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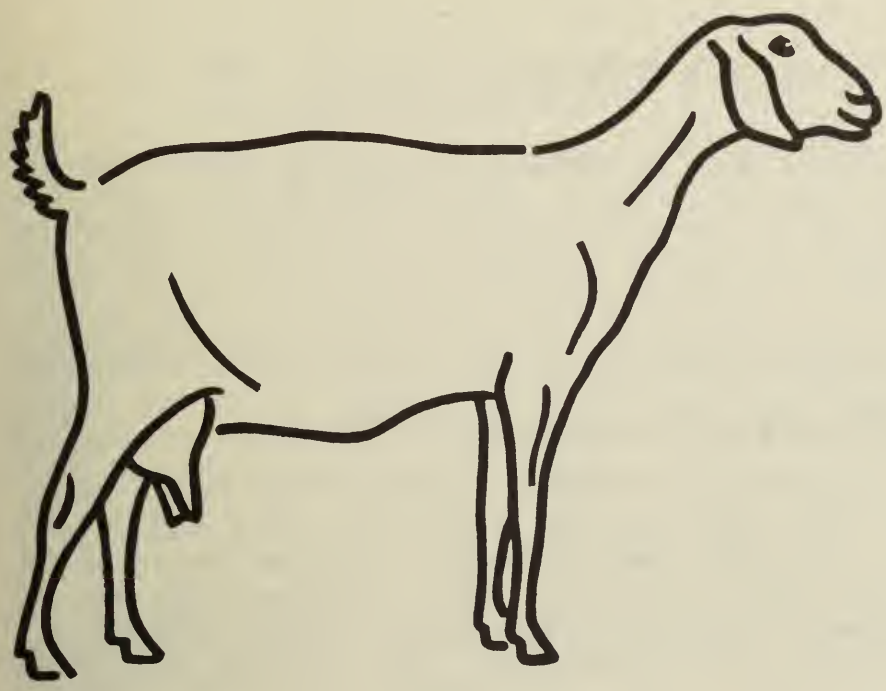

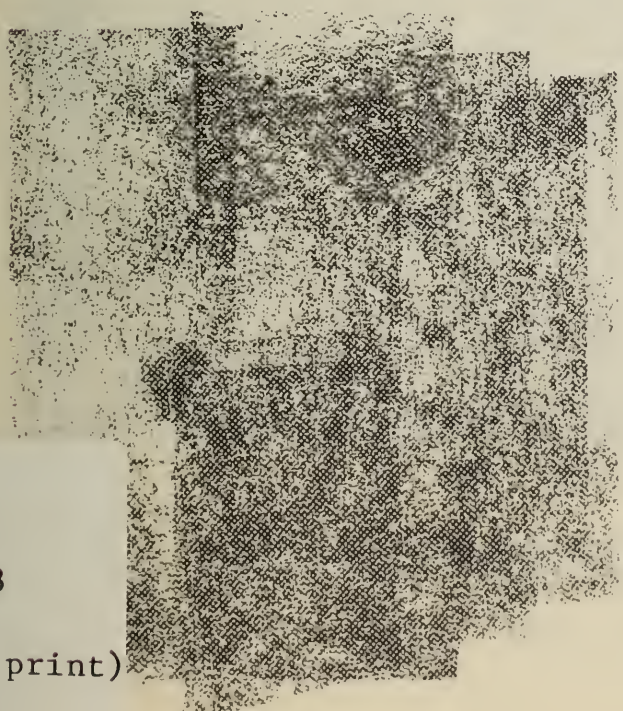

THE DAIRY GOAT

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Canadian Record of Performance for Milk Goats

In Canada an opportunity is afforded breeders and owners of purebred goats to have official records made of the milk and fat production of their does. The plan is known as Canadian Record of Performance for Goats, and the value of goats qualifying under the plan is greatly enhanced. A Record of Performance certificate indicates the productive quality of the individual goat. The advantage extends still further and is realized in the worth of the progeny. Breeders should insist on the use of bucks from qualified does.

Registration and Importation of Milk Goats

Information in connection with the registration of purebred milk goats or the importing or exporting of milk goats may be obtained by writing the Canadian National Live Stock Records, Ottawa, Canada.

Copies of this publication may be obtained from:
Information Division,
Canada Department of Agriculture,
Ottawa, Ontario.

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THE DAIRY GOAT

In Canada, dwellers in suburban sections, mining centers, and coastal fishing communities, where delivery of fresh cow's milk is difficult and expensive, are finding the milk goat an economical source of wholesome, nutritious milk. Goats can be kept with little expense. Marginal or rough lands unsuitable for other types of livestock may be used, and inexpensive shelter will serve. Goats supply fresh milk at least twice daily in quantities that many could not afford to purchase and the surplus milk may be used to make butter or cheese. Goat's milk is particularly suitable for infant and invalid feeding since the minute fat globules contribute to greater ease in digestion. A good grade doe two years old or over should produce sufficient milk to pay for herself in ten months.

Breeds of Milk Goats

The principal breeds of milk goats found in Canada are the Toggenburg, Saanen, Anglo-Nubian, and a few Alpine. These breeds are well adapted to Canadian climate and conditions.

Toggenburg.—The Toggenburg, a native of the Toggenburg Valley of Switzerland, resembles a deer in color and markings. The goat is attractive in appearance and exhibits strength and good bone development. The depth of body and size of frame give every indication of milk production. The color

FIGURE 1 Toggenburg does

FIGURE 2 Saanen doe

is light brown or mouse with a white bar running down each side of the face. The legs below the knees and hocks are light gray or white and slight markings of white may be found on either side of the tail and around the ears. The udder is well attached and carried high. The breed is usually, but not always, hornless.

Saanen.—The Saanen derives its name from the place of origin in Switzerland and is probably the largest of the breeds. It is solid white in body color, with a tendency to creaminess in the lower parts. The does are graceful, possessing height and length, with slender necks and heads. The udder is carried well up. The breed is normally hornless but occasionally horns do appear.

Anglo-Nubian.—The Anglo-Nubian goat is supposed to have originated in England from the crossing of English does with Nubian bucks. The goats are large and strong in frame, with backs of tan or reddish color with or without white markings, and have large pendulous ears and bold roman noses. The breed is largely hornless, but if horns appear they lie flat over the head.

French Alpine.—The Alpine breed of goat was developed in Switzerland and is now represented by several sub-breeds of which the French Alpine is one. Mainly dark colored with white points, it is of medium size, alert and of even temperament. It has good dairy qualities and is finding increasing favor in North America.

FIGURE 3 Nubian doe

FIGURE 4 French Alpine doe

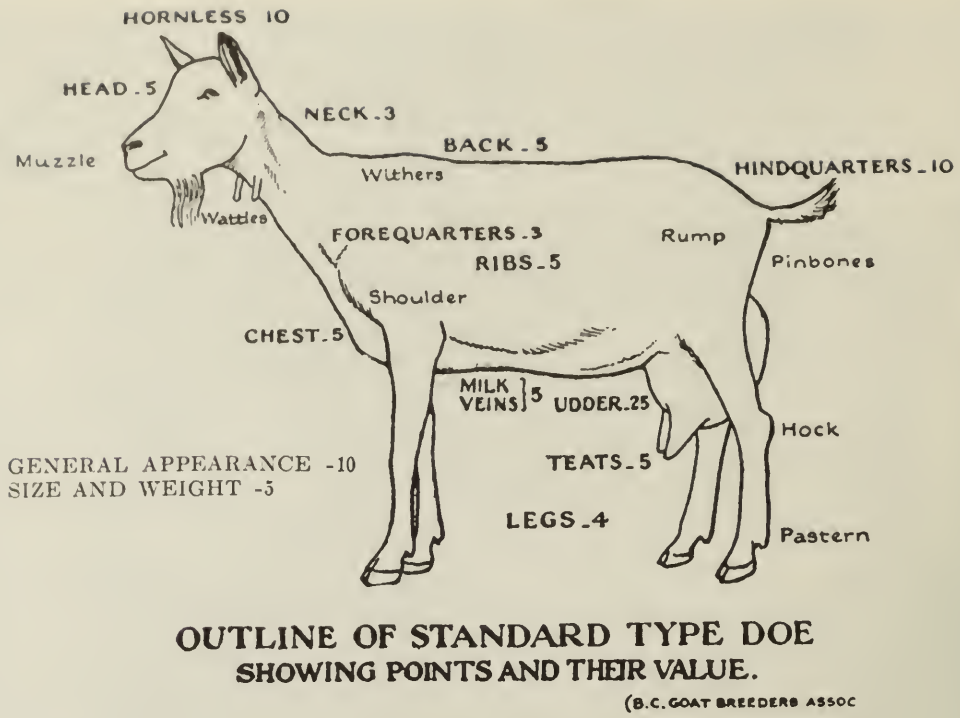

FIGURE 5 Outline of standard type doe showing points and their value

Selecting the Doe

Does of the breeds described are usually good milkers, are persistent in flow of milk, and should produce at least three quarts per day. The doe should be selected with great care as one outstanding doe may be the nucleus of a very productive herd. Development of body is essential for milk production. The doe should be well-grown, healthy in appearance, standing well on her feet, not down on the pasterns, and should possess strong bone, with the legs placed squarely under the body. The body should be wedge-shaped, sharp at the withers, providing for a sloping shoulder, but furnishing a full heart girth with great spring and depth of rib denoting a rugged constitution and a capacity for consuming large amounts of food with which to produce milk in quantity. The hook bones should be fairly prominent and placed some distance from the pin bones. The thighs should be thin, providing plenty of room for a round, well-attached udder of fair size.

The skin of the doe should be loose, pliable, and free from dryness. Goats in proper condition have fine, silky hair. In many cases poor condition of flesh may be a clear indication of a good milker, while a poor milker may be found in good flesh. The neck should be thin and graceful, with or without wattles, and the head narrow, reasonably long with no tendency towards fleshiness on the face. The eyes should be clear and bright. Does should be truly feminine in appearance and mild in temperament. Highly nervous goats are difficult to handle, milk, feed, and manage and may be upsetting to other members of the herd.

The milking potential of a doe cannot be estimated by size of udder. A large udder may give a very small amount of milk, especially if it is fleshy and lacking in quality. The udder of a good milk goat should not be meaty and should be thin-skinned. The teats should be pointed slightly forward. When freshly milked, the udder should be soft to the touch and have a collapsed appearance.

Selecting the Buck

A buck should be strongly masculine in appearance, with a well-developed frame, good conformation and breed character. The head should be strong and hornless, and the beard heavy. Good depth of rib is essential. The legs should be straight and well placed under the body. The hair should be fine in quality. Low condition of flesh is not necessarily serious since bucks usually worry a good deal, especially during the rutting season. The buck should be chosen from a good milking strain and should be the progeny of a Record of Performance dam. Improvement in the herd, in so far as type, conformation, and milk production is concerned, is achieved largely through the use of bucks of outstanding quality.

Breeding Age

Milk goats reach their prime for milk production at about 4 years of age, but a goat possessing a strong constitution and continuing good health may be useful as a milker and breeder up to 8 or 10 years of age. Young does should not be bred until 16 or 18 months of age, at which time they will have attained sufficient development. Kids born in March, April, or May should not be bred until the second fall after the months mentioned. Does will come in heat when quite young and care should be taken to see that they do not become bred earlier than 15 months of age.

Heat and Gestation Periods

Does will come in heat at all times of the year but the usual mating season is from August to March. The heat condition is noticed by uneasiness and constant shaking of the tail and with some extra bleating. The period of heat generally lasts from one to two days, while the period between varies from 5 to 21 days. Bucks are most sexual during fall and winter months and during this period they emit a very strong, and to some people, an offensive odor. A young buck, 12 to 18 months of age, may be bred to 20 or 25 does, while a mature buck will breed from 40 to 50 does.

The gestation period is the space of time between service and the birth of the young and ranges from 146 to 150 days. Goats are prolific and singles are the exception to the rule, with twins usual, and triplets not unusual.

Management and Feed

To control breeding of the does, the buck should be tethered in an area to which the does do not have access. Since milk is very susceptible to odors of any nature, he should not be housed in goat dairies where milk is produced for market. A separate house or shelter and a separate tethering pasture should be provided for him and he should be kept in a healthy condition, free from lice and internal parasites. During winter the ration may consist of alfalfa, clover, mixed hay and succulent feed, such as roots, and some concentrate in the form of oats and wheat bran. Previous to and throughout the breeding season he should receive a liberal ration of grain. Mature bucks will consume up to 2 lb. per day of a mixture made up of 100 lb. oats, 50 lb. wheat bran, and 10 lb. oilcake.

Feeds suitable for dairy cows are, in general, suitable for milk goats, although the grain need not be ground. The roughages and concentrates recommended for the buck are suitable for the does. However, to milk well does must be fed well, and a greater allowance of succulent feed may be added to the does' ration. Where roots cannot be grown, they may be replaced with

beet pulp, carrots, parsnips, and beets. Milking does should receive from 1½ to 2½ lb. per day of concentrate, according to size, weight, and milk production. Should they go off their feed, the opportunity to browse the bark of brush, cut for this purpose, sometimes helps to restore the appetite.

Kidding

When the date of kidding approaches, the doe should be placed in a roomy, clean, well-bedded box stall. She should be kept quiet, and after kidding may be given a warm bran mash to which a small amount of rolled oatmeal and a pinch of salt may be added. When the doe has eaten all that she requires, it is wise to remove any of the mash that may be left. After 48 hours her ration may be made up of choice clover hay and a very small amount of concentrate, not more than 1 to 1½ lb. of a mixture of 2 parts whole oats, 1 part wheat bran, and a very little oilcake meal. Roots, cabbage, or beet pulp may then be added to the ration. Immediately following birth it is advisable to swab the navel of the kids with tincture of iodine.

Raising the Kids

Buck kids, unless from a Record of Performance doe with plenty of milk production in the ancestry, are rarely worth keeping. Some breeders, however, raise such bucks until they are fit for slaughter. The meat of young, well-fatted kids is known as chevon and is considered excellent for human consumption. If it is intended to slaughter goats after three months of age, the males should be unsexed at about two weeks of age.

Kids should be left on does for two days and then weaned from the doe and placed on bottle feeding. A regular milk bottle hygeia teat may be used. Occasionally, the hole in the teat may have to be enlarged to enable the kid to draw the milk from the bottle. Nipple and bottle should be kept thoroughly clean. During the first week, ¼ pint four or five times a day may be fed. Following this, the feeding period may be lengthened and the amount at each feeding increased as the kid develops. At an early age kids should be furnished legume hay and some grain, consisting of one part cracked corn, one part rolled oats, and one part wheat bran. As the kids develop, the rolled oats may be replaced with whole oats, and milk feeding may be discontinued at about three months of age.

Provide the kids with plenty of room and the means for play and exercise. Boxes and barrels in the yard are objects on which they will play. Where at all possible, arrange for a browsing pasture.

Disbudding the Kids

If horns have not been entirely bred out, it is wise to prevent their development when the kid is only a few days old. Clip the hair from around the section where the horns should appear. A small area free of hair may be discovered and such a spot is the place from which the horn springs. Apply the finger to this spot and push gently back and forth. If the skin moves freely it may be taken for granted that the kid is hornless but if the skin seems to be firm or immovable it is an indication that the kid is horned. Caustic potash stick is generally used for the dehorning, or disbudding, of kids. In preparation for the disbudding, the hair around the horn depression should be clipped and grease applied to the skin. However, keep the grease from covering the spot to which the caustic is to be applied. In applying the caustic, protect the hand with an old glove. Rub the slightly moistened caustic stick on the horn spot until the skin appears to show signs of breaking, then stop rubbing.

To prevent the kid from scratching the burning spot with its feet, it should be placed in a stock or stanchion for two or three hours. Scratching the treated part might result in spreading the caustic over other parts of the head, or even into the eyes with permanent injury to the sight.

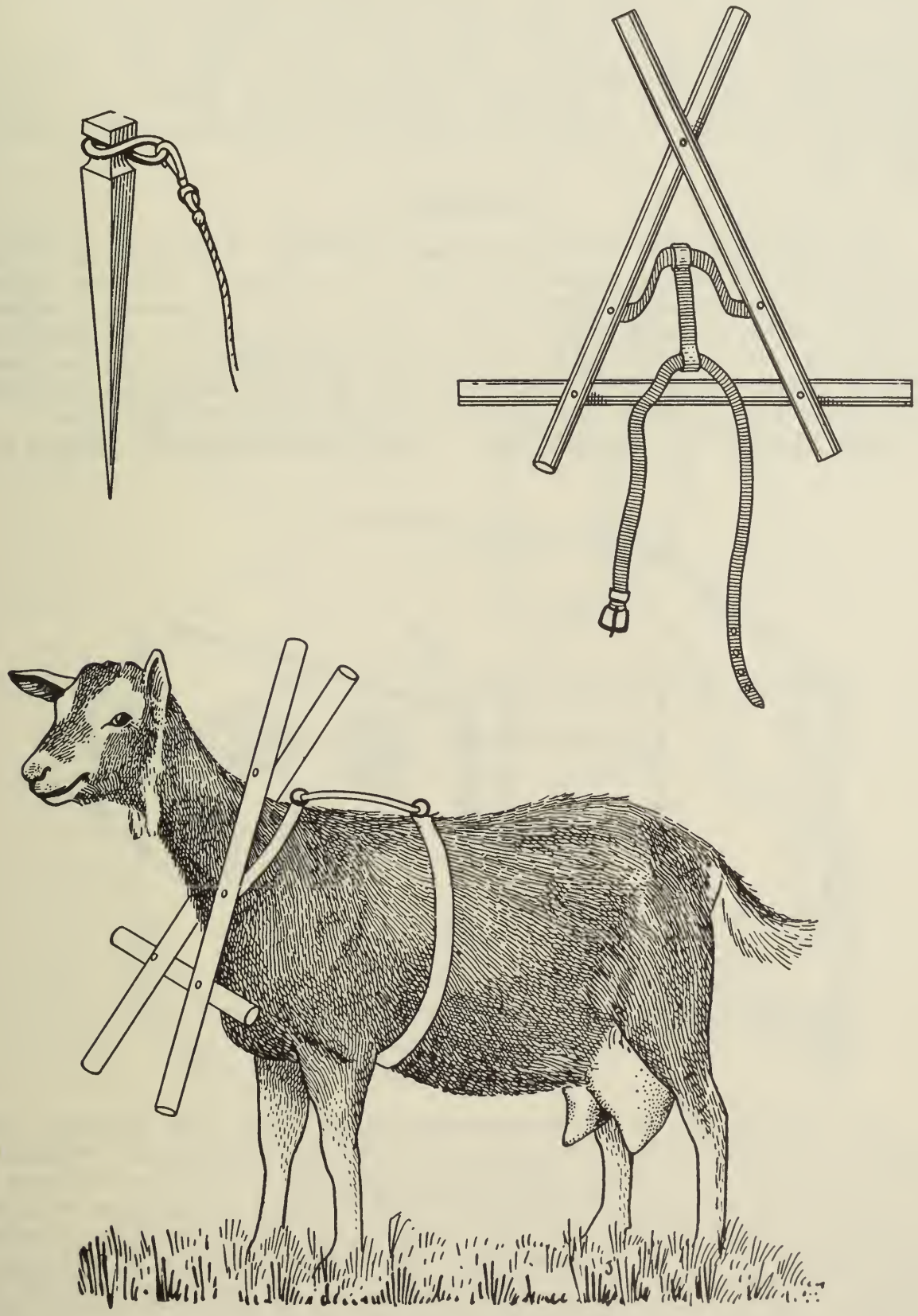

FIGURE 6 Tether pin and poke

Determining the Age of Goats

Goats, like sheep, have no teeth on the upper jaw. When born, or shortly afterwards, the kid has eight teeth on the lower jaw known as the kid, or sucking teeth. At about 12 months of age the center pair of sucking teeth drop out and are replaced by a pair of broad, strong, white, permanent teeth. At about two years another pair of sucking teeth disappear and two permanent teeth take their place. This process goes on until all the sucking teeth are gone and eight permanent teeth are acquired. This takes place at approximately four years of age, but occasionally teeth develop much more quickly and the goat may acquire the complement of permanent teeth at three years of age.

Tethering

Goats have a natural tendency to roam, and where vacant lots are to be used to provide pasture the goats may have to be tethered. Tethering chains of various lengths and strength, with swivel inserted, may be procured. A tethering stake, if not procurable at the hardware store, may be made by a blacksmith. In tethering, the peg should be driven level with the ground, so that the chain cannot be wound around it and shorten the scope of travel for the goat. Tethered goats should have access to fresh water and shade during warm weather.

Pokes are used for confining goats in poorly fenced areas. (See Figure 6.)

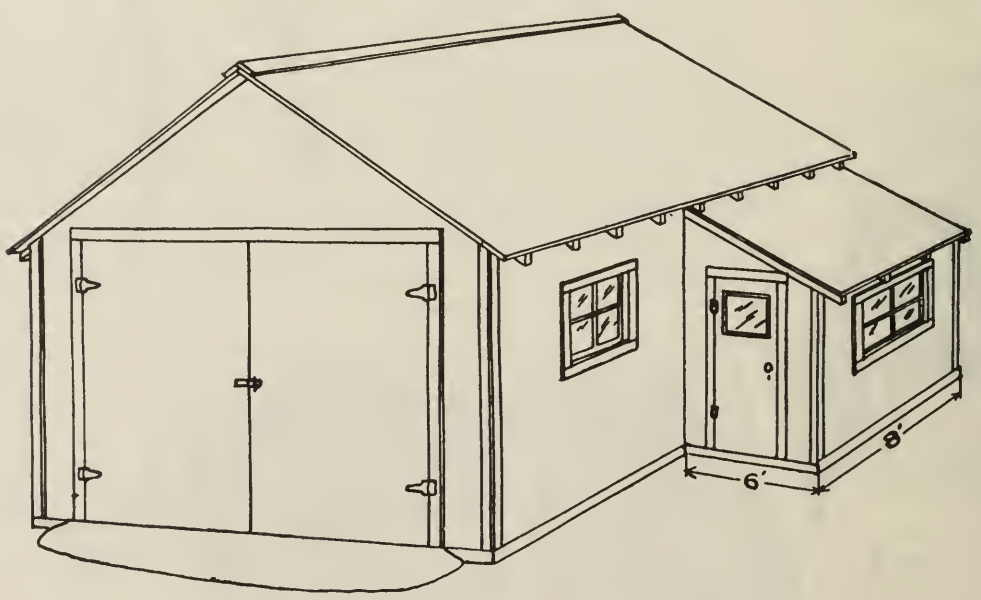

FIGURE 7 Small goat house attached to garage

Housing Goats

The building used to shelter goats should be on an area naturally well drained. It should be free of draughts, well insulated, and properly ventilated. Old buildings may be remodeled and made satisfactory. A leanto, as in Figure 7, may be built at the side of a garage or other building at minimum expense. The leanto addition should be on the sheltered side of the building. Provide proper ventilation and build according to the number of goats to be accommodated. Whatever the style of building, it should be placed on a cement or concrete foundation. The wall construction may be of wood with two-by-four studding, with building paper and shiplap on the exterior, and matched lumber on the inside of the studs with insulation between. A cheap insulator may be

sawdust or planer shavings with a slight amount of lime mixed in to keep mice or other rodents from breaking in and nesting. The ceiling may be lined and insulation of the same type used on top.

Windows should be placed on the southern exposure of the building, hinged at the bottom so that they may drop inwards from the top for ventilation. The opening at either side of the window as it leans into the building should be covered by a board fitted to the slope of the window. This will prevent side draughts. With a hip roof, the attic may be used for storage of roughage and grain. There should be a trap door from stable to attic and a stationary ladder against the wall for access to the attic storage room. Concrete makes the most satisfactory type of floor, and the surface should be well above the level of the ground outside. The wall foundation should be fairly deep so that rodents will not burrow under and undermine the floor. The floor of the stall should slope slightly to the rear so that liquids may run off. In addition, the stall should be fitted with a false slatted bottom as shown in Figure 8.

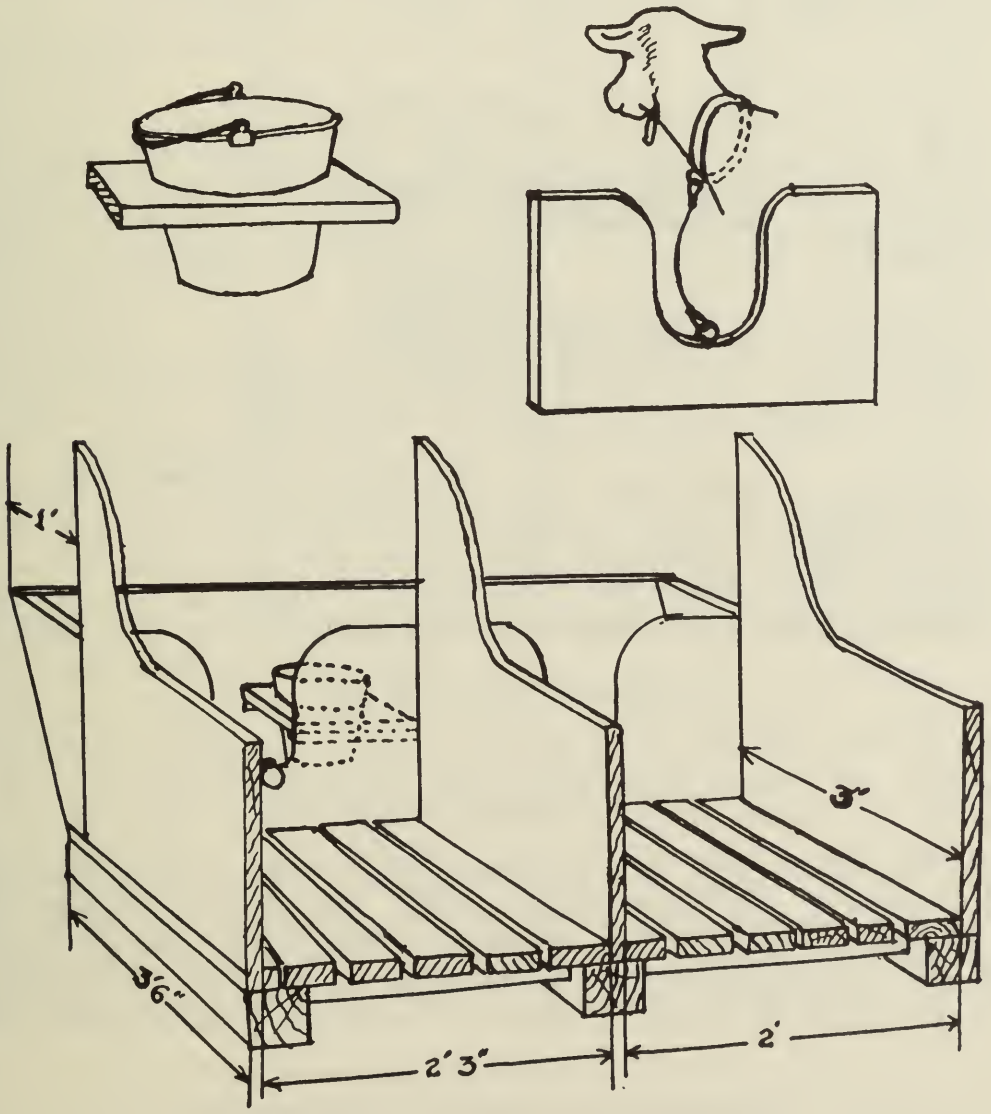

FIGURE 8 Plan of goat stall

The plan of the goat barn will depend largely upon the size of herd to be kept. Figure 9 provides for the housing of five to eight does, with a box stall for does at kidding or for kids. The plan is laid out with a view to reducing the amount of time necessary to keep the stable clean and to care for and feed the goats.

The stalls should be equipped as shown in Figure 8, with movable stall bottoms so that the floor may be washed and disinfected if necessary. A shelf with a circular hole may be built in the corner of the manger to hold a water pail or feed dish. For tying, a rope with a snap remains as a fixture in the stall and is snapped into the ring of the goat's collar.

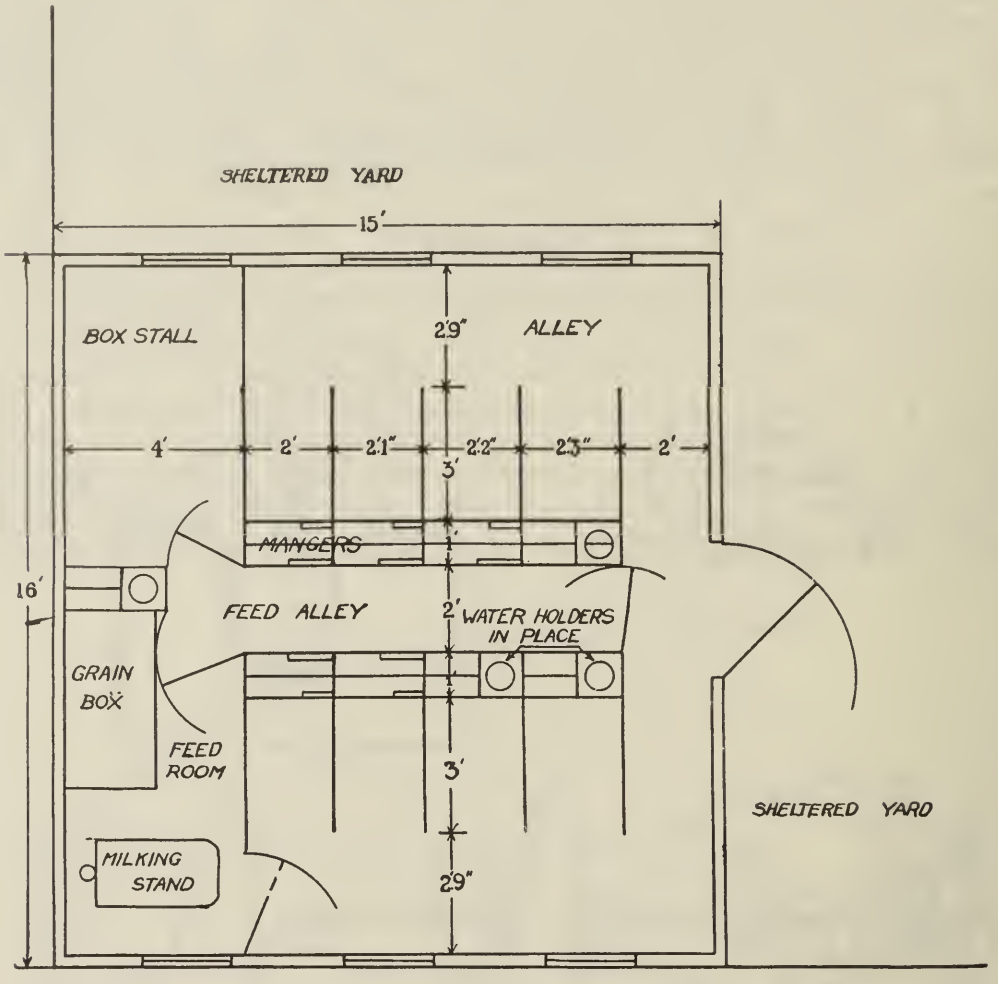

FIGURE 9 Plan of goat barn

Stable Bedding for Goats

Goats should be kept dry and clean while stabled. Bedding materials such as dry leaves, dry grass, straw, chaff, sawdust or shavings are used for this purpose. Care should be exercised in providing roughage for bedding purposes. Ill effects may follow if the goats should feed on roughage that is moldy or otherwise unfit for food. In summer, goats prefer outdoors.

Maintaining the Health of the Herd

To be successful in goat raising, the comfort and health of the herd must be maintained. It is careless management to allow goats to be tethered all day in a hot sun with no provision for shade and with no access to water; to put a doe in a paddock with no shelter from cold and rain in springtime following kidding; or to allow goats to forage in a certain plot year after year and risk their becoming badly infested with internal parasites.

The sick goat should be removed from the herd and placed in a well-bedded box stall protected from draughts. If the animal needs to be blanketed, an ordinary feed sack or cotton bag opened on one side will serve. Remove a triangle from the closed corner of the bag large enough for the goat to get its head through. Attach a heavy cord to each corner of the sack for tying the blanket to the hind legs. A cord just back of the front legs may be used to fasten the blanket at this point.

The normal temperature of the goat is 102 to 104°, respiration 12 to 20, and the pulse from 70 to 80 beats per minute while at rest. The pulse may be taken by placing the finger on an artery lying near the surface of the body at the inside of the lower jaw near the angle. Where goats of value are raised a veterinary thermometer should be kept. If valuable goats are seriously ill it is advisable to call in a qualified veterinarian.

Abscesses.—Swellings caused by pus, most frequently found on udder or jaw, are the result of injury or tooth decay. When a soft spot appears, cleanse well with disinfectant and then puncture with a sharp knife that has been well sterilized. Press out the pus and cleanse the interior of the abscess with disinfectant.

Colic.—A goat suffering from colic will roll on the ground or stretch the body while uttering sharp cries of pain. Keep the goat warm and quiet. Give warm linseed oil or mineral oil—one-half cup for a mature animal, down to 2 teaspoonfuls for a kid. Add to this 1 teaspoonful of turpentine and ½ teaspoonful of essence of peppermint for mature goats, and from 3 to 5 drops of peppermints for kids.

Constipation.—In cases of constipation indicated by straining and stretching, it is sometimes necessary to resort to the use of an enema. With older animals this may be followed by a dose of oil. In treating new born kids, the enema is usually effective.

Bloat.—Bloat causes distention of the body, which is most noticeable on the left side. Signs of distress and misery are also in evidence. For treatment, use 1 teaspoonful of turpentine and ½ teaspoonful essence of peppermint in a cup of warm, raw linseed or mineral oil. Follow this with ½ teaspoonful of aromatic spirits of ammonia in a cupful of warm water. The goat should not have immediate access to green feed.

Diarrhoea.—Diarrhoea may be caused by overeating in a new, luscious, green pasture or by internal parasites. Newly born kids may develop diarrhoea caused by an organism produced possibly through neglect in swabbing the navel with tincture of iodine at the time of birth. In treating the kids, where infection is the cause, they should be kept clean, warm, and dry. Give 1 teaspoonful of castor oil and 3 drops of essence of peppermint oil. It may be necessary to call a veterinarian and have the kids injected with a vaccine. Treatment of the mature goats on pasture would consist of removal of the animals to older, dryer grazing. In stubborn cases, 4 oz. castor oil may be given and this followed with ¼ oz. prepared chalk in a pint of warm water.

Foot Rot.—Rot may result from pasturing wet, low, lands, from climbing in stony areas where the feet may be injured, or it may be caused by definite infective organisms. The affected part should be examined and all foreign material and diseased tissue removed and the foot well cleansed and disinfected. Infectious foot rot causes decay of the hoof and treatment involves the paring away of all dead tissue and the application of butter of antimony, followed by a dressing of pine tar. A 10 per cent solution of formalin is also an effective remedy. The foot should be bandaged to keep it clean and free from contact with other matter.

Internal Parasites.—These cause a run-down condition with an anaemic appearance. The hair may be dry and harsh to touch. In treating for stomach, intestinal, and nodular parasites, use phenothiazine tablets. Goats should be regularly dosed with phenothiazine in the month of February, although it is not wise to dose a pregnant doe within eight weeks of kidding. The dose for a goat weighing 100 lb. or over is 4 compound tablets (12½ grains each), while goats under 100 lb. in weight should be given up to 3 compound tablets.

Tape worms may be expelled by use of Kamala powder. The dose for a mature goat would be not more than 3 drams and younger goats from ½ to 2 drams in keeping with their body weight. Kamala may be administered more easily when mixed with thin oatmeal gruel.

Inflammation of the Udder.—This condition is indicated by a swollen and reddish appearance. If the kids are nursing they should be weaned at once. The doe should be isolated and the udder kept milked out. Massaging the udder with warm camphorated oil and applying cloths that have been soaked in hot water will assist in reducing the inflammation and maintaining circulation.

Ophthalmia.—This is a form of infectious inflammation of the eyes. Bathe the eye with warm water and, with an eye dropper, place two or three drops of a 10 per cent solution of argyrol in the eye.

Pox.—This results in pustules on the udder, similar to cow pox. When kids are nursing they may easily become infected in the mouth and over the lips and nose. In hand milking if the hands are not washed after milking a doe with pox, the infection may be carried to other milking does. The affected parts should be washed with warm water containing disinfectant, then dried and given an application of zinc ointment.

Goats' Milk and Its Uses

The value of goats' milk has long been established. Residents of central and southern Europe look upon the goat as the dairy animal of that part of the world. The goat may provide abundance of fluid milk and, in addition, supply sufficient cheese and butter for family use. Because of the minuteness of the fat globules the milk is valued highly for the use of infants and invalids.

The milking goat should be kept well groomed. Clip any long, rough hair on thighs, legs, and portions of the body surrounding the udder. Milking should be done apart from the area where goats are stabled, and in favorable weather is best done outside. The udder should be washed and dried, using a clean cloth. Since the goat is low, milking stands are recommended. Milking may be done from the side or the rear. Utensils used should be properly cleaned and sterilized, and a clean smock should be worn by the milker. The milk should be cooled quickly to around 50° F. For home use it would be wise to pasteurize the milk using the method outlined below.

Equipment.—The equipment required is a stove or heater, an aluminum double boiler with cover, and a floating dairy thermometer.

The Process of Pasteurization

1. About half fill the lower portion of the double boiler with water.
2. Add the milk to be pasteurized to the upper half of the boiler. A boiler of 2½ quarts capacity will be required to pasteurize 2 quarts of milk. Where larger quantities of milk are to be pasteurized larger boilers must be used.

3. Place the thermometer in the milk.

4. Place the double boiler with its contents on the stove or heater and examine the thermometer from time to time until a temperature of 140° F. is reached. At this stage it is well to reduce the heat as the water will be hot enough to bring the temperature of the milk up from 145 to 150 degrees. When this temperature is reached the heat should be regulated to maintain it for 30 minutes. It is well to give the milk a vigorous stir each time the thermometer is examined.

5. After heating for the required length of time the milk should be immediately covered and cooled to 50° F., or below. In cold weather this may be accomplished by setting the vessel containing the milk in cold water but in the summer months a mixture of ice and water will be found necessary to properly cool the milk.

6. Place the boiler containing the cold milk in a refrigerator or a cool cellar and keep there until used. The milk should be used within 24 hours for infant feeding and within 48 hours for adults.

7. All milk should be fresh at the time of pasteurization and all containers and equipment coming in contact with the milk should be kept scrupulously clean. This may be accomplished by first washing in cold water, then with hot water, and finally scalding. All vessels should be thoroughly dried over the stove and never with a cloth.

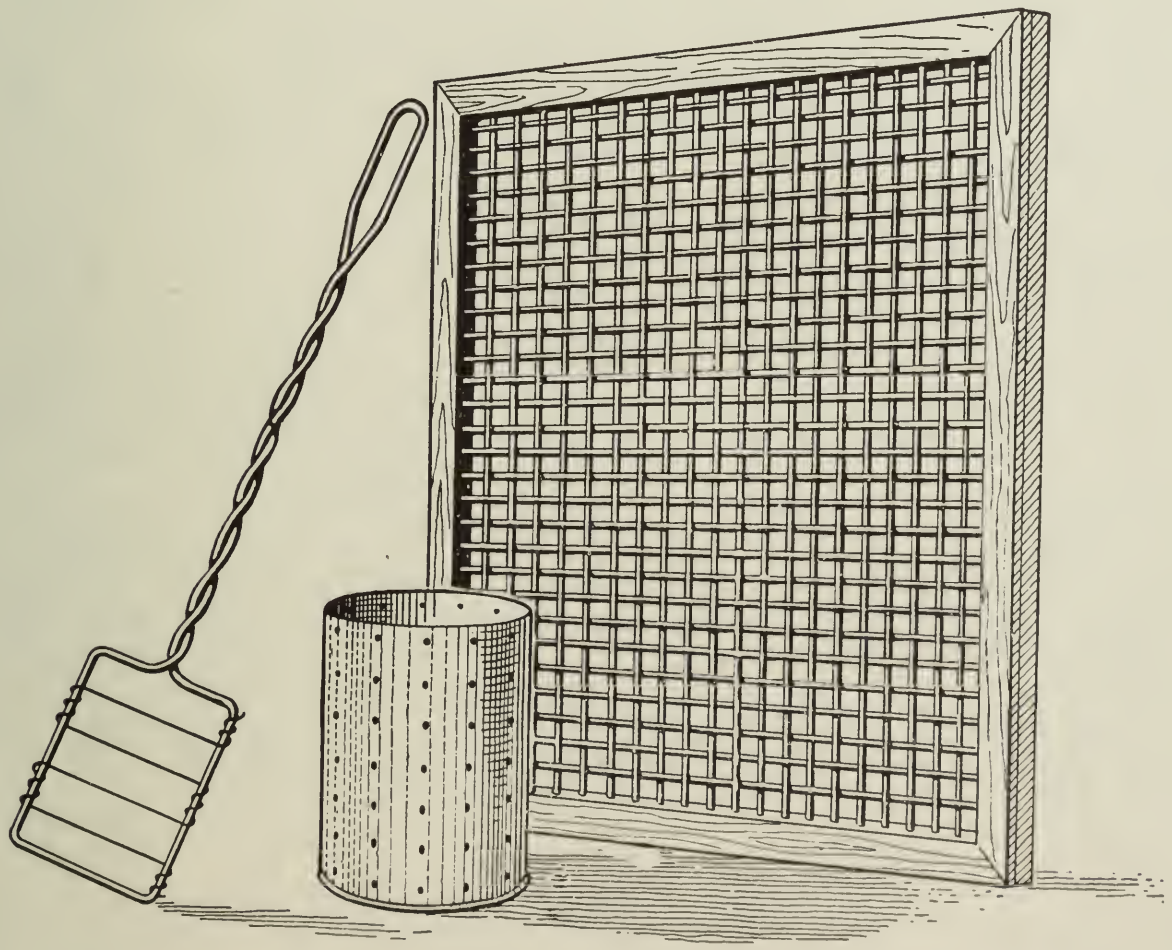

FIGURE 10 Wire curd cutter, perforated mold, and wire draining rack for use in cheese making

Cheese Making

In Europe it is widely believed that goats' milk is superior to cows' milk for the manufacture of cheese. Some of the most expensive brands of imported cheese are either wholly or partially made from goats' milk. A commercial formula for the manufacture of cheese from goats' milk in Canada is unavailable but the following domestic formula and list of equipment to be used are given.

Utensils Necessary.—The materials necessary are a dairy thermometer, rennet tablets, curd cutter, perforated molds, wire draining rack, and milk setting pans.

Process of Making.—Use fresh milk, pasteurized if possible. Pasteurized milk will ensure a more uniform cheese. Measure the milk carefully and bring to a temperature of 80° F. Add sufficient rennet in tablet form to cause the milk to coagulate properly in about one hour. Make sure that sufficient rennet is used, otherwise the curd will not set satisfactorily. When the curd is well set it should be cut with a thin-bladed knife, first one way and then the other. In place of the knife a wire cutter, such as shown in Figure 10, may be used.

It has been stated that the finer the cut of the curd the richer the cheese. When curd is roughly broken the fat is lost into the whey and is therefore not available for cheese. The cutting should leave the curd in cubes about one inch square. Stir the cubes gently by hand for about five minutes and avoid breaking the curd. Pour off the surplus whey and then place the curd, with any remaining whey, in the molds which have been placed on the wire screen on top of a milk pan or other vessel in order to catch the whey as it drains from the molds. Allow the curd to remain in the molds, and turn the molds over every few hours. The molds may be left to drain on this rack for about 24 hours. By this time the curd will have shrunk to a small size and may be removed from the mold and set on the wire rack, on which a clean white cotton cloth has been spread. A heavy coat of salt should be shaken on the top and sides and when turned the next day the bottom side should also be well salted. The cheese should be kept in a cool place of even temperature and humidity for about two weeks, during which time it should be wiped with a clean cloth dampened with vinegar to keep mold under control. In fifteen days the cheese should be dipped in paraffin to prevent further mold and to preserve moisture. The curing may be accomplished in a month but a longer period could greatly improve the quality of the product. One pound of cheese may be made from one gallon of goats' milk. When carefully made the cheese is delicious, mild, and rich, with a distinctive flavor.

Butter Making

The fat globules of goats' milk are so small that they are difficult to separate from the milk for butter making. The fat may be separated with an ordinary cream separator by making adjustments to the machine. Where a cream separator is not available the fresh milk may be set in shallow pans and placed on the back of the stove where, by a steady, gentle heat, it can be brought to the scalding point, indicated by a slight wrinkling of the milk surface. At this point set the milk aside in a cool place, and in ten or twelve hours the cream or fat may be removed in a thick layer. When the fat has been removed, butter may be made in the usual way. Since the milk of the goat is very white, the use of some butter coloring may be advisable.