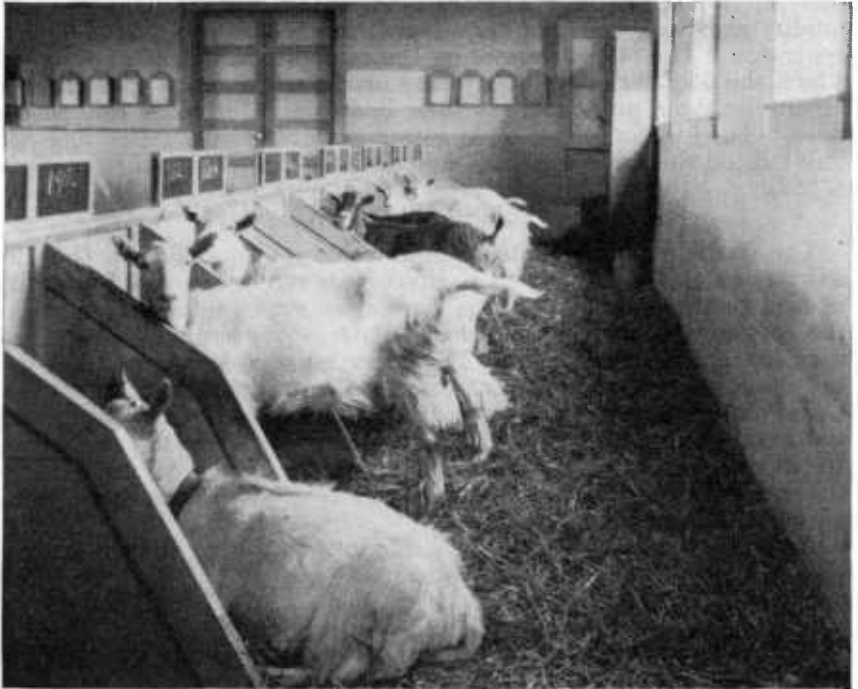


Figure 2.—Feeding time for milk goats at the Agricultural Research Center, Beltsville, Md. The white does are Saanens and the others Toggenburgs.

fibers, like wool fibers, are composed of protein. Goats therefore need feeds that contain a good supply of this nutrient (819).

Goats are as fond of salt as are sheep, and when they are accustomed to it, it should be kept where they can take as much as they desire. Calcium supplements may be needed where the forage is nonleguminous and grown on soils low in calcium. About a quarter of a pound of ground limestone or some other calcium supplement per head daily may be fed in the form of a mixture of 2 parts of calcium supplement to 1 part of common salt. If phosphorus appears to be lacking in the forage it may be supplied in bonemeal in a similar mixture with salt. Where there is trouble from goiter in newborn kids the does should be fed iodized salt at least during the last half of pregnancy, so that they will get about one-twentieth of a grain of potassium iodide per head daily (819). Larger doses may be injurious (460).

FEEDING ANGORA GOATS

Angora goats obtain most of their feed on the range in the form of browse, weeds, and grass. During the winter they subsist in large measure on evergreen brush (not including cedar or other coniferous vegetation) when such browse is available. When supplemental feed is necessary they can use to advantage hay, kale, rape, corn, milo maize, feterita, oats, and similar feeds. If the hay or other roughage is nonnitrogenous, they should be fed protein-rich meal or cottonseed or linseed cake. When they must depend entirely on stored feed, the daily allowance per head may need to be about 3 or 4 pounds of good-quality roughage and about one-fourth to one-half of a pound of concentrates. The bucks do well on the same kinds of feed as those on which the does thrive, but they may need slightly larger quantities in about the same proportion as their body weight exceeds that of the does. The kids in a herd of Angora goats are usually raised as suckling kids on their mothers' milk and on feeds available to their mothers (1223).

FEEDING MILK GOATS

The feeding requirements of milking does are similar to those of dairy cows (141). About six to eight goats can be fed on the quantity of feed required by one cow. When does are in milk they need all the roughage they will consume. Alfalfa, clover or mixed hay, and corn stover are satisfactory. The does also need succulent feed such as silage, mangel-wurzels, carrots, rutabagas, parsnips, or turnips. Corn, oats, wheat bran, barley, and linseed meal or cake are among the best concentrates for their ration. Other satisfactory concentrates, which may sometimes be more readily available, include cottonseed in the form of meal or cake, brewers' grains, corn bran, gluten feed, and beet pulp (70).

A very satisfactory ration for a doe in milk during the winter consists of the following daily allowance:

- 2 pounds of alfalfa or clover hay (good to choice);
- 1½ pounds of corn silage or roots;
- 1 or 2 pounds of grain mixture.

The grain mixture could consist of 100 pounds of corn, 100 pounds of oats, 50 pounds of wheat bran, and 25 pounds of linseed meal.

When on good pasture the doe may need a daily allowance of 1 to 1½ pounds of such a grain mixture. Does vary considerably in their appetites and there is an advantage in feeding them grain individually according to the quantities they will consume readily. Tests by the Bureau of Animal Industry show that, in producing a good milk flow, 1 pound of the grain mixture is the average daily grain requirement per quart of milk produced during the entire period of lactation (933). Under average conditions, a mature doe that is pastured as much as possible will require about 500 pounds of good to choice legume hay and 450 pounds of grain a year.

Young does should be kept in good growing condition (266). If they have plenty of browse and pasture it is unnecessary to feed them grain during the spring, summer, and fall, but they may need a little grain if the browse and pasture are short. In winter they need about 1 pound of grain, 1 to 1½ pounds of silage or roots, and all the hay or other roughage they will consume.

When the milk is to be sold or used by the family (597) the feeding of the kids that are to be raised for breeding and milking purposes requires special attention (934). Each kid should receive about 1½ to 2 pounds of milk a day along with good pasture or other roughage and a little grain. The grain mixture suggested for the older goats will be satisfactory, except that the corn should be cracked and the oats crushed, and the protein concentrate should be fed in the form of meal instead of cake. The quantity of roughage and concentrates at each feeding, when kids are fed twice a day, should be about as much as they will clean up before the next feeding. Tests by the Bureau of Animal Industry have shown that when the kids are about 10 weeks old the milk in the ration may be replaced in large measure by good alfalfa hay and mixed grain without sacrificing gain in body weight or development (933). This possibility offers an important advantage to the producer who needs to sell all the milk from the herd not required for raising the kids (1071). Whole cows' milk can be fed successfully to kids. Even skim milk can be used with a fair degree of success if the change from whole milk to skim milk is made very gradually and the kids are allowed 2 or 3 pounds of milk a day in three feedings until they are about 6 weeks old. Choice alfalfa hay and grain should be fed in addition to skim milk. During the first 6 weeks of the kids' life, milk should be fed warm at a temperature ranging from 90° to not more than 98° F. The kids can be weaned when they are 3 or 4 months old, although when they are raised as suckling kids it is customary not to wean them until they are about 5 months of age (104).

Bucks of the milk-goat breeds need some legume hay and corn stover during the winter, and it is a good practice to allow them some succulent feed such as silage, turnips, or other root crops, and sufficient grain to keep them in strong, thrifty condition. Bucks in the Department's herd of milk goats at Beltsville have wintered well on about 3 pounds of alfalfa or clover hay, 1 to 1½ pounds of corn silage, and 1½ pounds of grain per head daily, the grain mixture consisting of 100 pounds of corn, 100 pounds of oats, 50 pounds of wheat bran, and 25 pounds of linseed meal. During the breeding season the daily grain allowance is usually increased to 2 pounds. When bucks are on good pasture no grain is necessary.

FEEDING GOATS FOR MEAT PRODUCTION

Although goats have not been especially improved for meat production, the meat of healthy, normal goats is wholesome food. Many thousand goats are marketed for their meat annually, and the feeding of such animals has an important bearing on their market value. The normal goat carcass is not so well fleshed, is not susceptible of so high a finish, and does not represent so high a dressing percentage as the normal sheep carcass. Goat meat in the carcass form usually goes into the regular meat trade as mutton or lamb since there is only an occasional municipal restriction against such practice. The word "chevon" has been adopted to designate goat meat (933).

In grazing or feeding goats for their meat the same grazing forages or stored feeds should be provided for them as those given to Angora goats for the production of good strong mohair or to milk goats for the production of a good quantity of nutritious milk. However, in order to obtain the best finish, emphasis should be placed on such fattening feeds as corn, barley, or grain sorghums, along with good grazing forage or legume hay and succulent feeds. The daily allowance per head of stored feeds for fully grown goats should be approximately as follows:

- 2 pounds of good to choice alfalfa or clover hay;
- 1½ pounds of corn silage or roots;
- 1 or 2 pounds of grain.

The feed allowances will vary for goats of different ages, weights, and condition of flesh or fatness. The grain may be in the form of a mixture such as 2 parts of corn, 1 part of oats, and 1 part of wheat bran by weight.

POSSIBILITIES OF IMPROVING GOATS THROUGH NUTRITIONAL RESEARCH

Progress in feeding practices has been made by some producers of improved goats, but there is need for more definite information on the efficiency of various feeds and combinations of feeds, including the forage plants of pastures and range, from the standpoint of their influence on the quantity and quality of mohair and milk produced. As economy of production becomes increasingly important, the need for such information will be even more urgent than it is now. Fundamental research on the nutritional requirements of goats and their ability to utilize various feeds and combinations of feeds offers the primary means of increasing economy. Such research would include work on the precise role of minerals, protein, and vitamins in the nutrition of goats.

As in the case of sheep, there is much evidence of wide variations in the efficiency of individual goats to utilize feed. It is also apparent that such variations exist among different families and strains. Thus it should be possible to develop strains that are highly efficient in converting available feeds into mohair or milk of superior quality and quantity. Once such strains were developed, they could be used in suitable breeding practices to raise the average efficiency of these animals (245).

In such an effort the research workers in nutrition and genetics would have to cooperate with each other, and they would have to have the cooperation of the producers of mohair and milk. The pioneer period of goat production is passing, just as it is with sheep, and this inevitably means a need for greater efficiency based on theoretical research and practical experiment.