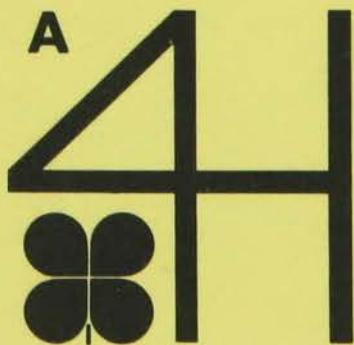
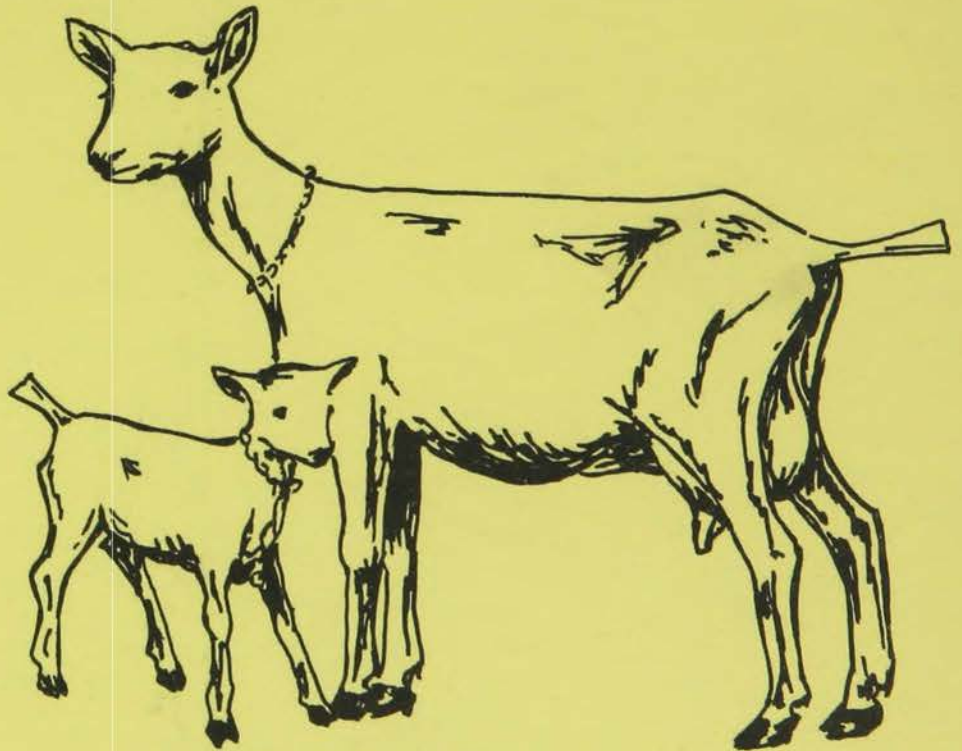


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DAIRY ... kids & goats



DAIRY PROJECT **MANUAL**

UNIVERSITY OF MINNESOTA

AGRICULTURAL EXTENSION SERVICE

UNIVERSITY OF MINNESOTA
DOCUMENTS

APR 15 1977

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Prepared by the Minnesota Dairy Goat Association (MDGA) in cooperation with the Agricultural Extension Service, University of Minnesota. MDGA members who participated are: Royce and Virgil Cordes; Harold Gridley; Robin and Joel Hasslen; Betty Lou and Al Johnson; Andrea Johnson; Perry Lueders; Doris Mattson; Betty and Roger Torgerson; Pat Wenholtz.

Participants from the University of Minnesota Agricultural Extension Service are: Michael Hutjens, extension dairyman; and Larry Tande, state 4-H staff.

For materials used in this publication, acknowledgment is made to: Cooperative Extension Services of Pennsylvania State University; Ohio State University; New Mexico State University; Rutgers State University, New Jersey; University of Massachusetts; American Dairy Goat Association; and Countryside Magazine.

A Note to Parents

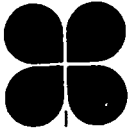
You are the most important and influential person in your child's life. You can nurture and cultivate his interest in this project by guiding him in his planning, by assisting him in carrying out his project, and by recognizing him for a job well done.

The information in this 4-H dairy publication can provide significant learning experiences for your child. Planning the things he will learn and do and assessing his progress will help make his experiences more worthwhile. The dairy project leader may provide individual guidance for your child. However, if this is not possible, you can fulfill this need.

Here are ways you can help your child get the most out of this project:

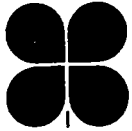
- Become familiar with the material in this and other dairy project literature.
- Help your child select goals he can achieve.
- Help him decide what tools, equipment, and supplies he will need and what he can realistically expect to have.
- Help him understand and learn to do the tasks required to carry out his plan. Do not do his work for him.
- Help him schedule his time.
- Discuss his progress with him from time to time.
- Help him recognize a good job from a poor one.
- Commend him on things he has done well. (As the most important person in his life, a pat on the back from you is one of the highest rewards he can receive.)
- Help him understand where he needs to improve.
- Help him to know himself, his strengths, and weaknesses and to compete with his own abilities.
- Help him evaluate what he has done and what he has learned on the basis of the goals he has set for himself. Do not compare his progress with others.

-- Your state extension staff



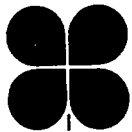
Your 4-H project

This project will help you learn about dairy goats--their feeding, care, and management, and how to select them. You will also show others how to develop a kid into a good dairy goat.



These should be your objectives

- * To gain knowledge and skills in managing and caring for dairy goats.
- * To learn to select quality goats and how to feed them balanced rations.
- * To maintain management records to base decisions regarding feed, production, and breeding.
- * To participate in group activities within the club and to assume responsibility in the club goat program.
- * To gain satisfaction from completing a project to the best of your ability.



Guide to the 4-H goat project (Suggested requirements)

1. A beginning member should start with a doe kid.
2. A second-year member or beyond should continue the 1st year animal(s) and extend the project into one or more milking does.
3. Members must enroll early in the project year, even though they do not yet have animals. This is so members may be well-prepared to receive the animals.
4. Project records must be started and kept until the end of the project year. The latest date for starting records is April 1 of the current 4-H year. See the sample in this manual.
5. Members are encouraged to exhibit their animals at least once during the project year.
6. First-year members should complete the FIRST YEAR RECORD by duplicating the sample in this manual and attaching the completed record to the DAIRY GOAT PROJECT RECORD SUMMARY.
7. Second-year members or beyond should submit supplementary records to justify information on the SUMMARY sheet. Sample records are in this manual, or leaders and members can devise their own.
8. Members must keep a permanent lifetime record page for each goat. They can duplicate the sample given in this manual.

Suggested county fair classes:

Junior kid (up to 6 months); senior kid (7-12 months); does never before in milk (12-24 months); and milking does (any age that have freshened).

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Dairy goat project record summary
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GETTING ACQUAINTED WITH DAIRY GOATS

Introducing the dairy goat

Goats are an important part of the story of mankind. They are probably the first domesticated animals in Western Asia and are mentioned several times in the Bible. Moses ordered the altar cloths in the Tabernacle woven of silk and goat hair. Today, goats are important milk producers.

Goats came to New England with Captain John Smith and to the Virginia colony with Lord Baltimore. The hardy animals proved they could survive on browse and scarce rations and still supply settler families with milk.

Presently, an estimated 2½ million goats are in the United States. Worldwide, the goat population is an estimated 350 million. Texas and Arizona are the leading states producing mohair which is goat wool. California is the leading goat milk-producing state. The largest goat dairy is in California, where 800-1,000 goats are milked daily.

The American Dairy Goat Association listed 4,000 breeders in its organization in 1974, representing approximately 40,000 purebred milk goats. That same year, 47 breeders were listed in Minnesota.

As populations expand throughout the world and competition for land increases, goat numbers may rise. The animals survive on

limited feed and in wide-ranging climates. In addition to milk, dairy goats produce meat (chevon), skins (Morocco leather), and hair. Goats protect sheep flocks and are beasts of burden.

Goats make ideal 4-H projects, especially for younger members since goats are easy to handle. The animals are interesting; like attention; are inexpensive to keep; are easily transported; and are fun to show at fairs.

Definitions

American--an animal which is 15/16 purebred, the result of four successive generations using purebred breeding bucks. This animal could be registered in the American herd books of the breed association.

Buck--male goat.

Castrate--pinch or remove the male sex organs.

Colostrum--first milk produced by the dam after giving birth.

Common or scrub--an animal of unknown or unimproved ancestry.

Culling--selling or butchering substandard animals from the herd.

Dam--mother.

Dehorning--removing horns surgically.

Disbudding--removing horn buds before 1 week of age.

Doe--female goat.

Doeling--a young female.

Estrus--the heat period--1-3 days every 21 days during the breeding season--usually occurring from fall through winter.

Gestation--time during which the doe carries her unborn kid(s).

Grade--an animal which looks like one of the five breeds, but is without registration papers proving ancestry.

Kid--a goat under 1 year of age.

Kidding--giving birth to young.

Lactation--time during which milk is produced.

Polled--an animal born without horns.

Purebred--an animal registered in a breed association's herd books as having all registered purebred ancestry.

Recorded grade--an animal recorded in a breed association herd book as having one registered, purebred parent.

Sire--father.

Udder--mammary or milk-producing glands of the female.

Wether--a male animal with sex organs removed.

Yearling--an animal 12-24 months old and not in milk.



Considerations before selecting a goat

How much does it cost to keep a goat?

A doe producing 1,500 pounds of milk per year requires an average of 35 pounds of grain and 150 pounds of hay each month. She returns an average of 2½ quarts of milk per day--75 quarts a month. Check current feed prices to determine costs. The 6- to 8-week dry period before kidding, breeding fees, and other costs are usually offset by sale of kids.

Is keeping goats a lot of work?

Once the barn pens and outdoor corral fence are completed, little more than 20 minutes per day are required to milk and feed one or two goats. No barn cleaning is done in winter. You must be on hand every 12 hours to do chores.

Where do you buy a good goat?

Quality dairy goats cannot easily be purchased at a sales barn or in the neighborhood. Locating and selecting a worthwhile animal takes patience and planning. Learn as much about goats as you can before making a purchase. Attend the state goat

show and local fairs; attend goat association meetings (see p.34 MDGA); and visit several breeders.

When is the best time to buy?

Kids are usually born in the first 6 months of the year, and many are purchased or spoken for before they are born. You may place a free want ad in the Gopher Goat Gossip (MDGA paper) by writing to the editor.

What about bucks?

Keeping a buck for only a few does is expensive. Instead, learn where registered, purebred bucks are located; choose a breed having a good buck within driving distance.

What is the best breed?

Breed is less important than quality. All breeds do well in Minnesota. Purchase a kid from a healthy doe that produces at least 1,500 pounds of milk per year. Breeders are happy to show you production records. Ask to see papers on purebreds, Americans, and recorded grades. Look for stars, championships, tattoo information, and other ancestry data. (See the sample of papers in this manual.)

Can goats be kept in town?

Check with local officials and get the approval of neighbors. Properly fenced in, goats can often be classified as pets allowable within town limits.

Do I need a purebred?

Purebreds are more expensive and are expected to produce more milk. On the other hand, good producers occur among common goats, and such goats cost considerably less. Offspring of registered animals sell for at least twice as much as do common goats.

A typical registration paper on a purebred goat is shown on the following page.

AMERICAN DAIRY GOAT ASSOCIATION

Formerly THE AMERICAN MILK GOAT RECORD ASSOCIATION - Since 1904

SPINDALE, NORTH CAROLINA 28160

CERTIFICATE OF REGISTRY

PUREBRED SAANEN

THE GOAT
named

SELAH HERCULES

No. S160215 Vol.160 Book, 2

Sire	Goat City D. Tomahawk	S149236	Sire's Sire	*B Indian Rock Chief Tomahawk (St10)	S144741
			Sire's Dam	Morada Pride's Diana Atlas	S142839
Dam	Tammy's Jeanie	S150007	Dam's Sire	*B Cheba Pride's Paul (St8)	S139450
			Dam's Dam	Susie's Tammy	S142975

Description White

Sex Buck Date of Birth January 31, 1968

Horn Information Hornless Tattoo RE:A5 LE:FLB

Bred By Miss Joan Frances Beguelin, Bristow, Iowa

Owned By James A. Carr, Shellsburg, Iowa - March 2, 1968

Owned By Algernon H. Johnson, Litchfield, Minnesota - March 26, 1972 *DW*

SELAH HERCULES S160215 Has been accepted for registry March 11, 1968



AMERICAN DAIRY GOAT ASSOCIATION

Under the rules of the Association
Alterations to this certificate except as made by
the ADGA office, render it NULL AND VOID



Don Johnson Secretary

Selecting kids and doelings

Choose young stock from high-producing families. The quality of the dam and sire are better guides than is the quality of distant ancestors. A profitable dam--milking 1,500 pounds or more--may pass on this characteristic to her kids. A well-formed udder on the dam is important (see diagrams below).

Kids should be tattooed, disbudded, and free from disease and parasites. Do not accept a kid having horns because these are difficult to remove. Do not accept a kid with obvious faults. (See p. 31). Request a bill of sale and a copy of the feeding program as well as a 1-day ration of the feed being used.

Selecting mature does

When selecting older goats, all of the above holds true. In addition, a milk producer should preferably be in lactation. This helps you judge conformation of the udder.

Age, number of kids, previous milking record, and ease of milking are all important considerations.

The dairy goat should be sleek, alert, and not fat or sluggish. Because goats are dairy animals, they must have dairy character (sharpness and angularity) and

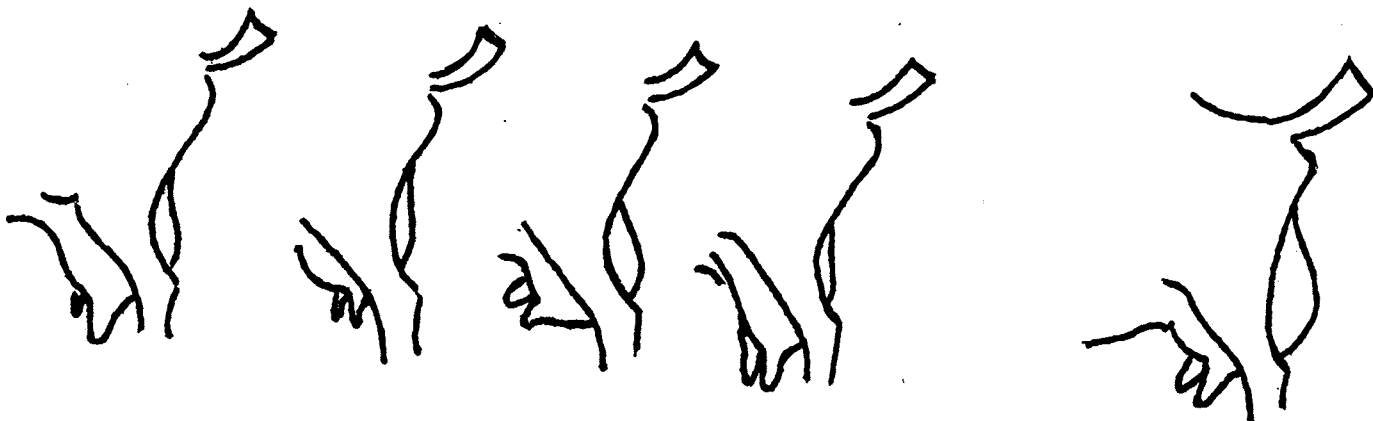
considerable length of neck and body. Ribs should be long and far enough apart to allow placing one finger between them. This openness of rib denotes dairy character. The skin should be smooth, thin, and pliable. Hair should be reasonably fine, but this will vary among the different breeds.

Width and depth of body provides lung capacity and constitution. This is also associated with strength and ruggedness.

The animal should be as straight as possible along the top and especially strong in the chine and loin. From the hip bones to the pin bones, there should be some slope. The shoulders should be refined, not coarse, and should blend into the body smoothly. The legs of the dairy goat should be straight, with adequate width of bone for strength but not wide enough to appear coarse. Hoofs should be well-trimmed, and pasterns should have some angle.

The udder should be of good size when filled with milk. However, a large udder doesn't always indicate high milk yield. It should be held tightly to the body by the suspensory ligaments. Teats should be uniform and medium-sized. (See p. 30 judging score card).

The buck is considered half of the herd. To continually improve your herd, use the best buck possible.



Teats are too large

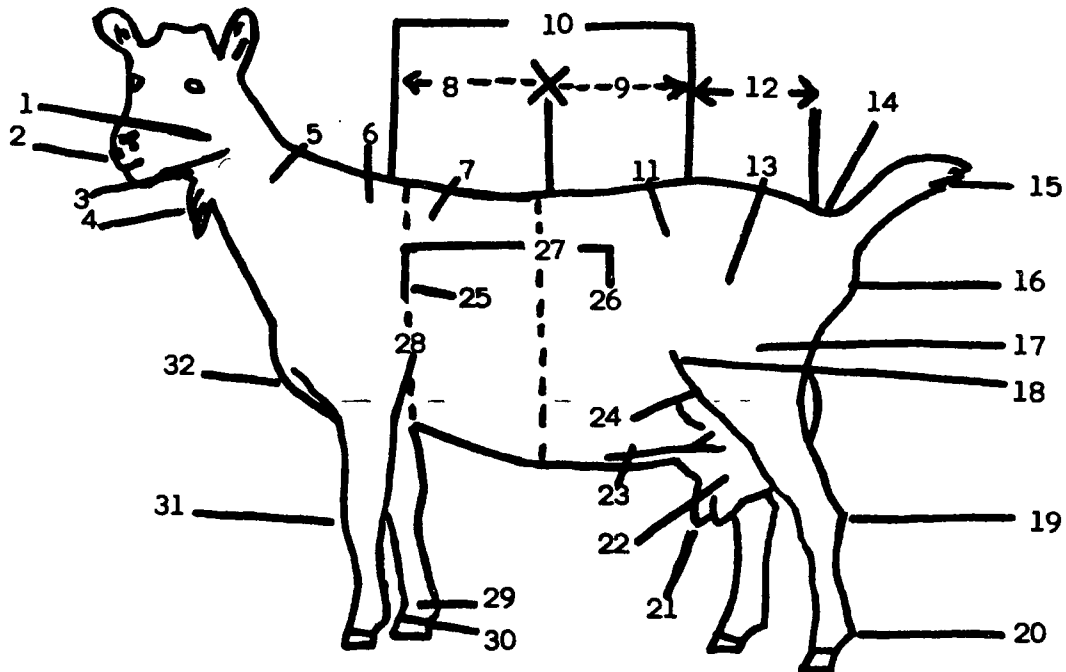
Poor-shaped small teats

Weak rear udder attachment

Weak fore udder attachment

Ideal

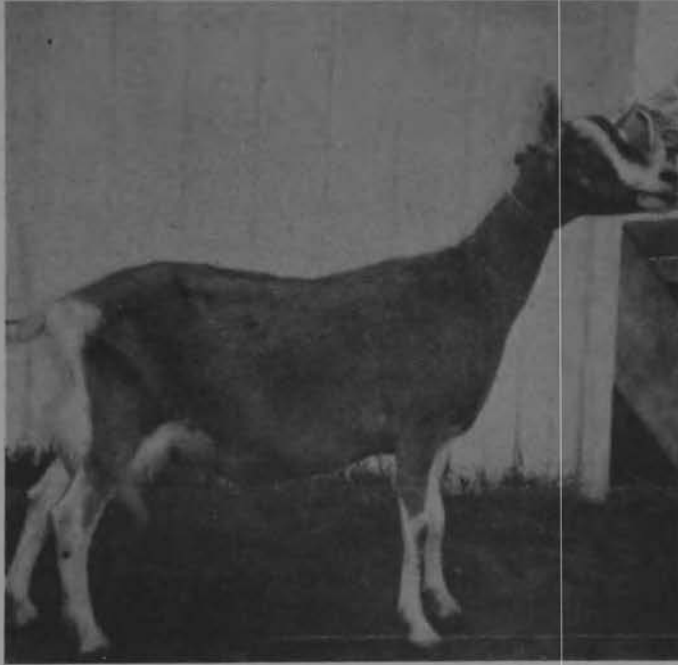
Locate all these parts on a goat and also be able to indicate these parts from memory. After this is done, you are ready to study dairy goat type.



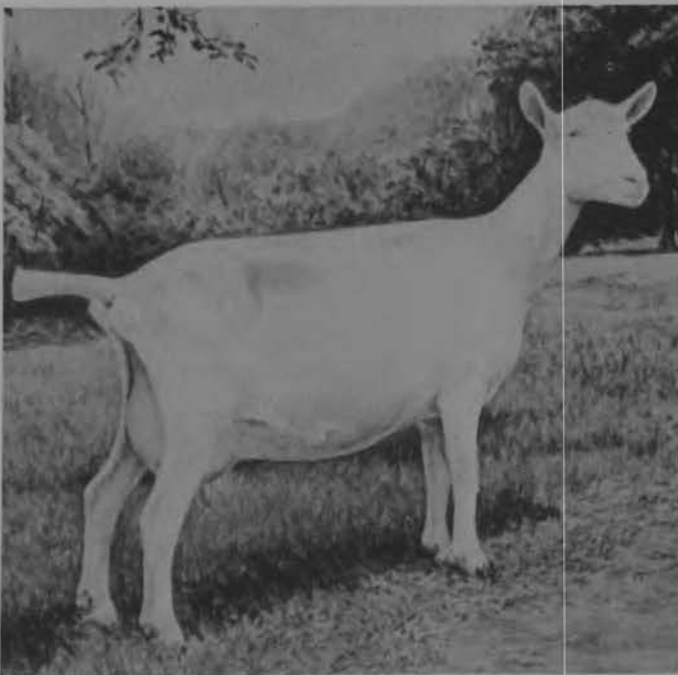
- | | | | |
|------------|---------------|---------------|-----------------|
| 1. Jaw | 9. Loin | 17. Thigh | 25. Fore Rib |
| 2. Muzzle | 10. Back | 18. Stifle | 26. Rear Rib |
| 3. Throat | 11. Hipbone | 19. Hock | 27. Barrel |
| 4. Wattle | 12. Rump | 20. Dew Claw | 28. Heart Girth |
| 5. Neck | 13. Thurl | 21. Teats | 29. Pastern |
| 6. Withers | 14. Tail Head | 22. Udder | 30. Hoof |
| 7. Crop | 15. Tail | 23. Milk Vein | 31. Knee |
| 8. Chine | 16. Pin Bone | 24. Flank | 32. Chest |

Breeds of dairy goats

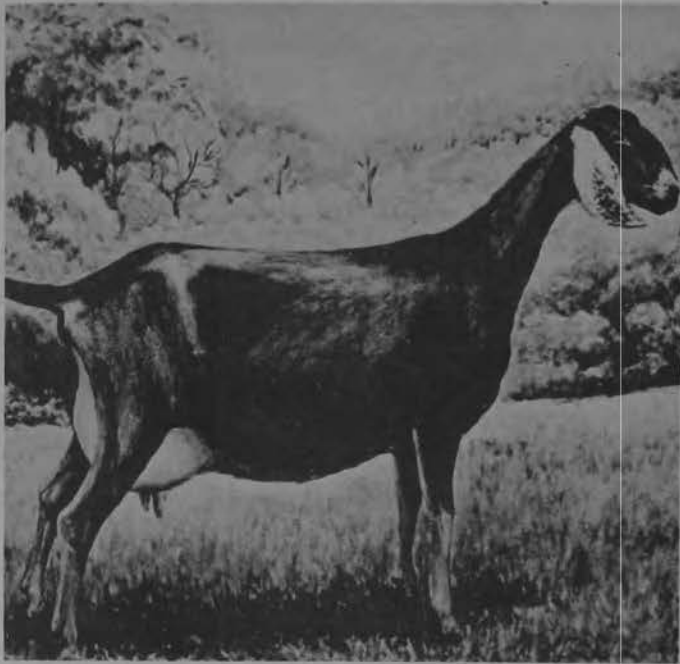
Five main breeds of dairy goats are in the United States. They are Toggenburg, Saanen, Nubian, French Alpine, and American La Mancha. All appear to thrive equally well in every part of the nation, and all possess high milking ability. There are little differences in the production records among these breeds, except in butterfat.



Toggenburg were imported from Switzerland early in the 20th Century. They vary in color from light fawn to dark, and no preference is made for any shade. Markings include white ears with dark spots in the middle; two white stripes down the face from above the eye to the muzzle; and white on the legs and rump. Butterfat content of milk averages 3.8 percent. This breed tends to maintain long lactations.



Saanen were also imported from Switzerland. They must be pure white or cream-colored and tend to be larger than the Toggenburg. This breed is a volume producer with a 3.5 percent butterfat average.

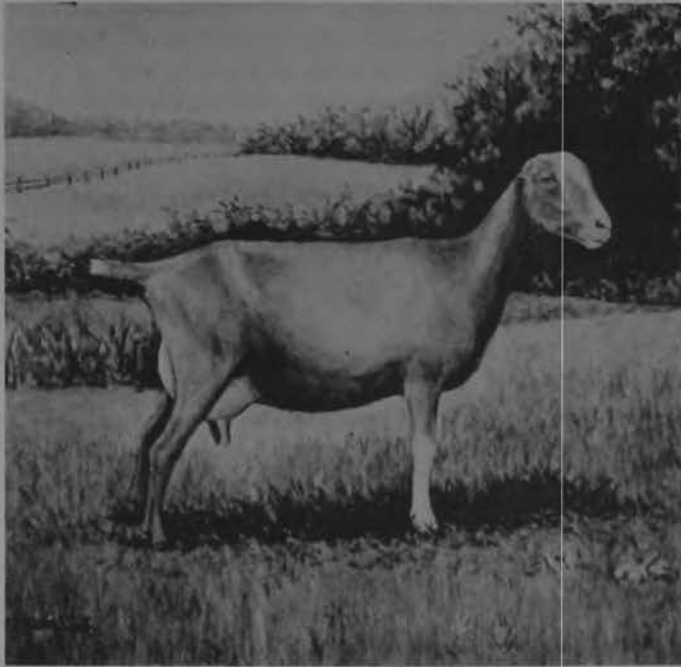


Nubian were imported from England, but originated in Africa. They are characterized by a short, glossy hair coat; large, dark eyes; long, drooping ears; and a Roman nose. Nubians are all colors and combinations of colors, varying from red to tan or black, with or without white. This breed is noted more for its butterfat (5 percent) than for production.

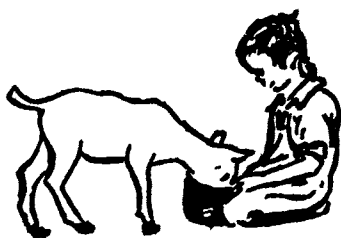


Alpine are raised in the United States and are classified as French, Swiss, and Rock Alpine. Butterfat content of milk is about 3.5 percent.

- a) The French Alpine is most popular. It originated in France and is a large breed, quite hardy, and shows great capacity for milk production. It has an alert appearance, closely resembling the Saanens. Color ranges from pure black to pure white.
- b) Swiss Alpine originated in Switzerland and are considered fair milkers. Their color is a rich brown with black markings.
- c) Rock Alpine is an American-developed breed from a Swiss and French Alpine cross. These goats have the same color range as do the French Alpine.



American La Mancha were developed recently in this country from a short-eared Spanish breed crossed with the leading purebred breeds. They are distinguished by very short or completely absent external ears. Any color or combination of colors is acceptable. Butterfat of milk is about 4 percent.



FEEDS AND FEEDING

Feeding guide

Newborn kids

Kids MUST have colostrum milk to survive. Colostrum is rich in nutrients and contains antibodies which give disease protection. Kids may nurse the dam or be fed the dam's milk by bottle or pan. Clean feeding utensils after each use to prevent illness and disease. The temperature of the milk fed should be 100°F.

For the first 3 weeks, milk is the kid's total diet: 1st week - four feedings - $\frac{1}{2}$ cup per feeding; 2nd week - three feedings - 1 cup per feeding; 3rd week - two feedings - $1\frac{1}{2}$ cups per feeding. Avoid feeding more than four cups per day to encourage kids to consume dry grain.

3 weeks to 4 months of age

Kids continue on the same milk feeding schedule until 8 weeks of age. Commercial calf or lamb milk replacer can be substituted. Begin offering grain ($\frac{1}{2}$ cup commercial calf starter per feeding) at 3 weeks of age, and gradually increase this amount so the kid is eating $\frac{1}{2}$ pound per feeding when milk is withdrawn. Provide free choice hay, water, salt, and minerals.

4 months to freshening

Feed mixed hay or pasture, gradually increasing the amount to 3-4 pounds per day. Encourage high forage intake. The grain ration can be a commercial calf-growing ration containing 14 percent

protein. Goats do not tolerate powdery feed. Moisten it slightly with molasses or water, if necessary. Feed $\frac{1}{2}$ pound of grain mornings and evenings, plus free choice hay, salt, minerals, and water.

Freshening

Immediately after kidding, offer warm water with either bran, rolled oats, or molasses added. Decrease the grain ration to $\frac{1}{4}$ pound until milk flow begins, then increase it gradually. Continue to feed 3-4 pounds of hay, plus salt, minerals, and water. Increasing grain too quickly may depress appetites.

Milking doe

The minimum amount of grain is 1 pound per day of 14-16 percent protein grain mixture, plus legume hay. Adjust grain to the rate of $\frac{1}{2}$ pound for each pound of milk produced PER DAY. Adjust legume hay by offering 3-4 percent of body weight per day.

Dry pregnant doe

After milk flow has ceased (8 weeks before freshening), maintain appetite and energy intake with good mixed hay and a maximum of 1 pound of 14-16 percent protein grain daily. The doe must eat to maintain her body weight and to assure a healthy growing fetus (unborn kid).

Bucks

Kid bucks receive the same growing ration as do doe kids until maturity--peaking at $1\frac{1}{2}$ pounds of grain per day, plus mixed hay, salt, minerals, and water. From this point on, the buck can be maintained on forage entirely. If forage is poor quality, some grain should be fed. Two weeks before and all during breeding season, the buck needs 1-2 pounds of grain daily or more, depending on his size and the number of does serviced. Too much grain will make him sluggish and may cause breeding failures.

Nutrition

Goats depend on their owners for all their feed needs. Strict attention must be given to amounts, qualities, formulas, and schedule. Changes should be gradual.

The diet for goats is mainly forage (hay, pasture, silage) and mixed grains, plus salt, minerals, and water. Goats are ruminant animals (like sheep, deer, cattle, and elk). They have one stomach having four compartments. Because of this, goats can digest bulky, fibrous material which man and other animals cannot.

The rumen (first compartment) does its work because bacteria (living in the rumen) break down feeds such as hay and grains. The rumen bacteria can use the fiber in forages by changing these feeds into high-quality proteins. The animal, in turn, digests these bacteria.

Forages

These are generally the whole plants which are high in fiber content. They are a source not only of protein, but also energy.

Baled hay which is fine-stemmed, green, and leafy is best. Hay that has been rained on can lose feed value.

Green-looking pasture may not contain the proper nutrients and may not be better than a fenced corral.

This chart will help you choose forages:

Composition of forages (expressed on a 90 percent air dry basis)

<u>Feedstuffs</u>	<u>Dry matter</u>	<u>Crude protein</u>	<u>Total digestible nutrients (energy)</u>	<u>Calcium %</u>	<u>Phosphorus %</u>
Alfalfa hay, average	90	14	50	1.47	0.24
Barley hay	90	11	51	0.26	0.23
Barley straw	90	6	42	0.32	0.11
Clover hay, crimson	89	14	48	1.23	0.24
Clover hay, red	88	12	52	1.35	0.19
Corn stover, very dry (no ears)	90	6	50	0.29	0.05
Oat hay, moderately green	88	11	47	0.21	0.19
Oat straw	89	6	44	0.19	0.10
Reed canary grass	91	11	45	0.33	0.16
Sorghum fodder	88	9	52	0.34	0.12
Soybean hay	88	15	49	0.94	0.24
Sudan grass hay	89	9	48	0.36	0.26
Timothy hay	89	10	48	0.23	0.20
Alfalfa silage, wilted	36	14	50	1.47	0.24
Corn silage, well-matured, average	27	8	60	0.24	0.20
Sorghum silage	25	9	60	0.34	0.12

Grain and concentrates

These are the seed portions of plants and plant byproducts. They have low fiber content and are highly digestible. Further treatment of grains, such as steam-rolling oats and flaking corn, make nutrients readily available. The following chart will help you choose grain mixes.

Composition of grains and concentrates (expressed on a 90 percent air dry basis)

<u>Feedstuff</u>	<u>Dry matter %</u>	<u>Crude protein %</u>	<u>TDN %</u>	<u>Calcium %</u>	<u>Phosphorus %</u>
Barley	89	11	77	.09	.47
Beet pulp, dried	90	9	68	.75	.11
Beet pulp with molasses, dried	91	11	71	.61	.11
Brewer's grain	92	23	60	.29	.54
Corn, shelled	86	9	80	.02	.35
Corn and cob meal	87	8	74	.05	.31
Corn cobs	90	3	45	.12	.04
Corn gluten meal	91	43	80	.18	.44
Corn gluten feed	90	25	76	.51	.86
Corn distiller's grain	92	26	80	.10	.40
Linseed meal	91	34	76	.44	.91
Molasses, beet	77	6	61	.21	.04
Molasses, cane	75	3	55	1.19	.11
Oats	89	12	70	.11	.39
Rye	89	11	78	.04	.37
Soybean	90	38	88	.28	.66
Soybean meal	89	44	78	.36	.75
Wheat	89	12	80	.06	.41
Wheat bran	89	16	67	.16	1.32

Commercial pelleted grain mixes are available. Homegrown or home-mixed grain rations can be made as well. (See your county extension agent or consult a local feed mill.)

These formulas may be used as a guide:

<u>Protein</u>	<u>13% ration</u>	<u>15% ration</u>	<u>16% ration</u>
Corn	100#	100#	65#
Oats or barley	100#	100#	65#
Wheat bran	50#	50#	20#
Linseed or soybean meal	25#	50#	50#

Several publications (see p.35) offer ration suggestions using feed sources other than shown above.

Minerals

Minerals provide specific nutrients for specific needs. A proper calcium-phosphorus balance may be provided. Ideally, this is approximately 2:1 calcium: phosphorus for the overall ration. Generally, legume forages (see chart) are high in calcium and low in phosphorus. Grains are the opposite, low in calcium and high in phosphorus. A lactating doe needs more calcium and phosphorus than does a kid, dry doe, or buck, since these minerals are secreted into the milk. A ration high in calcium and low in phosphorus can be detrimental to growing kids, dry does, and bucks.

Of equal importance is an adequate supply of vitamin D which is essential for utilization of both calcium and phosphorus. Mixed minerals and loose salt should be available free choice at all times. Some herdsmen use salt blocks in combination with mineral blocks. These minerals help these parts of the body:

<u>Mineral</u>	<u>Function</u>
Calcium	Bones, organs, teeth, milk
Salt	Body fluid balance
Phosphorus	Tissue, bones, muscle, milk
Iron	Blood
Copper	Blood
Sulfur	Hooves and rumen bug digestion
Manganese	Growth, reproduction
Zinc	Lungs, digestion, skin
Iodine	Thyroid gland

Vitamins

Goats manufacture many of the vitamins they need within their bodies. However, vitamins A and D are sometimes lacking. These vitamins are frequently added to the feed, to the drinking water, or injected into the muscle.

Water

Although water is not considered a feed, it is of utmost importance--especially to the lactating animals. Goats prefer warm water in the winter and cool water in summer.

Water quality is largely determined by the cleanliness of the containers. Goats will consume 2 or more gallons of quality water per day, if fresh water is given at each feeding. Even young kids will drink warm water following their ration of milk.



MANAGEMENT

Controlling goats

Goats are intelligent animals, quick to learn good and bad habits.

Start right!

1. Put a collar or chain around the neck of your newborn kid.
2. Always grab the collar when handling the kid and direct all goat movement by collar lead. (Do not pull on the ring if you use a choke chain.)
3. Use voice commands together with physical leads.
4. Call your goat by name. It will learn to come much as does the family dog.
5. Never introduce a bad habit, like lifting a kid over a gate or pen. Never let a goat run free in the yard, even though it is fun to play with it outside the pen. The goat soon learns to leap over, go under, or break through to get out to play.
6. Bucks need both collar and ear training, since their great strength and lack of handling make them less easy to manage than are does. Pull gently on an ear with one hand as you collar lead with your other hand.
7. A goat may want to bolt and run when you lead it out of the barn. Keep your hand on the collar, and use your free hand under the goat's jaw, pulling back if she starts to go too fast. Bring it to a complete stop before proceeding again.
8. Never push playfully on a goat's or kid's head. This "teaches" it to butt people.

Breeding

When the doeling has reached 9 months of age or is 75-95 pounds (see chart), it is time to consider breeding. Does begin to cycle in the late summer and show signs of heat (estrus) for 2-3 days about every 21 days until mid-March. Signs of heat are restlessness; bleating; bossiness; frequent urination; swollen, red, or wet vulva; and a flagging tail. The strongest heat cycles occur in November, December, and January. If you own two doelings, breed one early and one late so that freshening dates are 3 to 4 months apart--assuring constant supply of milk.

Locate a registered buck well ahead of breeding time. Arrange for a health certificate for your doe (if required by the breeder) and agree on the costs and availability of boarding. Near the expected breeding date, contact the breeder.

After breeding, request a service memo from the breeder. Fill in the service date and also write it in your records. Three weeks later, check the doe for signs of heat. If none occurs, the doe is probably pregnant.

Count 21 weeks ahead on the calendar (5 months) and mark the due date. She is expected to kid in about 145 days. A mature doe often carries twins or triplets.

The following chart (next page) can help determine the weight of older does and bucks to determine weight for butchering or for calculating feed needs.

Kidding

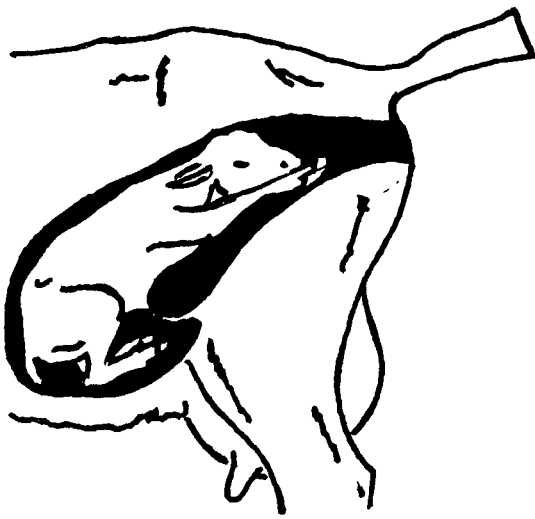
Ordinarily, the doe and kids need little special care during or after kidding. A few days before she is due, put the doe in a pen by herself with plenty of clean bedding straw. Bran may be added to the grain. Clip her tail, hind quarters, and udder to keep this area clean during and after kidding.

Check the doe often for the first signs of labor, including laying down and getting up, bleating, and pawing the bedding. If the doe seems to be having trouble and is in labor for more than 1-2 hours, she may need assistance. Call a veterinarian or someone familiar with either goat or sheep births.

"Weighing" a goat with a tape measure

Ever wonder if that doeling is large enough to breed or how much meat you could expect to get from a wether? If you don't have a scale that will do the job, use a cloth measuring tape or a piece of string you can later measure with a tape measure or yardstick. Measure around the heart girth, just behind the forelegs.

<u>inches</u>	<u>pounds</u>	<u>inches</u>	<u>pounds</u>	<u>inches</u>	<u>pounds</u>
10 1/4	4 1/2	21 1/4	35	32 1/4	101
10 3/4	5	21 3/4	37	32 3/4	105
11 1/4	5 1/2	22 1/4	39	33 1/4	110
11 3/4	6	22 3/4	42	33 3/4	115
12 1/4	6 1/2	23 1/4	45	34 1/4	120
12 3/4	7	23 3/4	48	34 3/4	125
13 1/4	8	24 1/4	51	35 1/4	130
13 3/4	9	24 3/4	54	35 3/4	135
14 1/4	10	25 1/4	57	36 1/4	140
14 3/4	11	25 3/4	60	36 3/4	145
15 1/4	12	26 1/4	63	37 1/4	150
15 3/4	13	26 3/4	66	37 3/4	155
16 1/4	15	27 1/4	69	38 1/4	160
16 3/4	17	27 3/4	72	38 3/4	165
17 1/4	19	28 1/4	75	39 1/4	170
17 3/4	21	28 3/4	78	39 3/4	175
18 1/4	23	29 1/4	81	40 1/4	180
18 3/4	25	29 3/4	84	40 3/4	185
19 1/4	27	30 1/4	87	41 1/4	190
19 3/4	29	30 3/4	90	41 3/4	195
20 1/4	31	31 1/4	93	42 1/4	200
20 3/4	33	31 3/4			



Normal single birth position

Normal twin birth position



The diagrams indicate where kids are located before birth. Difficulties occur if kids are turned or twisted in some manner. Ordinarily, the doe gives birth quickly and often with no one present.

After all the kids are born, offer the doe warm water containing a little molasses, oatmeal, and salt.

Whether kids are to nurse or be hand-fed, they should be removed from the maternity pen immediately after birth. Disinfect the navel cord with iodine, dry the kid off, check it for defects, and place it in a bedded box free from drafts.

The maternity pen should be cleaned, removing afterbirth and wet bedding. Make sure the doe's teats are functioning by gently milking a stream of milk from each teat.

After the doe has rested a bit, return the kids (if they are to nurse the dam) or milk out about 1/2 cup of milk for each kid, introducing it in a pan or bottle. Patience is needed. Do not force kids, and be sure milk is 100° F. Kids will refuse cold milk.

Do not milk out the doe completely for 24 hours. Save the colostrum milk not used by the kids, and freeze it in small containers. The colostrum milk is valuable. Cow or sheep colostrum can be used, if goat colostrum is not available.

Milking

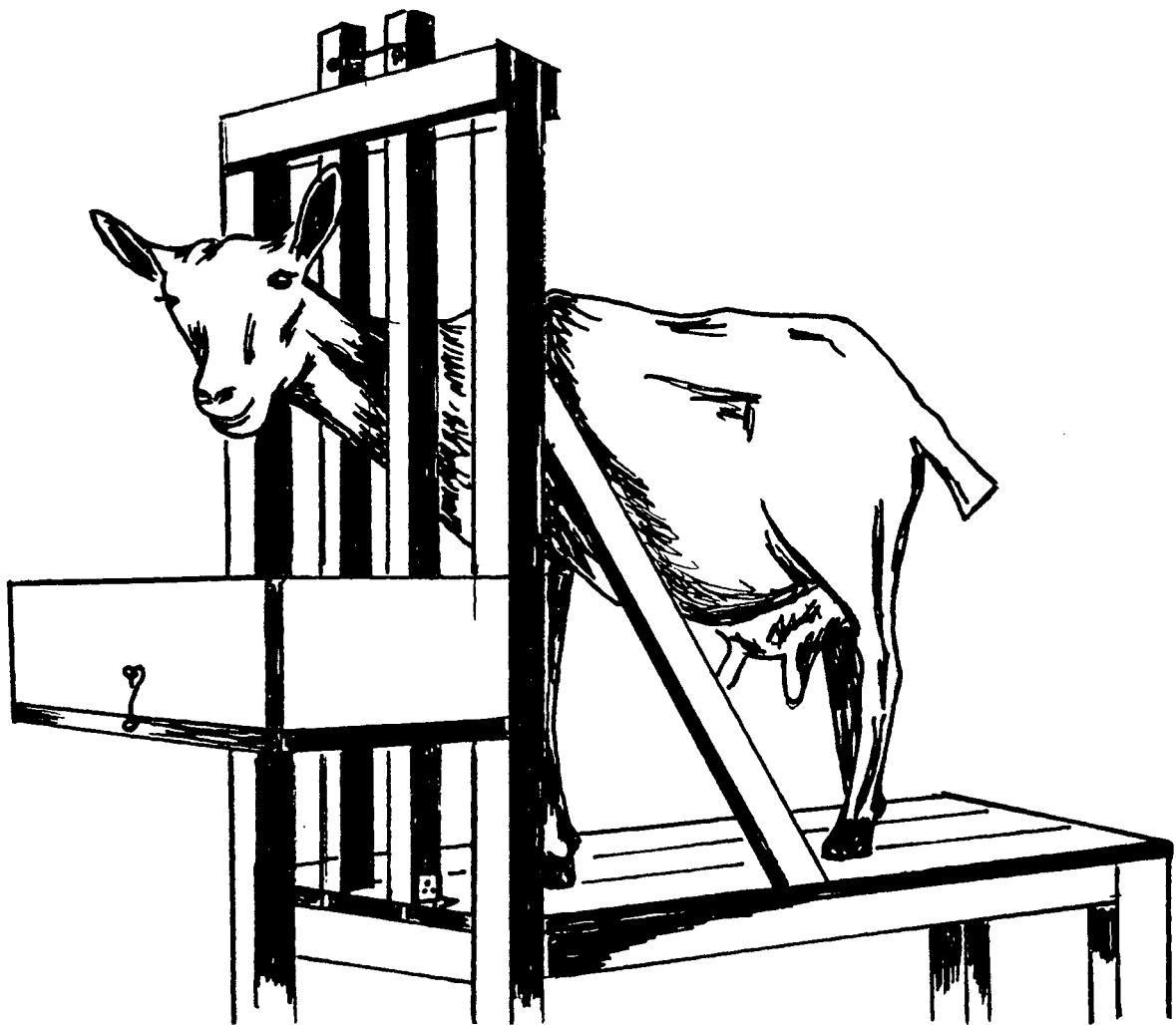
Goat milk is a nutritious, appetizing food. Produce it under clean conditions to maintain a low bacterial count and to insure its healthful properties. (Consult your county extension agent for recommendations on handling.) Rapid cooling of milk is essential to good flavor.

Goats are more conveniently milked when they are on a milking platform. Does are usually fed their grain ration at the same time. Therefore, most breeders have a stanchion-feeder arrangement attached to the milking stand.

Goats are milked from the side. Milk them every 12 hours on schedule. Regularity of milking, kindness, and gentleness are essential.

During the time the goat is in milk, records should be kept on the weight of milk from each goat. A chart next to the dairy scales in the barn works best. This chart can help determine the concentrates each doe needs and whether she should be kept or later culled.

The 4th day after kidding, milk may be used for human consumption. Have the milk tested periodically at a laboratory or creamery. Meet all the health requirements for producing clean milk, whether it is sold or used at home. (See p.35 for other uses of milk.)



Drying off the doe

If the doe is still milking 6 to 8 weeks before freshening, she should be dried off. This rest period gives the doe time to rebuild her body after a long lactation and provides new stimulation for the next lactation. It is the fastest growing time for her unborn kids.

If the doe is still milking 8 pounds a day at this time, drying her off may be difficult and may cause udder injury. Seek advice (p. 33). Some breeders let this goat continue to produce.

The pressure system is commonly used to dry up the doe. It involves reducing grain fed or discontinuing grain entirely if the goat is still producing more than 2 pounds daily. Skip 1 or 2 milkings or more,

depending on how distended (hard) her udder becomes. If her udder becomes very distended and is hot, the process may have to be repeated. Once the doe is dry, she may be brought back gradually to limited grain and to all the hay she wants.

Housing

Shelter is a primary consideration. The building should be dry, well-ventilated, free from drafts, and constructed to prevent wide fluctuations of temperature. It should be well-lighted with 2 square feet of window opening for each goat. An insulated, enclosed barn must be equipped with a ventilating fan. Dirt pen floors are preferred over cement. Keep the floor bedded with dry straw, wood shavings, or ground corn cobs. (See p. 34 for reference plans.)

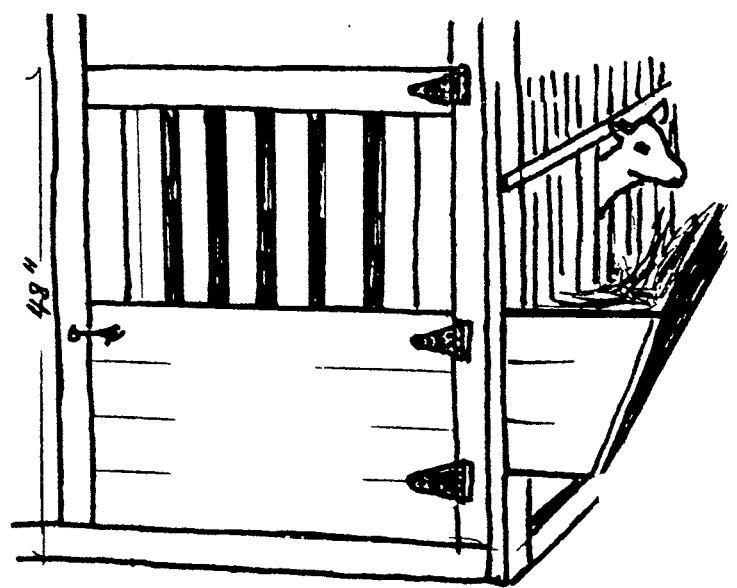
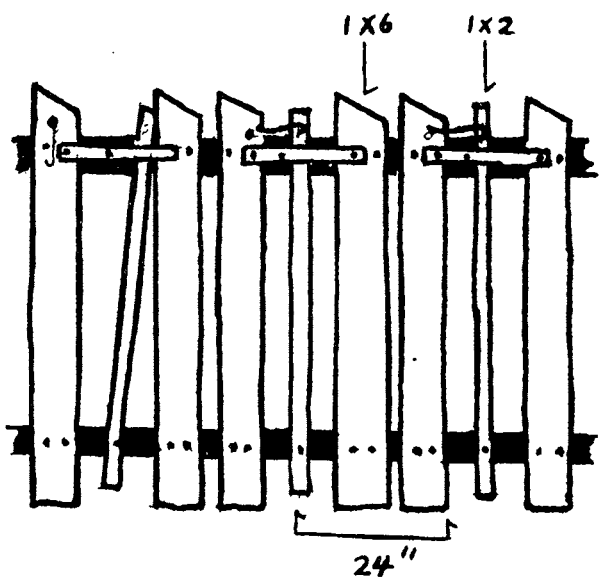
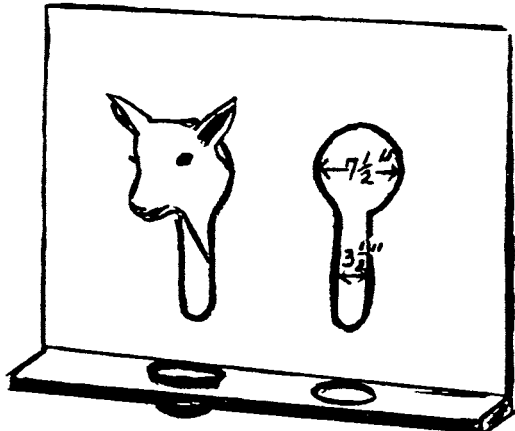
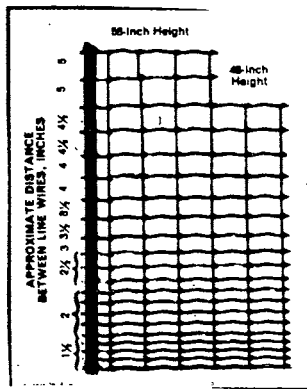
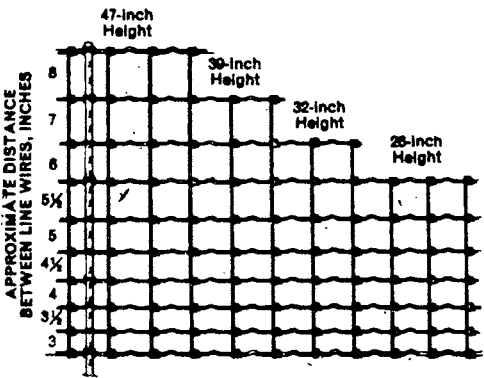
Allow for several pens. One for milkers and does not in milk; one for kids; and a hospital pen for sick animals and maternity use.

Stall housing and loose housing are both used for goats. Stalls provide 25 square feet for each animal. This method is more expensive and requires more labor, but does allow for more individual attention.

Loose housing is more common and requires 15 square feet for each animal. Loose housing is easy to clean, but makes it more difficult to observe individual differences and to control feed intake. Some breeders construct loose housing with feeding stanchions at the feed bunk. Goats are not stanchioned on a regular basis and need 25 square feet per animal in an exercise yard, in addition to the indoor housing.

The exercise yard or fenced area attached to the barn must be well-constructed. Goats lean on fences to greet visitors. Poultry or field fencing is least expensive, but requires tight construction or boards along the top. Cyclone fence or board fence is costly, but permanent. All fencing should be 48 inches high (bucks need 5 feet) and must keep dogs out and young kids in. Electric fence (2-3-wire) can be used if dogs are not a problem. Barbed wire should be avoided, and don't tether. Both methods can cause permanent injury and suffering.

NEVER lift kids out of confinement. Put snap hooks on all gates. Goats are able to unlatch other types of hardware.



Equipment

Begin to assemble equipment as soon as you decide to keep goats. Most equipment and supplies are common household items, or they can be purchased through supply companies. (See p. 34.)

<u>Kids</u>	<u>Kidding supplies</u>	<u>Milking does</u>
hoof trimmers	iodine	covered milking
brush	scissors	pail
bottles or pans	dental floss	udder washing
nipples	rags or towels	pail
hair clip-pers	molasses or oatmeal	strip rag or cup
collar or expandable chain	kid box	dairy detergent
wound spray	disbudding iron	teat dip
worming compound	tattoo set	udder balm
tape measure	mineral oil	dairy scales
dairy thermometer	castrator	milk strainer
		filters
		milking stand
		paper towels

*Some equipment can be borrowed rather than purchased.

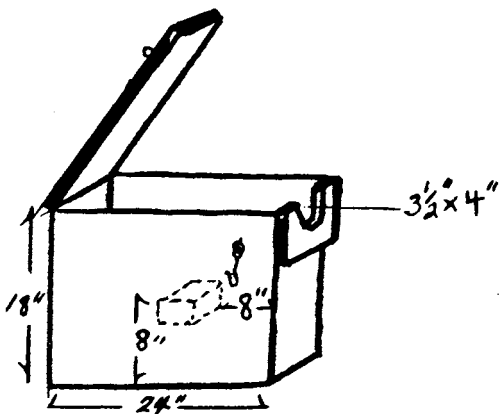
Disbudding and dehorning

To prevent injury, goats should NOT be allowed to grow horns. Some kids are born polled (hornless), but most will develop

horns within the 1st week after birth. The best time to disbud is the 4th-7th day after birth. Horns can usually be detected at birth. The wet hair at birth lies smoothly on a naturally hornless kid. If there is a twisted tuft of hair on the horn area, chances are the kid will have horns. After 3 days, clip off the twisted hair (a 1½ inch diameter patch). If a bare spot (¼ inch in diameter) is evident, disbudding procedures should be followed.

Three methods commonly used are: disbudding caustic (paste); the electric iron; and surgical cutting (gouging). The caustic paste or potash stick works well and is relatively inexpensive, but it can cause severe burns, both to you and the kid. Apply the material only to the horn bud and don't allow the kid to rub it onto other parts of himself, on kids penned with it, or on the udder of the dam.

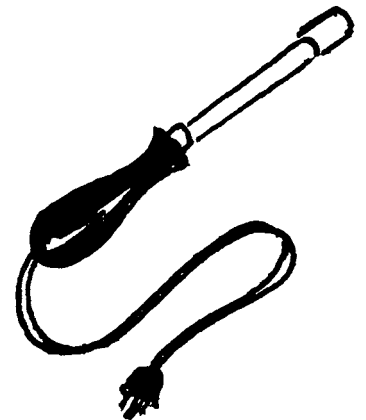
Because of such problems, many people purchase an electric disbudding iron. This is a safe, effective, and humane way to remove horns. To use it, a restraining box (see sketch) is especially helpful. The iron must be red hot and be applied to the horn button until it becomes the color of a copper penny--about 10 seconds. Bucks take a few seconds longer. Allow the iron to reheat before doing another horn button. Masking tape may be wrapped around the disbudded area and under the



Restraining box



Using electric disbudding iron



Electric disbudding iron

chin to protect the wounds from flies. In 2 weeks, the tape will be off and the scab can be broken off. Check if there is any growth underneath, and reapply the iron if necessary.

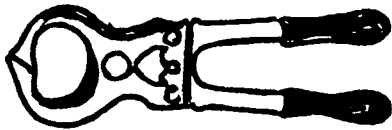
Removing horns more than 1 inch long is difficult. Applying an elastrator is sometimes successful. Veterinary gouging is sometimes successful, especially if horns are not mature. Removing mature horns is not recommended, however, since the brain is near the horn base.

Castrating

Buck kids not wanted for breeding should be castrated. After a kid is castrated, he may be fed out for butchering or kept as an odorless pet. Castrated bucks are called wethers.

Kids may be castrated by cutting off the lower one-third of the scrotum. Pull down the testicles and scrape through the cord with a clean knife. Scraping the cord causes less bleeding than does cutting.

Another effective method is use of any elastrator. A special rubber ring is placed around the scrotum where it meets the belly. Be sure that both testicles have descended below the ring.



Emasculatome

For confined goats, tetanus can be a danger in any surgical procedure. Your veterinarian can easily castrate at a minimum cost.

A third method, known as "pinching" uses a tool called an emasculatome to sever the testicle cord. This can be done without drawing blood.

Tattooing

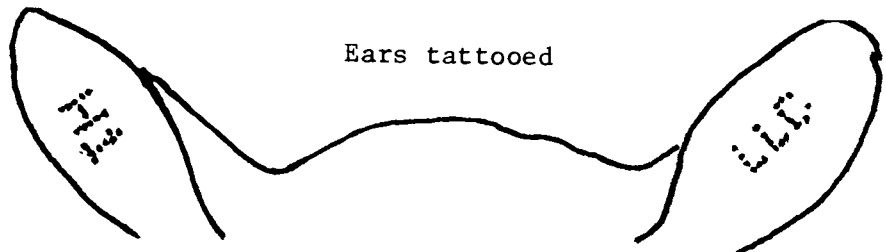
Tattooing is recommended for all goats, whether they are to be registered or not. A tattoo is a permanent record especially useful in Saanan and Toggenburg breeds where all kids look alike.

Tattoo outfits for goats have smaller numerals and letters which fit well in the goat ear. (See supply catalog p. 34.)

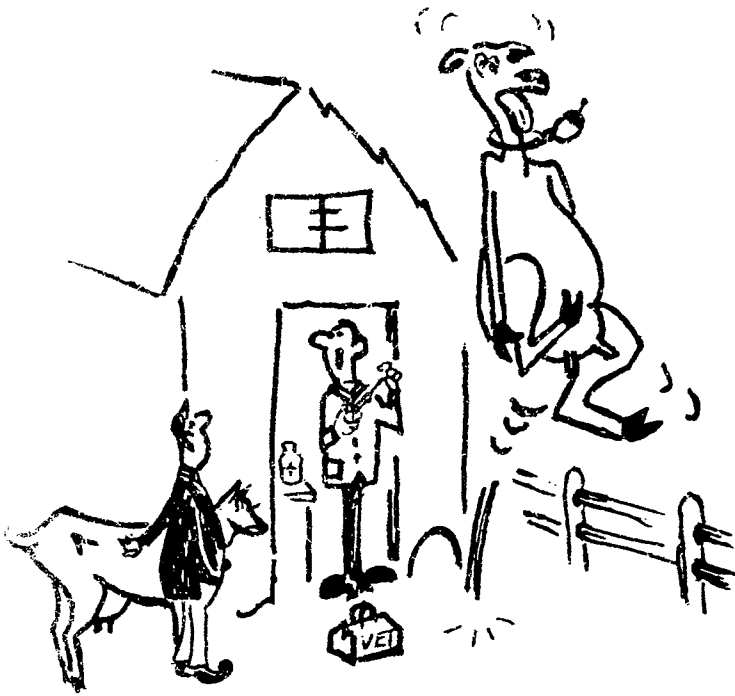
Instructions may be obtained from registry associations (p. 34). All animals to be registered must be tattooed.

Ear tags are not a substitute for tattooing and are, in fact, dangerous for goats. Be sure your veterinarian does not ear tag your animals during the yearly health tests.

Right ear: H 1
Left ear: L L C



Ears tattooed



"NEXT!"

HEALTH

Health problems

Foot rot

Cause--Bacterial infection.

Symptoms--Lameness followed by swelling of the foot, greyish cheesy discharge, and foul odor.

Prevention--Dry, sanitary yards and barns, foot bath, and trimmed hooves.

Treatment--Cut away all dead tissue and soak each foot in copper sulfate solution ($\frac{1}{2}$ pound per gallon of water) for 1 to 2 minutes.

Mastitis

Cause--Various types of bacteria or injury to the udder.

Symptoms--Straddling walk of the doe; the udder is usually hard, hot, and swollen, and flecks or slugs may be noted in the milk; the doe goes off feed.

Prevention--Keep bedding clean, remove objects that could bruise or scratch teats, sanitize equipment before and after milking, and dip teats with an iodine or chlorine solution.

Treatment--Isolate the animal. Apply hot packs soaked in Epsom salts four to five times per day and milk out the udder every 2 hours. Inject antibiotics as prescribed by your veterinarian.

Ringworm

Cause--Fungus.

Symptoms--Circular hairless areas, scabby, crusted skin usually on the head, neck, and shoulders.

Prevention--Prevent contact of clean animals with infected animals. Disinfect contaminated pens.

Treatment--Scrub infected areas with brush and soapy water and paint with tincture of iodine or fungicide.

Lice and ticks

Cause--Contact with infested animals, damp quarters, and woodlot areas.

Symptoms--Rubbing, scratching, and loss of hair in patches. Infestation may cause loss of weight.

Prevention--Keep healthy animals away from infested ones.

Treatment--Dust or spray the animal with insecticide as prescribed by your veterinarian.

Brucellosis

Cause--Bacteria.

Symptoms--Abortion, lameness, inflammation of udder, and reduced milk flow.

Prevention--Blood test and remove reactors from the herd.

Common scours in kids

Cause--Poor nutrition, overfeeding, dirty feeding equipment, feeding milk at variable temperatures, and damp, dirty pens.

Symptoms--Watery, foul-smelling droppings, dull appearance, and loss of appetite.

Prevention--Correct the management problems listed under causes.

Treatment--Reduce the amount of milk fed. Use antibiotics prescribed by your veterinarian.

Internal parasites

Cause--Ingestion of roundworm and other stomach worm eggs.

Symptoms--Animals lose weight, appetite is either poor or lacking, diarrhea is often present, and hair coat is often rough.

Prevention--Do not overgraze pasture, rotate pastures, and isolate and treat purchased animals.

Treatment--Use an approved wormer.

Pneumonia

Cause--Bacteria and viruses. This often follows exposure to drafts and damp quarters.

Symptoms--Coughing, discharge from nose and eyes, fever, lack of appetite, and fast breathing.

Prevention--Dry, draft-free quarters with good air movement.

Treatment--See your veterinarian and use the antibiotics he prescribes.

Bloat

Cause--Excess accumulation of gas in the rumen.

Symptoms--Swelling of upper stomach area, especially on the left side. The animal will often kick, slobber and grunt, and be very restless.

Prevention--Prevent overeating in young legume pastures.

Treatment--Consult your veterinarian immediately, drench with antiferments, and relieve gas pressure with a stomach tube.

Ketosis

Cause--An unbalanced diet, sudden changes in diet, or underfeeding during late pregnancy.

Symptoms--Twitching of the ears, muscular spasms, loss of appetite, and, as it continues, coma develops with labored breathing, frequent urination, and finally death.

Prevention--Correct the management problems listed under causes.

Treatment--Infuse glucose intravenously, but prevention is the best answer.

Poisonous plants

Cause--Consumption of poisonous plants.

Symptoms--Distressed after eating in wooded areas where feed is scarce.

Prevention--Good management. Goats will normally not eat these plants unless the food supply is short.

Treatment--Call the veterinarian and try to locate the type of poisonous plant eaten.

Boils

Cause--Bacteria

Symptoms--One or more abscesses containing thick pus.

Prevention-- $\frac{1}{2}$ teaspoon organic iodine daily.

Treatment--Open abscess when it comes to a head, apply local antiseptic with syringe, or swab with iodine. Daily penicillin is sometimes recommended.

Preventive medicine

Sick animals usually indicate poor management. Good management requires attention to details, following routine health practices, and learning to detect early trouble signs. Here are some routine health care practices.

1. Regular worming--all goats can have worms. Consult your veterinarian for a manure analysis.
2. Regular hair trimming--around the udder and flanks to keep milk clean. Trim over the entire body in the spring.
3. Hoof trimming--once a month to prevent lameness and foot diseases.
4. Cleaning feeders and water pails daily--prevents mold and passing of disease and parasites.
5. Barn cleaning--weekly in summer; in winter, provide fresh straw over the manure pack. Use barn lime and disinfectants. Dirty, wet bedding invites pneumonia.
6. Udder care--wash with disinfectant before milking. Feel for lumps or soreness. Use teat dip after milking. Apply udder balm to cuts and scratches.
7. Cuts and scratches--spray with wound dressing to prevent infection.
8. Provide dietary supplements--as feed quality diminishes, provide additional vitamins, minerals, protein, and energy to maintain health.
9. Guard against drafts--ventilation is needed, but don't permit direct drafts.
10. Home milk checked for bacteria count--high bacteria indicates trouble.
11. Yearly blood test--guards against tuberculosis and Brucellosis. Request a health certificate at this time.

BEFORE



AFTER

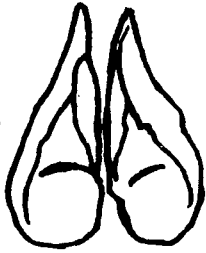
Trimming feet

3. Brush the goat daily to improve its hide and coat.
4. Arrange for blood tests and a health exam by your veterinarian.

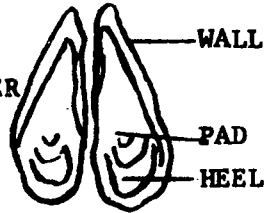
Two weeks before the show:

1. Wash your goat with nondetergent soap and warm water. Rinse and dry it well. Give careful attention to knees and hoofs.
2. Place the goat in a milking stand or tie it securely for trimming. Use animal clippers, cutting the hair on the entire goat except for the face and tail. Hair should be about 1/2 inch long. (In cold weather, just clip long hairs.) The inside of the ears must be trimmed, and the tail should be in a v-brush shape.
3. Place the goat in a milking stand or tie it securely. Trim the hoofs with a knife or pruning shears so the legs can stand straight and the bottom of the hoof is flat and parallel to the top. Trim the pad, heel, and especially the wall to get the bottom completely level.

BEFORE



AFTER



FITTING AND SHOWING

Before the show

The hard work of show preparation and the attention to small details usually pays off in ribbons and personal satisfaction.

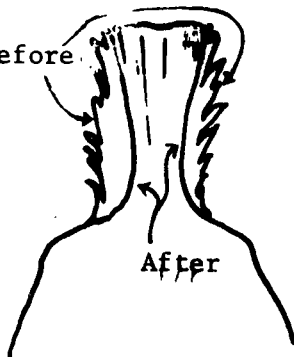
Six weeks before the show:

1. Begin training yourself and your goat, following the showmanship score card. Daily practice in leading and positioning and standing and posing will familiarize you and your animal with the expected routine.
2. Add a little extra grain each day to give bloom to your goat.

One week before the show:

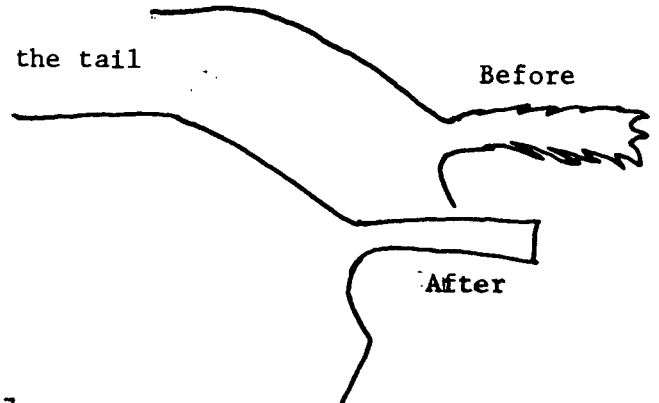
1. Get the health certificate and other papers in order.
2. Clean the choke chain or polish the leather collar.
3. Clean, press, and assemble the show uniform (see suggested uniform, bottom of showmanship score card).
4. Memorize your goat's birth date, breeding date, due date, and parts of the goat's body in preparation for questions that may be asked by the judge.
5. Maintain clean bedding to prevent stains. Scrub your goat's knees and polish its hooves.
6. Assemble your equipment: feeders; water buckets; milking stand; health kit.

Before



After

Trimming the tail



Showing tips:

1. Carry a tissue to the ring for a last-minute wipe of the tail, nose, etc.
2. Walk slowly beside your goat, maintaining at least 2 feet between you and the next exhibitor, whether circling or posing.
3. Do not pull or push your goat. Wait for her to respond to your lead.
4. Always keep the goat between you and the judge. If the judge changes position, you must also. Go around the head of your goat, not behind, when trying to get to the other side.
5. Never let go of the lead collar or chain.
6. Be aware of your goat and the judge at all times.



Circling clockwise



Head-to-tail lineup



Parallel lineup



Judging the goat

AMGRA DAIRY GOAT SHOWMANSHIP SCORE CARD

Based on Usual Order of Consideration			
1. APPEARANCE OF ANIMAL		10	40
<u>Condition and Thriftiness</u> - showing normal growth--neither too fat nor too thin.		10	
<u>Hair</u> clean and properly groomed.		10	
<u>Hoofs</u> trimmed and shaped to enable animal to walk and stand naturally.		10	
<u>Neatly disbudded</u> if the animal is not naturally hornless.		10	
<u>Clipping</u> - entire body if weather has permitted, showing allowance to get a neat coat of hair by show time; neatly trimmed tail and ears.		10	
<u>Cleanliness</u> - as shown by a clean body as free from stains as possible, with special attention to legs, feet, tail area, nose, and ears.		10	
2. APPEARANCE OF EXHIBITOR		10	10
<u>Clothes and person</u> neat and clean - white costume preferred.		10	
3. SHOWING ANIMAL IN THE RING			50
<u>Leading</u> - enter, leading the animal at a normal walk around the ring in a clockwise direction, walking on the left side, holding the collar with the right hand. Exhibitor should walk as normally and inconspicuously as possible.			
<u>Goat should lead readily</u> and respond quickly.			
<u>Lead equipment</u> should consist of a collar or small link chain, properly fitted.		10	
<u>As the judge studies the animal</u> , the preferred method of leading is to walk alongside on the side away from the judge.			
<u>Lead slowly</u> with animal's head held high enough for impressive style, attractive carriage, and graceful walk.			
<u>Pose and show</u> an animal so it is between the exhibitor and the judge as much as possible.			
Avoid exaggerated positions, such as crossing behind the goat.			
<u>Stand or kneel</u> where both judge and animal may be observed.			
<u>Pose animal</u> with front feet squarely beneath and hind feet slightly spread. Where possible, face animal up grade with her front feet on a slight incline. Neither crowd other exhibitors nor leave too much space when leading into a side-by-side position.			
<u>When judge changes placing</u> , lead animal forward out of line, down or up to the place directed then back through the line, finally making a U-turn to get into position.	15		
<u>To step animal ahead</u> - use slight pull on collar. If the animal steps badly out of place, return her to position by leading her forward and making a circle back thru your position in the line.			
<u>When judge is observing the animal</u> , if she moves out of position, replace her as quickly and inconspicuously as possible.			
<u>Be natural</u> . Overshowing, undue fussing, and maneuvering are objectionable.			
<u>Show animal to best advantage</u> , recognizing the conformation faults of the animal you are leading and striving to help overcome them.	15		
<u>Poise, alertness, and courteous attitude</u> are all desired in the show ring. Showmen should keep an eye on their animals and be aware of the position of the judge at all times--but should not stare at the judge. Persons or things outside the ring should not distract the attention of the showmen. Respond rapidly to requests from judges or officials, and be courteous and sportsmanlike at all times, respecting the rights of other exhibitors. The best showmen will show the animals at all times--not themselves--and will continue exhibiting well until the entire class has been placed, the judge has given his reasons, and he has dismissed the class.	10		
TOTAL			100

Suggested Uniform:

Long-sleeved white shirt, regulation white pants, 4-H or FFA necktie, 4-H or FFA cap (if applicable), with matching shoes and belt in either black, white, or brown.

AMGRA DAIRY GOAT SCORE CARD

(Ideals of type and breed characteristics must be considered in using this card.)

Based on Order of Observation		30
1. GENERAL APPEARANCE		
Attractive individuality revealing vigor; femininity with a harmonious blending and correlation of parts; impressive style and attractive carriage; graceful walk.		
<u>Breed characteristics</u>		10
<u>Head</u> - medium in length, clean-cut; broad muzzle with large, open nostrils; lean, strong jaw; full, bright eyes; forehead broad between the eyes; ears medium size, alertly carried (except Nubians).		
<u>Shoulder blades</u> - set smoothly against the chest wall and withers, forming neat junction with the body.		
<u>Back</u> - strong and appearing straight with vertebrae well defined.		
<u>Loin</u> - broad, strong, and nearly level.		
<u>Rump</u> - long, wide and nearly level.		8
<u>Hips</u> - wide, level with back.		
<u>Thurls</u> - wide apart.		
<u>Pin bones</u> - wide apart, lower than hips, well defined.		
<u>Tail head</u> - slightly above and neatly set between pin bones.		
<u>Tail</u> - symmetrical with body.		
<u>Legs</u> - wide apart, squarely set, clean-cut and strong with forelegs straight.		
<u>Hind legs</u> - nearly perpendicular from hock to pastern. When viewed from behind, legs wide apart and nearly straight. Bone flat and flinty; tendons well defined. Pasterns of medium length, strong and springy. Hocks cleanly moulded.		12
<u>Feet</u> - short and straight, with deep heel and level sole.		
2. DAIRY CHARACTER		
Animation, angularity, general openness, and freedom from excess tissue, giving due regard to period of lactation.		20
<u>Neck</u> - long and lean, blending smoothly into shoulders and brisket, clean-cut throat.		
<u>Withers</u> - well defined and wedge-shaped with the dorsal process of the vertebrae rising slightly above the shoulder blades.		20
<u>Ribs</u> - wide apart; rib bone wide, flat, and long.		
<u>Flank</u> - deep, arched, and refined.		
<u>Thighs</u> - incurving to flat from the side; apart when viewed from the rear, providing sufficient room for the udder and its attachments.		
<u>Skin</u> - fine textured, loose, and pliable. Hair fine.		
3. BODY CAPACITY		
Relatively large in proportion to the size of the animal, providing ample digestive capacity, strength, and vigor.		20
<u>Barrel</u> - deep, strongly supported; ribs wide apart and well sprung; depth and width tending to increase toward rear of barrel.		12
<u>Heart girth</u> - large, resulting from long, well-sprung foreribs; wide chest floor between the front legs, and fullness at the point of elbow.		8
4. MAMMARY SYSTEM		
A capacious, strongly attached, well-carried udder of good quality, indicating heavy production and a long period of usefulness.		30
<u>Udder - Capacity and Shape</u> - long, wide, and capacious; extended well forward; strongly attached.		10
<u>Rear attachment</u> - high and wide. Halves evenly balanced and symmetrical.		5
<u>Fore attachment</u> - carried well forward, tightly attached without pocket, blending smoothly into body.		6
<u>Texture</u> - soft, pliable, and elastic; free of scar tissue; well collapsed after milking.		5
<u>Teats</u> - uniform, of convenient length and size, cylindrical in shape, free from obstructions, well apart, squarely and properly placed, easy to milk.		4
TOTAL		100

Evaluation of defects

Whether showing or evaluating an animal, this guide will help you judge dairy goats.

HEAD

1. Large scurs or stubs--moderate fault.
2. Natural horns--serious fault.
3. Neatly disbudded or dehorned--no fault.
4. Crooked face--very serious fault (on does!); on bucks, a disqualification!
5. Undershot or overshot jaw--slight to serious fault.

FORE BODY CONFORMATION

1. Loose, winged, or heavy shoulders--moderate to serious fault.
2. Narrow chest or pinched heart girth--moderate to serious fault.

BODY CONFORMATION

1. Short, shallow, or narrow body--moderate to serious fault.
2. Low-backed or steep rumped--moderate to serious fault--more serious in bucks.
3. Broken or wry tail--slight fault.

LEGS AND FEET

1. Enlarged knees, nondisabling lameness, turned out or crooked feet--all moderate fault--more serious in bucks.
2. Small-boned for body size, bowed over front knees, buck-kneed, hind legs close together, or sprung pasterns--all moderate to serious faults depending on degree--more serious in bucks.
3. Very crooked or malformed feet and very strong cowhocks--very serious faults.

MAMMARY SYSTEM

1. Udder pendulous; too distended to determine texture; hard or swollen (except in does just fresh); so uneven that one half is less than one half the size of the other--all serious faults.
2. Double openings in a teat--serious fault.
3. Udder that is lacking in size and capacity in relation to size of doe; double opening in teat, extra teats, teats that have been cut off--all very serious faults.

4. Separation between the halves of udder or presence of scar tissue, front, rear, or side udder attachments lacking; udder too beefy or with a pocket--slight to serious faults.
5. Teats that are set close together, bulbous, extremely large or small, pointed sideways, uneven in size, having small streams or otherwise hard to milk, not clearly separated from udder--all are moderate faults.

SOME DISQUALIFICATIONS

1. Not true to breed specifics.
2. Blindness.
3. Blind udder or teats, extra teats that interfere with milking.
4. Active mastitis or other disease.
5. Evidence of hermaphroditism or other reproductive failure.
6. Serious emaciation.
7. Permanent lameness.
8. Permanent physical defect, such as hernia.
9. Crooked face on bucks.

RESOURCE INFORMATION

Minnesota resource people

These are people you may contact for further information about raising goats.

- AITKIN--Nyle and Pauline Fulton, Rt. 2, Aitkin 56431.
- ANOKA--Chuck and Joan Duncan, 19703 Olinda Tr. N., Marine-On-St. Croix 55025.
- BECKER--Mr. and Mrs. Olaf Tveteen, Rt. 3, Detroit Lakes 56501.
- BELTRAMI--Merlyn and Doris Gronewold, Puposky 56667.
- BENTON--Patty (Mrs. Nick) Nodo, Rt. 1, Rice 56367.
- BLUE EARTH--Conrad T. Hammar, Rt. 2, Box 106, Lake Crystal 56055.
- BROWN--Harding and Doris Mattson, Rt. 2, Box 108, Nicollet 56074.
- CARLTON--Sandie Hawkinson, Star Route, Tamarack 55787.
- CARVER--Ona Meyer, Hamburg 55339.
- CASS--Debbie Buvinger, Rt. 2, Cass Lake 56633.
- CHIPPEWA--Mr. and Mrs. Carl Aus, RR., Granite Falls 56241.
- CHISAGO--Bonnie Field, Rt. 1, Harris 55032.
- CLEARWATER--Karey and Julianne Love, Box 373, Bagley 56621.
- COOK--Roy Steinbrecker, Grand Marais 55604.
- COTTONWOOD--Rodney Christenson, Rt. 1, Box 178A, Mountain Lake 56159.
- CROW WING--Gerald and Joan Templin, Rt. 4, Box 89, Brainerd 56401.
- DAKOTA--Joan (Mrs. Eugene) Wood, 1160 90th St. E., Inver Grove Heights 55075.
- DODGE--Mr. and Mrs. Robert Johnson, Rt. 2, Box 103, Kasson 55944.
- DOUGLAS--Lu De Martelare, Rt. 3, Parkers Prairie 56361.
- FARIBAULT--Mr. and Mrs. Norman Schultz, Rt. 1, Box 47, Wells 56097.
- FILLMORE--Mitch Cole, Rt. 1, Box 111, Lime Springs, Iowa 52155.
- FREEBORN--Mary Jane (Mrs. Milton) Jensen, Rt. 5, Box 57, Albert Lea 56007.
- HENNEPIN--Edward Melquist, 2653 36th Ave. S., Minneapolis 55406.
- HOUSTON--Wayne Swenson, Rt. 3, Houston 55943.
- HUBBARD--Mr. and Mrs. Vern Paulson, Rt. 1, Park Rapids 56470.
- ISANTI--Laurie Potter, Rt. 3, Box 225, Isanti 55040.
- ITASCA--Joe Ruploski, Marcell 56657.
- JACKSON--Pete Garbor, Alpha 56111.
- KANABEC--Vern and Betty Wills, Rt. 1, Mora 55051.
- KANDIYOHI--Virg and Royce Cordes, Rt. 2, New London 56273.
- KOOCHICHING--Betty Antin, Rt. 1, Box 87, Littlefork 56653.
- LAKE--Barbara Birkland, Rt. 1, Box 157, Two Harbors 55616.
- LAKE OF THE WOODS--Charles H. Witten, Williams 56686.
- LE SUEUR--Art and Lyle Straub, Rt. 3, Le Sueur 56058.
- LYON--Mr. and Mrs. George Willms, Rt. 4, Box 67, Marshall 56258.
- MCLEOD--Pat Wenholz, Rt. 1, Box 123, Plato 55370.
- MAHNOMEN--Amy Alpine, Sugarbush Lake Rd., Lengby 56651.
- MEEKER--Al Johnson family, Rt. 1, Box 144A, Litchfield 55355.
- MILLE LACS--Mrs. Gerald Briggs (Mary Jane), Rt. 3, Box 76A, Milaca 56353.
- MORRISON--Sally Johnson, Rt. 1, Box 98, Motley 56466.
- MOWER--Tom Gaddis, Rt. 3, Box 22, Austin 55912.
- MURRAY--Betty (Mrs. Ed) Lotterman, Rt. 1, Edgerton 56128.
- NICOLLET--Harding and Doris Mattson, Rt. 2, Box 108, Nicollet 56074.
- OLMSTED--Earl Gardner family, Rt. 2, Box 35, Chatfield 55923.
- OTTER TAIL--Irene (Mrs. William) Truman, Rt. 2, Box 13, Underwood 56586.
- PINE--George and Dorothy Jamison, Rt. 1, Box 29, Sandstone 55072.
- PIPESTONE--Mr. and Mrs. Clarence Hardy, RR., Holland 56139.
- POLK--Amy Alpine, Sugar Bush Lake Rd., Lengby 56651.
- POPE--Virgil and Royce Cordes, Rt. 2, New London 56273.
- RAMSEY--Betty Briggs, 2165 Hwy. 55, St. Paul 55120.
- REDWOOD--Dale R. Laraway, Rt. 3, Redwood Falls 56283.
- RENVILLE--Mr. and Mrs. Neil McCall, Rt. 2, Hector 55342.
- RICE--Rodney Helgeson, Rt. 1, Northfield 55057.
- ST. LOUIS--Charles and Norma Grant, Star Rt. 3, Box 51A, Hibbing 55746.
- SCOTT--Phil and Jean Loken, Savage 55378.
- SHERBURNE--Herb and Marilyn Danielson, Rt. 1, Becker 55308.
- SIBLEY--Marty and Ginger Timmons, Rt. 2, Box 73, Henderson 56044.
- STEARNS--Joel and Robin Hasslen, Rt. 2, South Haven 55382.

STEVENS--Paul and Elaine Grotjohn, Box 392,
Morris 56267.
SWIFT--Mr. and Mrs. Steve Shores, Rt. 1,
Murdock 56271
TODD--Richard and Barbara Barnard, Rt. 4,
Long Prairie 56347.
WADENA--Bill Kennedy, Rt. 1, Box 98,
Motley 56466.
WASHINGTON--Vincent and Christine Maefsky,
12521 Mayberry, Scandia 55073.
WILKIN--Rev. and Mrs. Maynard E. Stokka,
Rothsay 56579.
WINONA--Mrs. Travis Nelson, Rt. 3, Winona
55987.
WRIGHT--Murial (Mrs. Dwayne) McCord, Rt. 1,
Box 143C, Annandale 55302.
YELLOW MEDICINE--Perry Lueders, Canby
56220.



Publications and information

Dairy goat suppliers

Hoegger's Supply Company, Milkford, Pa.
18337. 25¢ for catalog.
NASCO, Fort Atkinson, Wis. 53538.
American Supply House, P.O. Box 114,
Columbia, Mo. 65201.

Books

AIDS TO GOATKEEPING, E.E. Leach (1961)
available from Dairy Goat Journal, P.O.
Box 1908, Scottsdale, Ariz. 85252.
THE GOATOWNER'S SCRAPBOOK (1961) available
from American Supply House, P.O. Box 1114,
Columbia, Mo. 65201.
DAIRY GOATS--BREEDING, FEEDING, MANAGEMENT
available from the Minnesota Dairy Goat
Association.
THE MODERN DAIRY GOAT (1972) available
from the Dairy Goat Journal.
A.M.G.R.A. HANDBOOK (1956) The American
Milk Goat Record Association, Sherborn,
Mass. 01770.
Reference Library--Minnesota Dairy Goat
Association Library, Mitch Cole, Rt. 1,
Box 111, Lime Springs, Iowa 52155.

Leaflets

Dairy Goats, Fact Sheet, Agr. Extension
Service, University of Minnesota,
St. Paul 55108.
A Dairy Goat for Home Milk Products, USDA
Leaflet 528, U.S. Government Printing
Office, Washington, D.C. 20401.
Milk Goats, U.S.D.A. Farmers' Bulletin #920,
U.S. Government Printing Office,
Washington, D.C. 20401.
Milk Goats - Why? What? and How? American
Dairy Goat Association, P.O. Box 186,
Spindale, N.C. 28160.
Why Goat Milk? American Dairy Goat
Association.

These leaflets are available from the
American Supply House, P.O. Box 1114,
Columbia, Mo. 65201:

Tips on Kid Care; Furs and Skins from
Goats; Buying Goats; The Care of Milk in
the Home; Goat Milk for Nursing Mothers;
Breeding, Pregnancy, and Care of the Doe
at Kidding; Tainted Milk, Its Causes and
Remedies; Goat Manure as Fertilizer;
Stomach Ulcers; Let's Get It Straight
About Brucella Infection; How to Evaluate
Your Goat; Kid Rearing with Dry Skim Milk.

Dairy goat associations

American Dairy Goat Association, Don Wilson,
Sec.-Treas., Box 186, Spindale, N.C.
28160.
The American Goat Society, J. Willett
Taylor, 1606 Colorado St., Manhattan,
Kans. 66502.
Minnesota Dairy Goat Association, P.O. Box
377, Silver Lake, Minn. 55381.

National breed associations

Alpine International Club, Stephen
Considine, Sec.-Treas., Box 211, Oxford,
Penn. 19363.
The American La Mancha Club, Mrs. Clarence
Ryon, Sec.-Treas., Box 41, Dayton, Iowa
50530.
National Nubian Club, Mrs. Jean Van
Voorhees, Sec.-Treas., Rt. 1, Box 416,
Glen Gardner, N. J. 08826.
National Saanen Club, Mrs. Fleta Anthony,
Sec.-Treas., RR. 2, Marysville, Ohio
43040

The National Toggenburg Club, Mrs. Lucy B.
Richardson, Sec.-Treas., Box 177A,
Strotz Rd. Asbury, N.J. 08802.

Magazines

Countryside and Small Stock Journal, 318
Waterloo Road, Marshall, Wis. 53559.
Dairy Goat Journal, P.O. Box 1908,
Scottsdale, Ariz. 85252.

Bulletins

The Dairy Goat, Extension Bulletin 1160,
New York State College of Agriculture,
Ithaca, N.Y. 14850.
Dairy Goat Management, Extension Bulletin
334, Extension Service, College of Agri-
culture, Rutgers--The State University,
New Brunswick, N.J. 08903.
Dairy Kid, Extension Bulletin, Ohio State
University, Columbus, Ohio 43210.
Your Dairy Goat, 4-H Ag. 26, Extension
Service, University of California,
Davis, Calif. 95616.
Your 4-H Dairy Goat Project, Extension
Bulletin, New Mexico State University,
Las Cruces, N. M. 88003.

Publications, circulars, fact sheets, etc.

A Dairy Goat for Home Milk Products,
U.S.D.A. Leaflet 528, U.S. Government
Printing Office, Washington, D.C. 20401.
Aids to Goatkeeping, E.E. Leach, 1961,
Dairy Goat Journal, P.O. Box 1908,
Scottsdale, Ariz. 85252.
A.M.G.R.A. Handbook, 1956, The American
Milk Goat Record Association, Sherborn,
Mass. 01770.
Dairy Goats, Fact Sheet, Agricultural Ex-
tension Service, University of Minnesota,
St. Paul, Minn. 55108.
Dairy Goats--Breeding, Feeding and Manage-
ment, American Dairy Goat Association,
Box 186, Spindale, N. C. 28160.
The Goatowner's Scrapbook 1961, American
Supply House, P.O. Box 1114, Columbia,
Mo. 65201.
Hoegger's Supply Company, Milford, Penn.
18337.
Milk Goats, U.S.D.A. Farmers' Bulletin
#920, U.S. Government Printing Office,
Washington, D.C. 20401.
Milk Goats--Why? What? and How?, American
Dairy Goat Association, P.O. Box 186,
Spindale, N. C. 28160.

The Modern Dairy Goat, 1972, Dairy Goat
Journal, P.O. Box 1908, Scottsdale,
Ariz. 85252.

Why Goat Milk?, American Dairy Goat Associ-
ation, P.O. Box 186, Spindale, N. C.
28160.

Collection of reference books and
pamphlets, Minnesota Dairy Goat Associ-
ation Library, Mitch Cole, Route 1, Box
111, Lime Springs, Iowa 52155.



RECORDS

Why records and bookkeeping?

A dairy animal is kept to produce quality milk at a profit. A dairy animal which produces milk at a higher cost than goat milk would cost at the store would be unprofitable. Records are, therefore, quite important. You will want to know:

- How much hay does a goat eat?
- How much hay should I store for next year?
- How much grain will be needed?
- Which type of grain is least expensive?
- What quantities of detergent, filters, and paper towels are used?
- What illnesses did my goats have?
- Could these illnesses have been prevented?
- How much milk did each doe produce?
- Should some does be culled?
- Kids from which doe should be best to keep?
- When did breeding take place?
- When are kids expected to be born?
- What changes should be made in the business agreement?
- Did a profit exist? Why?
- Can more profit be expected next year?
How and why?

You will need four types of records to answer these questions:

1. A daily barn record to show milk weights, feeding changes, etc.
2. A daily house record to show purchases (feed, supplies, etc.), veterinary costs, breeding fees...sales of all kinds.
3. A herd record book to show name, breed, tattoo number, registration, milk production, pictures, kids born, and show placings of each animal born.
4. A written business agreement with your parent stating: date; investment of each; who supplies what; who does what; how profits are to be distributed; length of time of the agreement; and penalties for nonperformance of terms.

At the end of the 4-H year, you will be able to summarize the information for yourself. Most important you will have learned that records are the key to management success in this project or any future business venture.

DAIRY GOAT PROJECT RECORD SUMMARY

Record for Club year _____ Year in 4-H Club work _____

Name _____ Age _____

Year in this project _____ 4-H Club _____ County _____

Complete all information on this page.

First year 4-H members in this project, copy and fill in second page as shown in the Dairy Goat Manual (record and work sheets).

Second year 4-H members and beyond, devise records meaningful to you by studying sample record suggestions in the manual. These might include: expense, income, milk production, breeding, sales, etc.

All members in the project must keep an up-to-date Lifetime History of Individual Goats and attach it to this summary.

Ask your project leader for help in your project, but this record must be done entirely by you.

X _____ X _____ Date

Signature of leader indicates that these records were completed by the 4-H member.

Number of project meetings held _____ Number I attended _____

I gave _____ project talks or demonstrations. Topics were:

Number of goat shows, fairs, or related programs I attended _____

These were:

Number of goat classes I judged _____ These were at _____

Number of goats in this project _____

Name _____ Name _____

Name _____ Name _____

Name _____ Name _____

Explain your financial-chore arrangement with your parent. Attach any formal business agreement signed by you and your parent.

INVENTORY

Value At Start of Project

Value at End of Project

Animals: _____

Equipment: _____

Supplies: _____

EXPENSES

TOTAL INVENTORY _____

Forage: _____

Grain: _____

Supplies: _____

Equipment: _____

Health: _____

Breeding: _____

Other: _____

TOTAL EXPENSE _____

INCOME

Milk Sold: _____

Milk Used (home) _____

Animals Sold: _____

Animals Used: _____

Premiums: _____

Other: _____

TOTAL INCOME _____

MY PROJECT STORY

Write an interesting story on this project and how you could manage such a project more successfully. What did you learn? What was the most fun? How did you help others to learn of your project? Will you continue this project next year? Why? (Attach extra paper to tell this story).

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EXPENSES

TOTAL INVENTORY _____

Forage: _____

Grain: _____

Supplies: _____

Equipment: _____

Health: _____

Breeding: _____

Other: _____

TOTAL EXPENSE _____

INCOME

Milk Sold: _____

Milk Used (home) _____

Animals Sold: _____

Animals Used: _____

Premiums: _____

Other: _____

TOTAL INCOME _____

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INVENTORY

Value At Start of Project

Value at End of Project

Animals: _____

Equipment: _____

Supplies: _____

EXPENSES

TOTAL INVENTORY _____

Forage: _____

Grain: _____

Supplies: _____

Equipment: _____

Health: _____

Breeding: _____

Other: _____

TOTAL EXPENSE _____

INCOME

Milk Sold: _____

Milk Used (home) _____

Animals Sold: _____

Animals Used: _____

Premiums: _____

Other: _____

TOTAL INCOME _____

MY PROJECT STORY

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LIFETIME HISTORY OF INDIVIDUAL GOAT

Name _____ # _____
 registration number

Sex _____ Horn Information _____ Birth _____ Tatto: RE _____
 date LE _____

Mature picture
 showing udder
 during lactation

SIRE: _____ # _____
 name registration number

notes on ancestry or production of offspring:

SIRE'S SIRE _____ # _____

SIRE'S DAM _____ # _____

DAM: _____ # _____

Notes on ancestry or production:

DAM'S SIRE _____ # _____

DAM'S DAM _____ # _____

MILK PRODUCTION

LACTATION	Date Fresh	Days Milked	Milk (lb)	Fat test	Fat (lb)
1st					
2nd					
3rd					
4th					
5th					

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Name _____ # _____
 registration number

Sex _____ Horn Information _____ Birth _____ Tatto: RE _____
 date LE _____

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Notes on ancestry or production:

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SIRE'S DAM _____ # _____

DAM: _____ # _____

Notes on ancestry or production:

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DAM'S DAM _____ # _____

MILK PRODUCTION

LACTATION	Date Fresh	Days Milked	Milk (lb)	Fat test	Fat (lb)
1st					
2nd					
3rd					
4th					
5th					

PROJECT GROUND RULES AND BUSINESS AGREEMENTS

Make separate arrangements for each project when you write out business agreements dealing with other people. Be sure to indicate the following, if applicable.

- 1. Date of agreement
- 2. Kind and size of project
- 3. Responsibility of each party in regard to: capital, management, labor, land, livestock, machinery and equipment.
- 4. Exact length of time of agreement
- 5. Exact share of income each party is to receive
- 6. Specific terms for dividing profits
- 7. Penalties for non-performance of agreement.

S A M P L E

Member's Signature _____

Parent's Signature _____

Date _____

BUSINESS RECORD FOR THE MONTH OF _____

Expenses

DAY	FEEDS BOUGHT	SUPPLIES	VET-MEDICINES	BREEDING	OTHER
1					
2					
3					
4					
5				E	
6			P	L	
7		A	M		
8	S				
9					
10					

Income

MILK-SOLD	MILK-HOUSE	OTHER SALES
		E
		L
		P
	M	
	A	
S		

BARN RECORD FOR MONTH OF _____

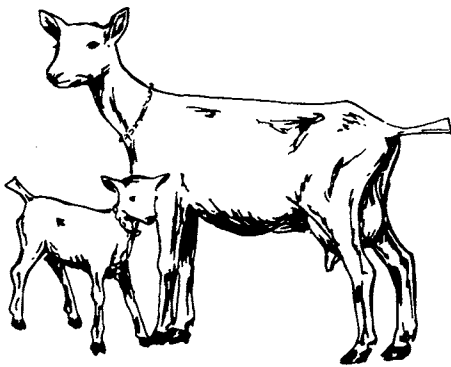
NAMES

DAY	milk a.m.	milk p.m.	total day	grain fed	rough- age	milk fed	other notes
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
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28							
29							
30							
31							

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Agricultural Extension Service

4-H B-12 - 1975

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