



YOUR DAIRY GOAT

THE MODERN DAIRY GOAT

The modern dairy goat produces milk of the highest quality, if you give her the right care. She needs a good clean home, high-quality feed, and should be milked properly. With the exception of bucks during breeding season, goats do not have a bad odor.

The milk has a pleasant flavor if you handle it properly. It contains smaller droplets of butterfat than cow's milk, and is more like ho-

mogenized cow's milk than raw cow's milk. Goat's milk is easier to digest than cow's milk and is often drunk by infants and invalids. Goat's milk may be processed to produce tasty cheeses, butter, and high quality ice cream.

Milk is not the only product of goats. Goat meat, "chevon," which is primarily from milk-fed young goats, is highly tasty when barbecued.

USE THE RIGHT TERMS

KID—Young goat under six months of age

DOE—Female goat

BUCK—Male goat

KIDDING—Giving birth to young

SIRE—Father

DAM—Mother

PUREBRED—An animal whose sire and dam are registered with the registry association

AMERICAN—An American is the result of three successive generations of "grading up" by breeding to purebred sires of one breed. Americans can be developed in all breeds

REGISTERED—A purebred which is recorded with the registry association

GRADE—An animal with one purebred parent and the other a Grade or Scrub

SCRUB—An animal of unknown or unimproved ancestry

UDDER—The mammary or milk-producing glands of the female

COLOSTRUM—The first milk produced by the dam after giving birth

LACTATION PERIOD—The time during which milk is produced

GESTATION PERIOD—The time during which the doe carries her young

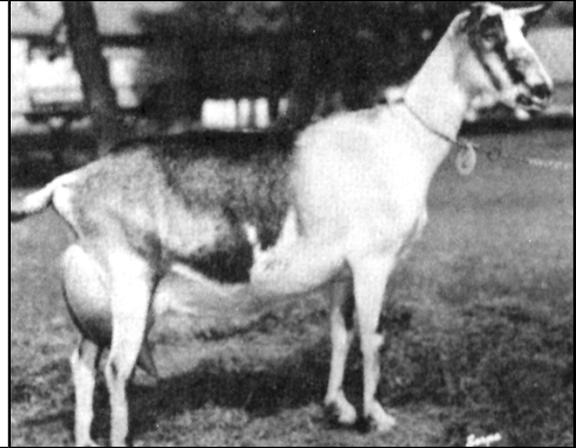
THE FIRST STEPS

CHOOSE THE BREED

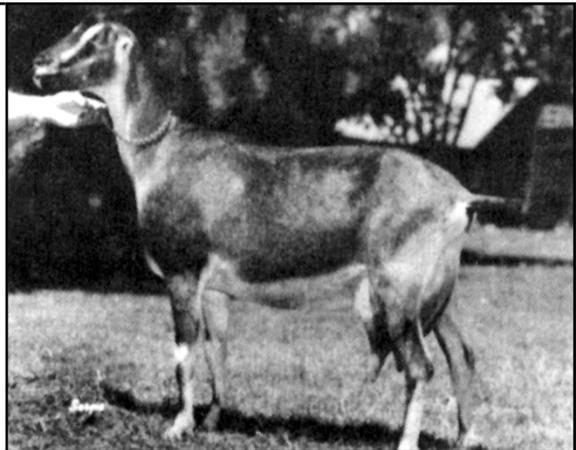
You might choose from the five breeds important in the United States: the Alpine, La Mancha, Nubian, Saanen, and Toggenburg. Your choice will depend on the breed you like,

the cost, and availability of the breed. You should consider the availability of bucks for breeding in your area, as well as the future market for dairy goats in your community. Check with your leader or farm advisor for recommendations.

The Alpine originated in the French Alps and is a large, rangy, yet deerlike animal. The ears are upright; the color may vary from white, gray, brown, black, to red, and show shadings and combinations of these colors on the same animal. The minimum height for a mature doe is 30 inches and the minimum weight 135 pounds.



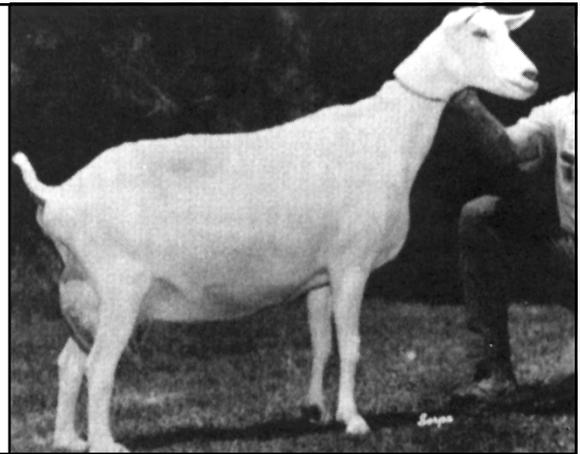
The La Mancha is a breed developed recently in this country from a short-eared Spanish breed crossed with the leading purebred breeds. They may be any color but are distinguished by their external ears which are either absent or very short. The minimum height for a mature doe is 28 inches and the minimum weight 130 pounds.



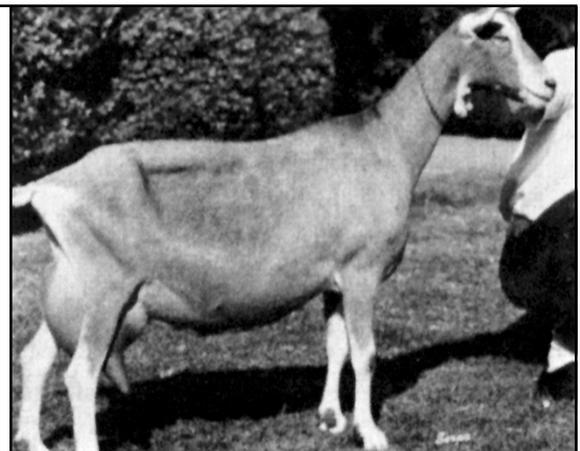
The Nubian is large and has a proud and graceful appearance. This breed was developed in England by crossing animals from India and Egypt with British dairy goats. Distinguishing features are long, wide pendulous ears and the convex roman nose. They may be any color or colors, solid or patterned. The minimum height for a mature doe is 30 inches and the minimum weight 135 pounds.



The Saanen is a white or slightly cream colored goat of Swiss origin. She is medium to large in size with rugged bone and plenty of vigor. The ears are upright and the preferred color is white. The minimum height for a mature doe is 30 inches and the minimum weight is 135 pounds.



The Toggenburg is medium size, sturdy and vigorous, and of Swiss origin. The color is solid varying from light fawn to dark chocolate with distinct white markings. Although the shades of brown may vary, the white markings have a set pattern. The minimum height for a mature doe is 25 inches and minimum weight is 120 pounds.



SHOULD YOUR GOAT BE REGISTERED?

If you raise your goat for milk, the answer is no. However, if you plan to exhibit your goat at a fair or show, the answer is yes.

HOW TO CHOOSE YOUR GOAT

When you buy your goat, consider (1) a record of its production, (2) health records, and (3) physical appearance of the animal.

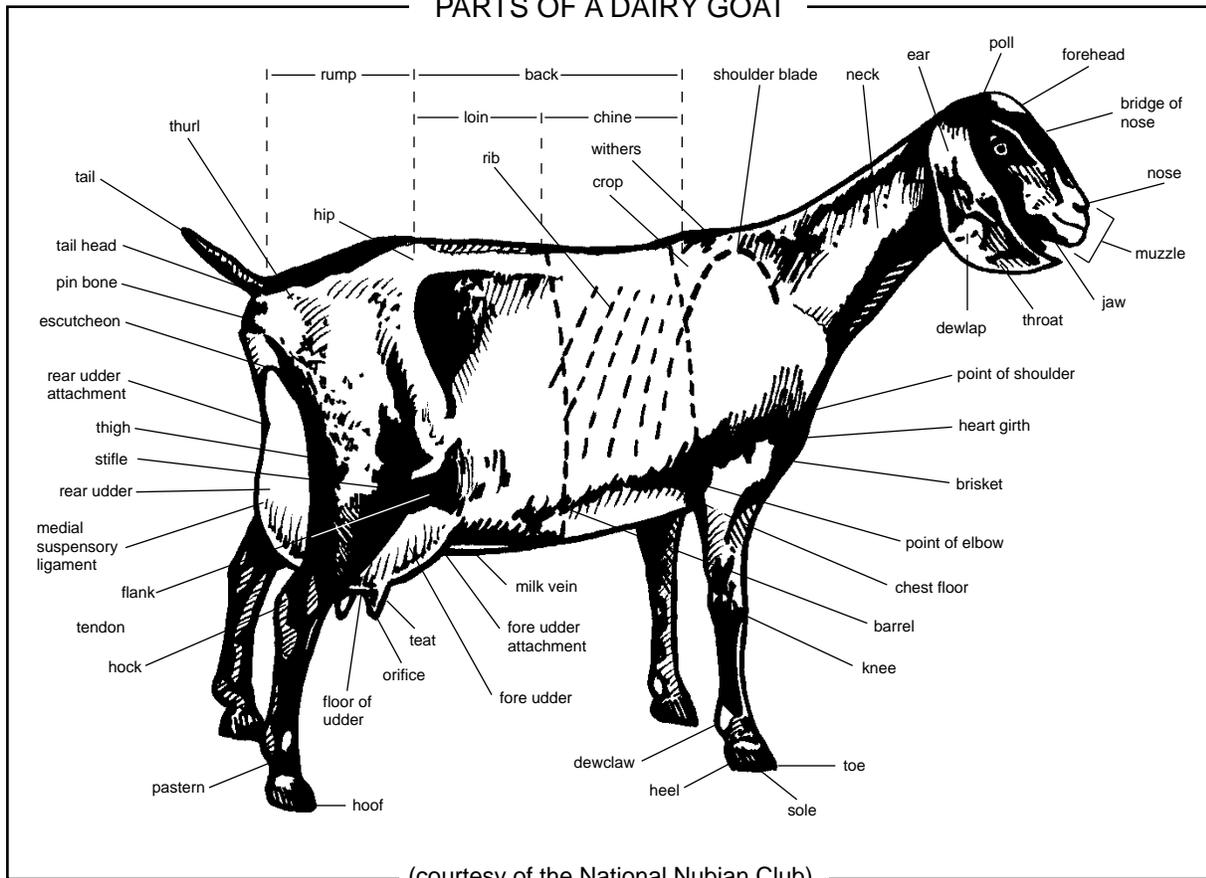
When buying a mature goat be sure to ask for a record of the animal's milk production and production of its offspring. If the goat is young and has not yet produced milk, ask for the records of the dam. A good producing doe averages 1,800 pounds of milk in a 10-month lactation period (the time when milk is produced). This is equal to 3 quarts per day. How-

ever, the daily production varies a great deal during this period.

Because goats are dairy animals, they must have dairy characteristics. Check to see that the doe has a feminine head, thin neck, sharp withers, well-defined spine or backbone and hips, thin thighs, and rather fine bones. The skin should be thin and fine over the ribs. Look for a wide spring of rib and roomy barrel. Also examine the feet and legs and how smoothly she walks. The constitution, or physical nature, is an important item shown by the depth and width of the chest. It's important to look at the udder, too. It should be large when full of milk, firmly attached, and not droop below the hocks. A large udder does not always mean a high milk yield.

If you find there is a great demand for buck service in your community, or if you have a large number of does, a buck may be a good buy. If not, *do not* buy a buck.

PARTS OF A DAIRY GOAT



(courtesy of the National Nubian Club)

HOUSING

You don't need an elaborate barn or house for your goat. Some type of small shed, about 4 x 6 feet, will make a suitable home. It should protect her against drafts and rain. Part of it may be closed off to store feed and equipment. Facilities should be well ventilated to reduce respiratory infections.

Give your goat plenty of room to move around freely. An exercise yard is a must. It should be about 200 square feet. The yard may be fenced with either woven wire or boards and should be between 48 and 54 inches high.

Teach your goat to respect the fence while she is still young. Use a gate when you take her in and out. Don't lift her over the fence when she is a kid or she will soon learn that she need only jump over the fence when she wants to go out. If your goat insists on jumping out,

put a wire over a small pen. Keep her there until she learns that it is impossible to jump over the fence.

Have a dirt floor for the shed and exercise area rather than wood or concrete. Keep it clean at all times.

EQUIPMENT

You will need a pan, cloth for washing, and a milk pail. It is a good idea to have a milk platform, but not absolutely necessary. Build the platform and place it so you can clean it thoroughly. Have a place to milk that is separate from the living quarters. This helps keep the milk sanitary.

Wash the udder before milking. After milking, be careful to guard the quality of milk. All milking utensils and storage containers should be thoroughly scrubbed and sanitized. Dirty equipment can easily ruin the milk.

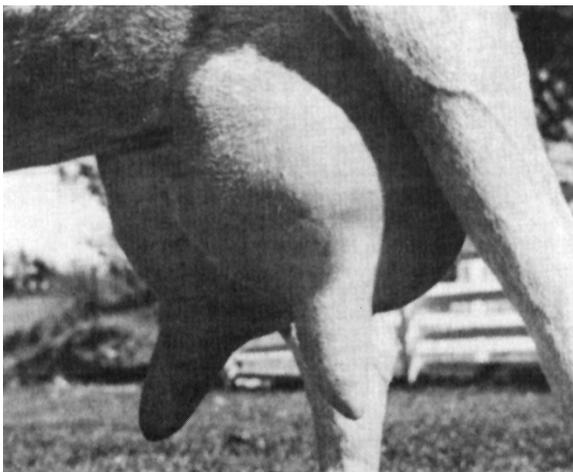
FEEDING YOUR GOAT



UNDESIRABLE UDDER, TEATS TOO LARGE



UNBALANCED UDDER DUE TO MASTITIS



GOOD UDDER

When you have chosen your doe and provided her with good housing and yard facilities, your job has just begun. She needs the right kind of feeding to make her a top milk producer.

Give your kid a good start. She needs at least two feedings of her mother's milk, colostrum, as soon as possible after birth. It provides vitamin A and helps prevent disease. This first thick, yellow milk is not suitable for humans.

You can let her nurse her dam at birth or feed her by bottle. You can let her nurse for three days, then hand feed her. Soft-drink bottles with nipples are satisfactory for feeding kids. But, whatever method you use, all utensils must be thoroughly clean. Wash and scald utensils after each feeding. All milk must be warmed to about 100°F; the kid will not drink it cold.

CHANGE FEED SLOWLY

Whole goat's milk is the best feed for kids, but whole cow's milk can be used instead. A dairy calf milk replacer can be substituted for part of the milk. All kids start nibbling leafy hay when they are a few days old. A high-protein calf starter should be fed as soon as the kid will accept it. She probably will not eat much of this until she is about 3 weeks old. When she is 2 or 3 weeks old she will start drinking water by herself from a pan or pail, even if she is nursed or bottle fed; she will also begin to eat leaves from green plants, briars, and so on. If she is eating grain and hay well at the end of eight weeks, milk feeding can be stopped. Your dairy goat will like roots, silage, and alfalfa, and probably will not tire of such a diet.

PASTURE FEEDING

Pasturing is the ideal way to feed your goat, but keep in mind that irrigated pasture is an excellent breeding ground for worms, flukes, and other parasites. Goats do well both on alfalfa pasture and on some of the native grasses. Because a goat enjoys variety, provide your goat with as large a pasture as possible. Always check to be sure her feed and drink are clean. She will do her best when you provide clean feed, drink, and pasture.

READY-MIX FEED

You may buy your grain and mix it at home. However, several commercial feed companies produce ready-mix feed. Ready-mixed dairy feeds are fine and may be less expensive, de-

pending upon how much you buy. Have fresh clean water, trace minerals, and salt for your goat at all times.

A doe that produces less than 1 quart of milk per day gets all the nutrients she needs from a good quality alfalfa. A doe that produces more milk needs more than alfalfa. She needs a quart measure of concentrate mixture for each 4 pints of milk produced daily. Give half of the concentrate at the morning milking and the other half at the evening milking.

A pregnant doe should have a dry period of 2 months just before kidding; during this period she should receive a good grass hay rather than alfalfa. Increases or changes in feed should always be gradual. (For method of drying up, refer to page 9.)

FEEDING GUIDE

AGE	FEED	AMOUNT EACH DAY
Birth to 3 days	Colostrum	All the kid wants
3 days to 3 weeks	Whole milk (cow or goat) Water, salt	2 to 3 pints All the kid wants
3 weeks to 4 months	Whole milk Creep feed (1) Alfalfa hay (2) Water, salt	2 to 3 pints, up to 8 weeks All the kid will eat, up to 1 pound per day All the kid will eat All the kid wants
4 months to freshening	Grain mixture (3b) Alfalfa hay or pasture (2) Water, salt	Up to 1 pound of high protein feed All the doe will eat All the doe wants
Dry pregnant	Grain mixture (3b) Grass hay or pasture (2)	Up to 1 pound mix for a dry animal All the doe will eat
Milking doe	Grain mixture (3a) Alfalfa hay (2) Water, salt	Minimum of 1 pound up to 2 quarts of milk per day. Add 1 pound grain mixture for each additional 2 quarts of milk. All the doe will eat All the doe wants

- (1) Creep feed may be a commercially mixed milk supplement or calf starter.
- (2) Alfalfa hay of extremely high quality, fine stemmed, leafy, and green.
- (3) Suggested grain mixtures
 - (a) For a lactating doe
 - 55 pounds barley or oats
 - 15 pounds beet pulp
 - 20 pounds wheat, mixed feed, or mill run
 - 10 pounds linseed, cottonseed, or soybean oil meal

- (b) For a growing or a dry doe
 - 15 pounds beet pulp
 - 50 pounds barley or oats
 - 15 pounds wheat, mixed feed, or mill run
 - 20 pounds linseed, cottonseed, or soybean oil meal

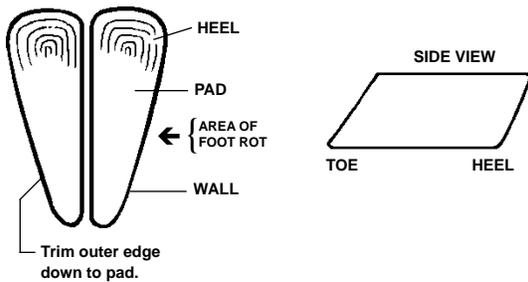
If you use commercial dairy cow or dairy goat feed, use it according to your goat's stage of growth—growing, drying, or lactating.

YOUR GOAT NEEDS CARE

TRIM HOOFS OFTEN

To ensure your goat's good health and help prevent foot rot, properly trimmed hoofs are a must. Untrimmed or poorly trimmed hoofs can cause serious lameness. The more often you trim them, the less you have to cut off. Check the hoofs once a month. Use either a small hand pruner or a sharp knife whose blade will lock in an open position. Most people prefer to use the sharp knife to get a more level floor on the hoof.

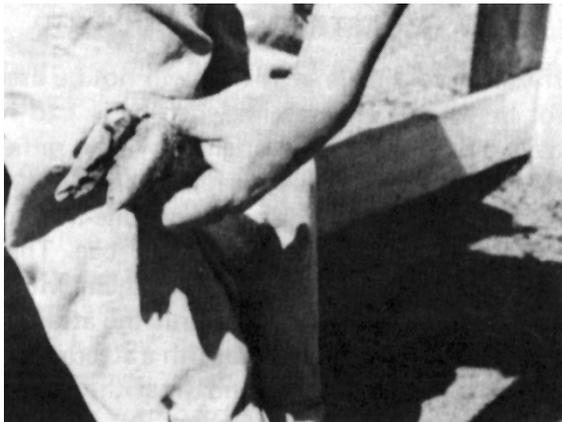
Trim the bottom of the hoof so that it is parallel with the top.



Always cut from heel to toe.

If you trim the hoofs often, you won't need to trim much of the pad, if any. Sometimes you may have to trim some of the heel in order to get the bottom level.

If some of the pad has to be trimmed, do it in thin slices; stop when the pad turns a pinkish color, as you may draw blood if you go too deep.



The right-handed person stands on the right side of the goat when trimming the front feet. The left-handed person, on the left side. If possible, keep your animal against a fence or wall. This will prevent excessive movement. When working on the opposite hoof, reach across the animal and brace the animal against your body.



Work on one toe at a time. With the first cut remove the outer wall. Then level the heel and pad to make the hoof floor level. It is seldom necessary to remove much of the pad. If it is, take care not to cut too deep as this will draw blood.



When you finish the first toe, begin on the other. Take care to trim both toes so when the foot is placed on the ground, one toe is not longer than the other.



Note that the well-trimmed hoof does not have an overlapping wall. The hoof floor is level and clean.



This rear hoof is badly in need of trimming.



When trimming the rear hoof, stand to the rear; bring the goat's leg through your legs and brace it against your knee.

The procedure for trimming the rear feet is the same as for the front feet.

HOW TO DEHORN

Some kids are born hornless. If your goat starts to develop horn buds, follow these steps to dehorn the animal. Caustic sticks of soda or potash may be used, but are discouraged as they can harm other animals that come in contact with treated animals, and they may injure human skin.

The disbudding iron probably gives the most successful results. It is easier on both you and the kid than other methods. You can purchase a disbudding iron from goat dairy supply firms, or make one if you are handy with tools. It looks like a soldering iron with the tip sawed off. Irons with slightly curved ends are better than irons sawed off with plain ends, but both give good results.

For disbudding, heat the iron so that at least 2 inches are cherry-red. Save time by having two irons heated so that a fresh one is ready for the second horn bud. For small doe kids, a 7/8-inch (diameter) iron is large enough. For large does, and especially buck kids, a 1-inch iron is better. Center the iron on the horn buds and apply it with a circular motion and light pressure. Do this for about 5 to 10 seconds or more, depending on the size and development of the horn buds. This procedure is too dangerous for pygmy kids; veterinary assistance should be used.

When the iron has burned enough, the clean skull will show. It is important that the iron be cherry-red hot. A lower temperature takes a long-time and is more exhausting to the kid. Apply unguentine or carbolated vaseline to each disk immediately after disbudding. To dehorn an adult goat, use either horn scoops or a wire saw.

HOW TO CASTRATE THE BUCK KID

If you have a male goat that will not be used for breeding, castrate him when he is 1 to 14 days old. Do this on a bright, dry day, rather than in a cloudy, chilly, or rainy period. Use a clean, disinfected knife to cut off one-third of the lower part of the scrotum or bag. Then

force the testicles out and hold them with a firm grip, pulling them out with the attached cords. This should be done with a steady pull. Cut or crush the cords and treat the wound with some standard disinfectant.

Other methods include the use of the Burdizzo, elastrator, and emasculator. Before using these methods check with an experienced leader or farm advisor.

BREED THE DOE ONCE A YEAR

To maintain milk production over a period of years, it is necessary to breed your doe once a year. Milk goats are good breeders. A mature doe usually has two kids at one time; frequently there are three and sometimes four.

Dairy goats tend to be seasonal breeders. The breeding season is usually from late August through March. Does may be bred as young as eight months if they are well grown (weighing at least 80 pounds). During this time the bucks have a strong odor. Except when breeding, keep them in a separate pen at all times.

Does usually remain in heat from 1 to 2 days. The period between heats varies, but is generally from 17 to 21 days. A doe will freshen about 5 months after the day of service (145 to 155 days).

WATCH FOR PARASITES

EXTERNAL PARASITES

Guard against lice, mange mites and ticks, fleas, domestic flies, screwworms, and fly maggots—external parasites which in dense numbers may harm your goat. While applications of insecticides will control these parasites, the use of chemicals will not replace good sanitation and animal management. Routinely examine all animals in the winter for lice and in the spring and summer for ticks, particularly if the goats have access to brush areas. Treat all skin wounds to prevent attacks by flies in summer. Thoroughly inspect any goats purchased before placing them in your herd.

It is good management to have the doe freshen once each year. Allow her a dry period of from 6 to 8 weeks. To dry your doe, switch to dry feed and cut out concentrates. Do not milk her for 7 days. Of course her udder will fill up. This pressure stops milk production and she will dry up. Dry treatment of does is recommended.

CARE AT KIDDING TIME

Shortly before your doe is due to freshen, clip around her udder, hindquarters, and tail for greater cleanliness during kidding. Give her a quiet kidding stall and clean bedding. Do not tie the doe. Leave warm water where she can drink it after kidding. Because kids are often born when the doe is standing, don't leave a bucket where she might drop a kid in it.

A few days before she is due, cut down her grain feeding. Substitute laxative feeds, such as bran or beet pulp. You will know when she is due by these signs: rising tail bone, loose to the touch, with sharp hollows on either side; rapid cud chewing; restlessness and pawing at bedding; low, plaintive bleating; rapidly filling udder, turning pink and shiny just before kidding; and a mucous discharge from the vulva.

INTERNAL PARASITES

Goats may harbor many internal parasites; the more important include coccidia, the stomach and intestinal roundworms, lungworms, and liver flukes.

TREATMENT FOR LICE, FLEAS, OR TICKS

Insecticide	Type of Application	Days Between Treatment and Lactation (L) or Slaughter (S)*	Remarks
coumaphos (Co-Ral) 25% WP† 3% ("KRS")	0.06% spray 3% pressure spray foam	14(L), 3(S) None (L, S)	Repeat treatment for lice in 14 days. Do not treat lactating dairy goats. For ticks, lightly apply spray into each ear.
lindane (Screwworm and Ear Tick Killer)	3% pressure spray foam	None (S)	For ticks, lightly apply spray into each ear. Do not treat animals younger than 3 months old. Do not use on lactating dairy animals.

TREATMENT FOR BLOW FLY MAGGOTS AND SCREWORMS (IN WOUNDS)

coumaphos (Co-Ral) 3% ("KRS")	3% pressure spray foam	None (L, S)	Wet entire area around wound and spray directly into wound.
lindane (Screwworm and Ear Tick Killer)	3% pressure spray foam	None (S)	Same as above, but do not treat animals younger than 3 months old. Do not use on lactating dairy animals.

TREATMENT FOR MITES OR SCABIES

coumaphos (Co-Ral) 25% WP	0.25% dip	14(L), 3(S)	Vat dip for 30 to 60 seconds per animals; repeat dip in 10 days. Do not treat lactating dairy goats.
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* Minimum number of days between day of last treatment and onset of lactation or time of slaughter.

† EC = emulsifiable concentrate to mix in water;
WP = wettable powder concentrate to mix in water.

The signs produced in clinically infected animals may mimic those produced by bacterial, viral, or other disease-producing agents. To confirm a diagnosis of disease produced by any of these parasites requires laboratory and/or autopsy procedures which can only be conducted and evaluated by a skilled professional. For this reason, the goat owner should call on a veterinarian when a goat becomes sick for any cause.

The goat owner should be more concerned with preventing parasitic disease than with treating. With rare exception, it is impossible to rear goats free of all internal parasites. Consequently, the object of disease prevention is to prevent the number of parasites from increasing to a level that will cause disease. Acute parasitic disease occurs in the susceptible goat as the result of an overwhelming exposure to infective stages of a specific parasite over a brief period.

COCCIDIOSIS

This is primarily a disease of the young goat. Where coccidia are present in a goat herd, a balance is reached between the level of infection and the resistance of older goats. This balance prevents establishment of infective levels which produce disease. Introduction of a susceptible goat, such as a newborn or recently weaned kid, to an environment to which it is unadapted may result in overwhelming exposure, particularly if feed bunks and water troughs are not protected from fecal contamination.

Prevention: The chemical most valuable in preventing coccidiosis is *amprolium*, but label restrictions apply to a period when milk must be withheld from consumption. Where management practices prove inadequate in preventing exposure to disease, these chemicals may be utilized to prevent disease, while resistance is being established in previously susceptible goats. Such use of chemicals calls for consultation with a veterinarian.

STOMACH AND INTESTINAL ROUNDWORMS

Whereas infection with coccidia increases when feed bunks and, to a lesser extent, water troughs, are improperly designed, infection by gastrointestinal roundworms and the large lungworm (*Dictyocaulus filaria*) increases when pastures are overstocked and the young, more susceptible goats are pastured with older, contaminative goats. Gastrointestinal parasitism occurs more frequently as a disease in the late spring and early summer and in late fall and winter.

Prevention: Use of appropriate deworming medicines in all pastured goats in midspring, in does approximately two weeks after parturition, and in all pastured kids at weaning will aid in preventing disease. Frequency of deworming depends upon factors peculiar to the premises of the individual goat owner and can be best established by consultation with a veterinarian.

Selection of a dewormer is largely determined by cost and ease of administration. The goat owner is well advised to consult with a veterinarian before using anthelmintics.

LUNGWORM DISEASE

Produced by the large lungworm, lungworm disease is most common in the fall, winter, and spring because a cool, moist environment is required for overwhelming levels of infection to develop. In areas such as the coast, environmental conditions suitable for overwhelming infections are present throughout the year, and occurrence is then largely determined by the presence or absence of the parasite and susceptible goats.

Prevention: Previous infection with the lungworm produces a relatively high degree of resistance to reinfection; this, among other

factors, results in a more variable potential for disease than exists with the gastrointestinal parasites. For this reason, preventive use of dewormers is not as widely practiced against lungworm.

LIVER FLUKES

These may be a serious problem in goats pastured in wet meadows and along streams and canals. The most effective means of control is

to prevent the goats from grazing such potentially infective areas.

SUMMARY

The most important managerial practice that can be instituted against all internal parasites is establishing a properly balanced and adequate nutrient supply; without it, overwhelming outbreaks of disease and death from parasitic infection result.

GUARD YOUR GOAT AGAINST DISEASE

Diseases commonly found in milking goats include mastitis, boils, foot rot, joint conditions, pink eye, and paratuberculosis (wasting disease). Diseases more common to young goats, but occasionally found in adults, are tetanus, enterotoxemia, infectious scours, white muscle disease, pneumonia, and sore mouth.

MASTITIS

The major portion of a doe's udder is comprised of the cistern areas where milk is stored. The amount of glandular or milk secreting tissue is relatively small and is positioned high in the udder against the body wall. Bacteria, which gain entrance to the gland through the teat opening, multiply and migrate to the glandular tissue where they cause inflammation. Most mastitis seen in dairy goats is the result of staphylococcal infection spread from the infected glands of other goats by the milking process. Streptococcal and mycoplasma infections, though less frequent, are spread in the same manner. Boils of the gland can also be spread from goat to goat and may be precipitated by butting or bruising of the udder or injuries causing breaks in the skin. Other forms of mastitis are occasionally seen.

Signs of *acute mastitis* are severe and include

swelling, heat, and pain of the affected side with a characteristic change from a normal milk secretion to a watery, yellow, or gargety secretion. The other form, *chronic mastitis*, may not be easily recognized. A little garget in the first stream of milk, reduced production on one side, an unbalanced udder, reduced solids on test or a salty flavor—all are signs of a low-grade mastitis infection. Suspicions of a chronic mastitis infection can be confirmed by examination of the cell content of the milk, using the California Mastitis Test (CMT), and from a bacterial culture of a milk sample submitted to the laboratory.

Sanitation at milking time is the single most important step in preventing mastitis. Before milking, the teats and milker's hands should be disinfected in a 25 ppm iodine solution or 200 ppm chlorine solution and dried well with toweling. Teats should be dipped immediately after milking in an approved bovine teat dip solution. These precautions are the best ways to prevent mastitis. Nursing kids can also spread mastitis. Does with mastitis that fail to respond to treatment should be culled from the herd.

Treatment: The treatment of mastitis in goats may not always be satisfactory, because the organisms causing mastitis in goats are among the most difficult to kill with medication. Use

of cow-type mastitis infusions into the gland for three or more days, sometimes combined with systemic injections of antibiotics, are usually recommended by veterinarians. Always observe recommendations on the labels of drugs used to treat mastitis which indicate the period of time treated milk should not be used for human consumption. Use of "dry cow" mastitis products in the udder during the dry period is also beneficial for chronic mastitis in the goat. Recommendations from your local veterinarian designed for a particular type of mastitis will generally yield best results.

Public health significance: Questions always arise as to the safety of mastitic milk for human consumption. Milk which does not appear normal or which has drug residues should never be used for human consumption. Normal looking milk containing small numbers of pathogenic bacteria from chronic mastitic glands, if left unrefrigerated for a few hours, can cause the multiplication of these bacteria many times and result in food poisoning in humans. This same milk, if unpasteurized and used for making cheese, can also result in human health problems. Ideally, all suspect milk should be pasteurized and milk used for cheese making should always be pasteurized. Never use milk for human consumption from an obviously ill or abnormal acting goat.

BOILS

Boils caused by the bacteria *Corynebacteria ovis* are local abscesses generally found on the head, neck, flank, udder, and stomach of goats. They are contagious from goat to goat (or sheep to goat) by ingestion, flies, surface cuts, feed troughs, brushes, and other materials. Butting and bruising and other means of trauma often initiate the occurrence of boils. Though appearing harmless, these abscesses readily spread to lymph nodes and extend to the major internal organs (lungs, liver, kidney) where the resulting damage shortens the productivity and life of the animal.

It is advisable to examine an animal for boils before purchase. Culling chronically infected animals will reduce exposure of the young animals in the herd.

Treatment: Usually treatment includes opening and draining the local abscesses, followed by liberal use of tincture of iodine to the area. Animals with draining or treated boils should be separated from other animals until they have healed. Use of antibiotics, sulfas, and oral organo-iodides has a place in treatment upon recommendation of a veterinarian. Vaccination and oral medicants as preventatives have given inconsistent results, and milk residues are always a consideration with this approach.

FOOT ROT

Foot rot is caused by a specific bacteria which is transmitted from the feet of infected sheep or goats to susceptible goats by contamination of the soil of pens and pastures. Lameness in one or more feet is the first indication of foot rot. Trimming the affected feet reveals a dark moist area of dead tissue between the wall of the hoof or sole and the sensitive tissues beneath.

Frequent trimming of normal feet, followed by occasional medicated foot baths, and isolation of affected goats until cured are sound preventative measures. Infected pens will become free of the organisms three weeks after removal of infected goats.

Treatment: Trim all infected areas of the foot down to clean tissue, even though bleeding may result. Severely trimmed and exposed feet can be wrapped in protective bandages for a few days to control bleeding and ease the pain.

Normal and affected feet of all goats in the herd should be treated after trimming in a foot bath containing 2 percent copper sulfate or formaldehyde solution. Infected goats should be treated three times more at three-day intervals.

JOINT CONDITIONS

Swelling of the knee (carpal) joint in goats is not uncommon because of the frequent irritation which occurs. This may result in nonpainful swellings which involve the bursas or joint capsules themselves. Acute pain or lameness associated with joint swellings generally indicates an infection of some sort. Joint infection in young kids may be due to navel infections resulting from birth in unclean surroundings.

Joint infections in yearlings or mature goats may be an extension of infection which occurred elsewhere in the body. *Mycoplasma arthritis* may occur spontaneously or be a sequel to pneumonia or *mycoplasma mastitis* infection.

Treatment: Acute joint conditions require use of antibiotics. The nature and extent of treatment will depend on the type of infection.

PINK EYE

Pink eye is an infectious disease caused by one or more organisms that spreads from goat to goat. Its transmission is increased by dust and flies. First signs are tearing and drooping eyelids. Foxtails and other foreign bodies in the eye can give similar signs and therefore affected eyes should be carefully examined. True pink eye causes an ulcer or cloudy area in the center of the clear part of the eye (cornea).

Treatment: Treatment consists of using antibiotic ointment in the eye and isolating affected animals in a darkened area. Severe cases may require treatment by a veterinarian. Vitamin A may hasten healing.

PARATUBERCULOSIS (JOHNE'S DISEASE, WASTING DISEASE)

This is a chronic bacterial infection spread from contaminated feed and watering areas

by the feces of infected animals. Signs usually do not appear until animals are 2 years old or older and begin with severe diarrhea and weight loss, generally initiated by the stress of kidding. Although affected animals improve if they are placed on excellent nutrition and their lactation terminated, this is an incurable disease of a chronic wasting nature and known infected animals should be culled. Johne's is frequently confused with internal parasitism or acute dietary upsets. A diagnosis should be confirmed by a veterinary laboratory.

TETANUS

Goats—young kids in particular—are highly susceptible to tetanus, caused by an organism that is found to varying degrees in the surroundings of most animals. Untreated navels, puncture wounds, castration, debudding, tattooing, and ear tagging all produce the types of wounds in which the tetanus organism can grow. When these procedures are performed, it is advisable to use 500 to 1,500 units of tetanus antitoxins per animal for short-term protection. Affected animals show muscle spasms and hyperexcitability, and they eventually die.

Treatment: Use of antibiotics and tetanus antitoxin along with cleansing of the local wound, if done early, may effect a cure in a few cases.

ENTEROTOXEMIA (OVEREATING DISEASE)

This disease results from the toxins produced by a group of clostridial bacteria which multiply in the intestinal tract of young growing animals on rich diets or undergoing rapid feed changes. Sudden unexplained deaths of obviously healthy animals could be caused by these organisms. An autopsy by a veterinary laboratory may con-

firm the diagnosis. Prevention with vaccines, antisera, or oral antibiotics is usually successful. Once experienced, a goat owner should adopt and maintain a rigid vaccination program in young kids or in pregnant does to protect the very young through colostrum milk.

INFECTIOUS SCOURS

This condition of young kids or newborn kids is generally initiated through crowding and poor sanitation and is generally bacterially caused. Adequate colostrum milk, clean surroundings, and use of antibiotics are all basic to controlling infectious scours.

PNEUMONIA

Pneumonia epidemics in young kids, evidenced by rapid breathing, fevers, nasal discharge, and depression, are generally precipitated by crowding in poorly ventilated buildings, severe weather changes (both hot or cold weather), and shipment to fairs. Viruses, bacteria, and mycoplasma organisms may all be present in an outbreak.

Treatment: Treatment consists of isolating sick animals, using antibiotics, and offering supportive treatment with fluids. In some cases, premedicating normal-appearing animals may prevent spread of this disease complex. Seek professional help.

WHITE MUSCLE DISEASE

Young kids from birth to a few months of age may be affected by this selenium deficiency disease which may take one of two forms: (1)

sudden unexplained death, or (2) muscular paralysis, particularly of the hind limbs, or stiffness and inability to rise.

Treatment: Early injection of Vitamin E-selenium compounds may cure. If treatment is delayed, muscle damage may be permanent. Selenium-vitamin E compounds are most effective if injected as a preventative into susceptible, normal-appearing animals, once a diagnosis is made in the flock. Many forages in Washington are selenium-deficient.

SORE MOUTH

This is a contagious viral disease of sheep and goats which causes scabbing sores on the lips of young kids and can spread to the teats of nursing does. The lesions are painful and cause loss of condition in young kids; they can lead to mastitis in nursing does. Animals are most susceptible at weaning and fair time. This virus can be picked up at fairs or by introduction of outside animals. A vaccination program for all mature and young animals should be initiated; thereafter, only young kids need vaccinating yearly. Sores can be spread to the hands of humans.

RINGWORM

Ringworm is a fungal disease of the skin of goats which can also be contagious to humans. It generally causes loss of hair with skin irritation in multiple circular patterns.

Treatment: Early treatment locally with iodine compounds is generally successful. Newer drugs are available from a veterinarian for more severe cases.

DISEASES AFFECTING HUMANS THROUGH MILK

Many diseases can be spread from goats to humans through the milk. A few of the more serious diseases are tuberculosis, brucellosis, leptospirosis, listeriosis, and staphylococcus food poisoning.

TUBERCULOSIS is a chronic infectious disease of mammals rarely found goats. It can be carried to humans, but may be prevented by pasteurizing the milk. Refer the problem of diagnosis to the local or state veterinarian.

BRUCELLOSIS is a contagious disease of cattle and swine, rarely found in goats. It can be transmitted to humans and causes undulant fever or Malta fever. The disease can be carried through contaminated food, milk, and water or from vaginal discharge. It gains entrance through skin wounds, mucous membranes, and mammary glands. The disease can

be prevented by proper sanitation and good management. Take precautions when introducing a new goat to the herd. A blood test by a veterinarian will show whether the disease is present. This test should be given to all animals that are producing milk.

LEPTOSPIROSIS is transmitted from goat to goat or from goats to humans through milk. This disease causes high fever in humans for 3 to 8 days. Other signs are headaches, vomiting, and pains in muscles and joints, followed by jaundice and kidney complications. It is very serious to both goats and humans.

LISTERIOSIS causes abortions and circling disease in goat. This disease can be transmitted from goats to humans as meningitis and glandular fever.

GOOD GROOMING – GOOD SHOWING

APPEARANCE OF YOUR GOAT

- Condition and thriftiness—normal growth, neither too fat nor too thin
- Grooming
Hair properly groomed, hide soft and pliable
- Hoofs trimmed and shaped to enable animal to walk and stand properly
Hornless or neatly disbudded
- Clipping
Entire body clipped about 3 weeks before show, if weather permits
- Long hair inside ears trimmed, tail neatly trimmed in a V-shape with a tuft on the end
- Cleanliness
Hair clean, and if possible, free from stains
Hide and ears free of dirt, legs and feet clean

IN THE RING

Leading. As you enter, lead the goat at a normal walk around the ring in a clockwise direction. Walk on the left side of your animal, next to the head. Hold the lead chain with your right hand. Holding the chain close to animal insures more secure control.

Your goat should lead readily and respond quickly.

Use the right type of lead chain. It should be placed correctly and fit properly. A small link or choke chain is advisable. Face forward at all times when leading.

Lead slowly, with the animal's head held high enough for impressive style, attractive carriage, and a graceful walk.

Posing. When you pose and show your goat,

always keep it between yourself and the judge.

Stand facing your goat at an angle far enough away to see stance of feet and topline. Pose your goat with the front feet placed squarely under and hind feet slightly spread. If possible, face the goat up grade with front feet on slight incline.

Don't crowd the exhibitor next to you or leave space enough for another animal when you lead into a side-by-side position. When the judge changes placing, 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. Do not lead animal between the judge and an animal he or she is observing.

Step the goat ahead with a slight pull on the lead strap or collar. Move the animal back by exerting pressure on the shoulder point with thumb and fingers of the right hand, pushing back with collar.

When the judge is observing the animal, let her stand when posed reasonably well. Be natural. Overshowing, undue fussing, and maneuvering are objectionable practices.

Show Your Goat at Its Best. Quickly recognize the conformation faults of the animal you are leading and show her to overcome them. You may be asked to exchange with another person and show his or her doe for a short time.

Poise, Alertness, and Attitude. Keep an eye on your goat and be aware of the position of the judge at all times. Do not be distracted by persons and things outside the ring. Show animal at all times and not yourself. Respond quickly to requests from the judge and officials. Be courteous and sportsmanlike at all times. Keep showing until the entire class has been placed and the judge has given his or her reasons.

ADGA DAIRY GOAT SCORE CARD

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

Based on Order of Observation

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

Based on Usual Order of Consideration

1. APPEARANCE OF ANIMAL		40
Condition and thriftiness—showing normal growth—neither too fat nor too thin.	10	
Hair clean and properly groomed.		
Hoofs trimmed and shaped to enable animal to walk and stand naturally.	10	
Neatly disbudded if the animal is not naturally hornless.		
Clipping—entire body if weather has permitted, showing allowance to get a neat coat of hair by show time; neatly trimmed tail and ears.	10	
Cleanliness—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
Clothes and person neat and clean—white costume preferred.	10	
3. SHOWING ANIMAL IN THE RING		50
Leading—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.		
Goat should lead readily and respond quickly.		
Lead equipment should consist of a collar or small link chain, properly fitted.	10	
As the judge studies the animal, the preferred method of leading is to walk alongside on the the side away from the judge.		
Lead slowly with animal's head held high enough for impressive style, attractive carriage, and graceful walk.		
Pose and show an animal so it is between the exhibitor and the judge as much as possible. Avoid exaggerated positions, such as crossing behind the goat.		
Stand or kneel where both judge and animal may be observed.		
Pose animal with front feet squarely beneath and hind feet slightly spread. Where possible, face animal upgrade 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.		
When judge changes placing, 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	
To step animal ahead 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 through your position in the line.		
When judge is observing the animal, if she moves out of position, replace her as quickly and inconspicuously as possible.		
Be natural. Overshowing, undue fussing, and maneuvering are objectionable.		
Show animal to best advantage, recognizing the conformation faults of the animal you are leading and striving to overcome them.	15	
Poise, alertness, and courteous attitude are all desired in the show ring. Exhibitors 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 exhibitors. Respond rapidly to requests from judges or officials, and be courteous and sportsmanlike at all times, respecting the rights of other exhibitors. The best exhibitors 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 or her reasons, and 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.

NOTES

CAUTION

**LIVESTOCK PESTICIDES USE WARNING
READ THE LABEL**

CAUTION

Pesticides and drugs are poisonous and must be used with caution. READ the label CAREFULLY BEFORE opening a container. Precautions and directions MUST be followed exactly. Special protective equipment (as indicated) must be used.

STORAGE. Keep all pesticides and drugs in original containers only. Store separately in a locked shed or area. Keep all pesticides and drugs out of the reach of children, unauthorized personnel, pets, and livestock. DO NOT STORE with foods, feeds or fertilizers. Post warning signs on storage areas for all chemicals, pesticides, and drugs.

USE. The suggestions given in this publication are based upon best current information. Follow directions. Measure accurately, to avoid residues exceeding established tolerances. Use exact amounts as indicated on the label, or lesser amounts as specified in this publication. Use a pesticide or drug only on animals listed on the label.

CONTAINER DISPOSAL. Consult your local Cooperative Extension office for correct procedures for rinsing and disposing of empty containers. Do not transport pesticides or drugs in vehicles with foods, feeds, clothing, or other materials, and never in a closed cab with the vehicle driver.

RESPONSIBILITY. The livestock owner is legally responsible for proper use of pesticides, including drift to other crops or properties, and for excessive residues. Pesticides should not be applied over streams, rivers, ponds, lakes, run-off irrigation or other aquatic areas, except where specific use for that purpose is allowed.

ANIMAL INJURY. Certain pesticides or drugs may cause injury, or give less than optimum parasite control if used: (1) at the wrong animal age; (2) at the wrong time of year; (3) on animals under extreme stress or sick; (4) with the wrong formulation; (5) at excessive rates; or (6) in simultaneous use with incompatible materials. Read the label to be sure you are using the chemical properly.

PERSONAL SAFETY. Follow label directions exactly. Avoid splashing, spilling, leaks, spray drift or clothing contamination. Do NOT eat, smoke, drink, or chew while using pesticides. Provide for emergency medical care in advance.

COOPERATIVE EXTENSION

UNIVERSITY OF CALIFORNIA

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This publication was prepared by the 4-H Goat Project Development Committee. The authors are Robert W. McNulty, Farm Advisor, Sutter County; A.D. Aulenbacher, State 4-H Youth Specialist, Emeritus; E.C. Loomis, Extension Parasitologist, Davis; Norman F. Baker, DVM, Parasitologist, Veterinary Microbiology, School of Veterinary Medicine, Davis; and Robert R. Bushnell, Extension Veterinarian, Davis.

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