

MU Guide

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Feeding and Housing Dairy Goats

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from Special Circulars 233 and 236.

Sound feeding practices and good housing facilities result in optimum growth and high milk production and contribute to the good health and comfort of dairy goats.

Feeding the Dairy Goat

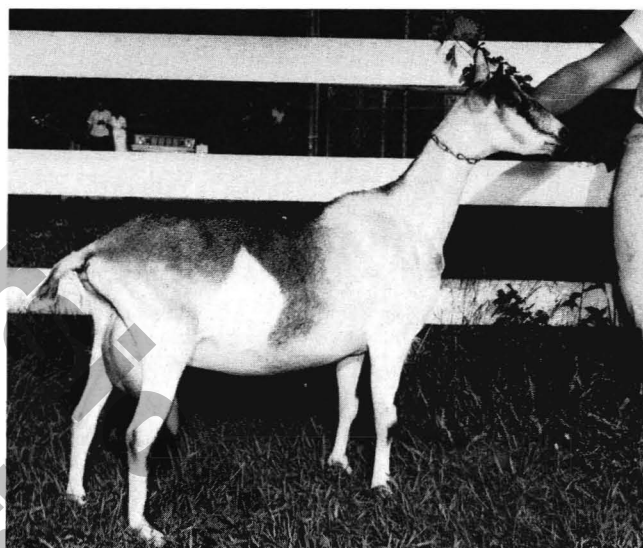
Feed the dairy goat with several objectives in mind: (1) feed a young animal enough energy for growth, and feed a mature animal enough energy to maintain a fairly constant body weight; (2) provide enough protein, minerals, and vitamins in a balanced feeding program to maintain a healthy animal; and (3) offer does enough extra food during gestation and lactation to develop the fetus and produce milk.

Digestible fiber is especially important in the diets of dairy goats. Too much grain in relation to forage does not foster good ruminant action and is a costly feeding practice.

Feeding Kids and Yearlings. The kid is born with no natural protection from disease. The first milk (colostrum) from its mother offers protection and gets the digestive system working. To be most effective it must be fed before disease-producing organisms enter the mouth and digestive tract.

Wash the fresh doe's udders and teats with warm water. Hand milk half a cup of colostrum and feed it to the kid within 15 minutes of birth. This is the best way to be sure that the newborn receives some milk and to provide it with the most protection from organisms present on the skin of the doe. Complete the first milking and store the colostrum for later feedings if you elect to hand feed. Otherwise, permit the kid to nurse at its convenience following the first hand feeding.

Clean the feeding utensils immediately following each use. Use the same cleaning procedures you follow



Sound feeding practices result in high milk production.

for washing milk handling equipment or your dinner dishes.

Table 1 is a practical milk feeding schedule. Warm the milk to 100°F. At two weeks of age, extra water may be provided.

Milk replacer may be fed from the fourth day; it should contain at least 20 percent protein, 20 percent fat, and be free of vegetable products. A lamb or high quality calf replacer is recommended. Provide hay and

Table 1. Milk Feeding Schedule.

Age	Amount of Milk	Times to feed per day
1 to 3 days	4 oz. (½ cup)	4 or 5
4 to 14 days	8 to 12 oz.	3 or 4
2 weeks to 3 months	16 oz.	2 or 3
3 to 4 months	16 oz.	2

grain at one to two weeks of age. Wean from milk when intake of grain reaches ¼ pound daily and kids are readily consuming hay.

If diarrhea is a problem, try the following mixture:

- Beef consommé—1 can
- Fruit pectin (Sur-Jel)—1 package
- Lite salt—1 teaspoon
- Baking soda—2 teaspoons
- Water—To 2 quarts

Mix fresh mixture daily and feed in place of milk.

Double the rate you were feeding. Feed as soon as you notice diarrhea. Use for 1½ or 2 days, then return to the regular milk diet. Make sure the solution is thoroughly mixed.

After four to six months of age, the kids may be fed a ration similar to that fed the milking herd. Good hay and ½ pound of grain per day should provide an ample growth rate. Poor hay may require 1 to 1½ pounds of grain daily.

Feeding the Milking Herd. If milk production is important, feed maximum amounts of high quality hay, balanced with a grain ration containing enough protein, minerals, and vitamins to support production and animal health. Grass or legume hays are equally acceptable. As the percentage of legumes is increased the need for protein in the grain mix is reduced.

Forage Fed	Level of Protein in grain	Mineral mix to use
Legume or mixed mostly legume	14 to 16%	High phosphorus mixes
Grass or mixed mostly grass	16 to 18%	2:1 Ca:P mixes

Level of milk production, amount and quality of forages consumed, appetite, and state of fleshing will determine the amount of grain to feed. Thin, high producing does should have access to all the hay they can eat plus grain to the limit of their appetite. Does in mid-lactation that are in good flesh should have all the hay they will eat plus 1 pound of grain for each 3 pounds milk produced. Late lactation does may not need more than 1 pound of grain for each 5 pounds of milk.

Feed a grain ration formulated for a milk-producing ruminant (dairy cows). Do not purchase horse feeds for dairy goats. Rolled or cracked grain is more

palatable than ground grain. Urea is not recommended because of palatability problems. Some commercial cow feeds may contain by-product ingredients unpalatable to goats. Wet molasses is more palatable than dry molasses. Beer or citrus pulp is a valuable source of fiber especially if the available hay is of low quality. Table 2 lists some palatable and nutritious rations your local miller could mix.

Add a vitamin premix that will provide 1000 units of A, 500 units of D, and 3 units of E per pound of grain.

Weeds and browse are not a necessary part of a goat's diet. Good pasture is a valuable source of summer feed. Vegetable tops and parings may be used but as an "extra." Do not depend on them as a sole source of forage.

Water is critical to good health and high milk production. A clean source of water should be available at all times. If the water is warmed during cold weather, goats will consume more.

Feeding Dry Does. Reduce the amount of grain to ½ to 1 pound per day if the animal is not thin. Feed all the forage she will eat. Hay fed during the dry period may be of lower quality, but if so, the grain ration should contain additional protein. Browse, leaves and weeds are often useful to recondition the stomach. If the dry ration differs from the milking ration, be sure to change to the milking forage and grain ration two weeks before the doe freshens.

Feeding the Buck. For convenience purposes, the same grain fed the milking herd may be used. Most bucks do not need more than a pound of grain per day plus forages. Don't let him grow fat. Adjust grain upward or downward accordingly. Always feed full forage.

General Information. It is recommended to keep minerals and trace mineral salt separate. Always feed them separately. Feed hay in a rack that will not permit wasting. A keyhole feeder is one recommended type of feeder (see illustration). Do not overlook forage testing as an economical way to feed the correct ration to your herd. Ask your University Extension agent about this program.

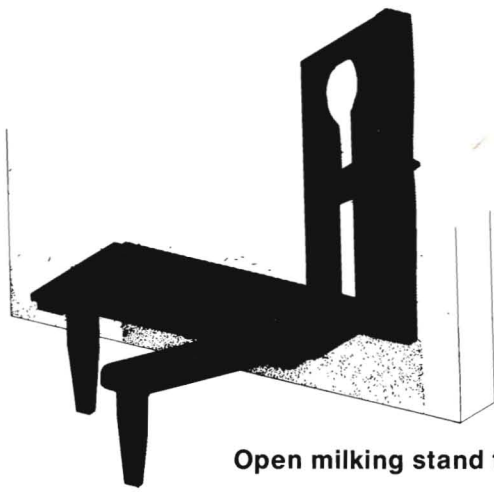
Optimum growth, good health, and high milk production are the results of sound feeding practices. The dairy goat is not unique in her body requirements. she will respond to good nutritional practices.

Table 2. Sample Grain Rations.

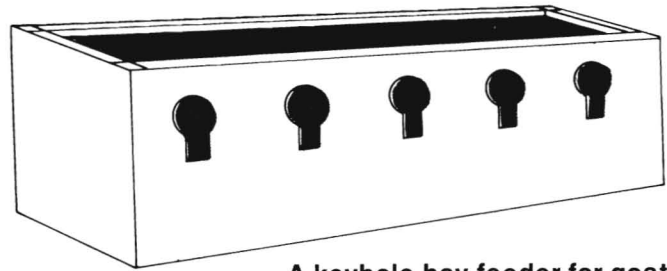
Ingredient	Level of Protein in Finished Mix			
	14%	16%	18%	20%
Cracked or Rolled Corn	38 (lb)	33 (lb)	27 (lb)	22 (lb)
Rolled Oats	20	20	20	20
Soybean Oil Meal (44%)	19	24	30	35
Beet or Citrus Pulp	10	10	10	10
Molasses	10	10	10	10
Trace Mineral Salt	1.0	1.0	1.0	1.0
Dicalcium Phosphate	1.8	1.8	1.8	1.8
Magnesium Oxide	0.2	0.2	0.2	0.2

Housing Dairy Goats

Housing for dairy goats does not have to be elaborate, but it must satisfy the health and comfort of the animals. There are four requirements of good housing for goats: (1) the building should be adequately ventilated but not drafty; (2) the walls and ceiling should be free from condensation; (3) the bedded area should be relatively dry and clean; and (4) the hay, grain, and water receptacles must be well built and located so that



Open milking stand for dairy goats.



A keyhole hay feeder for goats.

feed is not wasted or contaminated. Housing facilities also should provide easy access to the animals and require a minimum amount of labor.

Temperature. The comfort zone for dairy goats is between 55° and 70°F. Nonsweating animals are much less sensitive to declining temperatures than to rising temperatures. Milk production, feed consumption, and comfort are not affected by temperatures between 55° and 0°, but temperatures over 80°F seriously reduce feed intake and milk output. Therefore, the object is not how to keep the goats warm in winter but how to keep them cool in the summer.

Ventilation. The movement of air, either by mechanical or natural means, to remove heat, moisture, and odors is a necessary part of a housing plan. Most pneumonia problems with dairy goats can be traced to inadequate ventilation. Wet walls and ceilings are the result of improper ventilation, poor insulation, or a combination of the two.

The rate of movement is influenced by the amount of animal heat produced and the temperature you wish to maintain in the building. Additional heat and insulation may be required to keep the stable air fresh and to prevent water pipes from freezing in the winter. An air inlet system also must be provided for good air distribution. Ventilation entails more than installing a fan to move some air.

Proper ventilation during the summer may require moving 150 to 200 cubic feet of air per minute per animal. Winter weather may reduce the amount of air to be exhausted to as little as 20 cubic feet per goat. Contact your University Extension agent for assistance in planning the right ventilation system. You are protecting your animals, the building, and the quality of milk produced.

Light. Windows in a closed barn are essential. They permit sunlight for warmth and drying and provide a source of Vitamin D for the animals. Barns that are well lighted usually are kept cleaner. Open windows in summer are important for air movement.

Housing for Young Stock and the Milking Herd.

There are two housing systems often used for dairy goats: (1) loose housing, where the animals run loose in a pen or shed; and (2) stall barns, where each animal is confined in a small box stall or tie stall. Loose housing is an old system with many desirable features. With plenty of bedding the manure pack for a goat herd can be kept fairly clean and dry. Heat produced within the pack makes a warm bed. There is an ample exercise area and an opportunity for the goats to move around.

This type of housing, however, presents a few problems. A built-up manure pack, even though dry on the surface, releases a lot of moisture into the barn air. In addition, hay racks should be located off the bedded area to reduce parasite infestations. Watering devices should be placed in an area where spilled water will not mess up the bedded pack.

Many goat owners use a shed or barn that is open on the south or southeast side, thus eliminating the need for mechanical ventilation. These are cold housing facilities that do not require additional heat or insulation and that utilize normal air movement for ventilation. Goats move freely in or out of the housing area and into the paddock or feeding area. Hay feeders, watering devices, mineral feeders, and grain bunks are located on concrete pads some distance from the built-up manure pack.

Housing for the kids and other young stock may be included in the plan for the milking herd. However, young goats must be kept separate from the milking herd. Frequently, the kids are kept in 4 foot square box stalls with at least one side slatted to permit air movement. Do not make a box stall from plywood with all four walls solid. Air movement will not reach the kids. Usually a gated front contains enough openings to allow air drainage. Provide a heat lamp for newborn kids and for kids that are ill. Older youngstock may be kept in a corner of the stable area inside a pen made from movable hurdles.

Buck housing must be separate and downwind from

the milking herd. It does not have to be elaborate and often is no more than a 5 or 6 foot shed with an open side facing the south to give the bucks free access to an exercise lot.

Milking Area. The milking area is part of the housing plan, but it should be separated from the stable area. It should have a concrete floor to make cleaning easier, and the milking platform should be 15 to 18 inches higher than the floor to permit easier milking of the animals. The platform should allow 18 inches in width and 3½ feet in length for each animal to be tied. The manger should be 6 inches deep and 1 foot wide. If several goats are to be fastened and milked at once, a lever that will open and close the stanchion head locks is helpful (see illustration).

Some goat owners, who keep their milking herds in stall barns, milk their animals on a milking stand located in one corner of the stable. Dusty air and flies in the stable, however, may require you to place the milking stand in a separate screened-in facility to guarantee clean milk. A 5 x 8 foot room with a concrete floor and drain is adequate for milking a small herd, but be sure there is plenty of light either from natural sources or electric bulbs.

If the milk is sold to the public or to a processor, there will be state inspection of the operation, the same as is required for production of Grade A milk from cows. Check with your local health authorities and the inspector before starting construction. It will be much easier to gain his approval early in the planning stages than after completing construction.

If the milk is to be used by the family, the degree of sanitation and cleanliness maintained and the size and type of building constructed can be based on the owner's good sense, pride, conscience, and finances.

Equip the milk house with a double sink for washing utensils, a hot water heater, refrigeration, a small table or work space, and a rack for drying and storing utensils. At least 50 percent of the milk house should be open floor space with ample room for equipment.

Regardless of the size of herd, refrigeration must be available to quickly cool the milk. A household refrig-

erator may be used, but cold water is more efficient in cooling milk than cold air. The refrigerator or cooler should be large enough to hold a pan of water. The pan should hold enough water to match the amount of milk in the milk bucket. If the herd is big enough and milk production is 5, 10, or more gallons per day, it will be necessary to purchase a water-immersion cooler or a bulk tank for cooling purposes.

Cooling is critical to milk flavor and quality. All milk contains bacteria, some of which gets there via the air and the utensils. If milk remains warm for a short period, the bacteria begin to multiply and the quality of milk deteriorates. Therefore, cool milk immediately after milking to a temperature under 40°F and hold it at that temperature until processed and/or consumed.

Plans for building a milking barn and milking stand plus construction of the milk house area are available from your University Extension Dairy agent.

Fencing. Fences serve two purposes and are an important part of a housing plan. They keep goats in and dogs out. They also protect your trees and shrubs as well as your neighbor's flower patch from foraging goats.

Set 7 foot posts, either wooden or steel, on 12 foot centers. Then use either a 4 foot high woven wire fence topped with an electric wire 12 inches above the woven wire or use a completely electrified fence. If you use a completely electrified fence, place the first wire 12 inches from the ground and then four more wires on 6 inch spacings to a total height of 36 inches. Use insulators on the post to attach the wires. The electric fence works well when weeds, grass, and brush are not allowed to touch the wires and short it out or when the ground isn't bone dry during droughty periods. Your local farm supply store can recommend the proper equipment.

In summary, keep the plans as simple and economical as possible. Consider the health of your animals as well as the conveniences a housing facility might offer. Contact your University Extension agent for additional ideas on housing facilities for your dairy goat enterprise.