

# Raising Goats *for* Meat

*Meat goats aren't difficult to raise, but proper facilities, nutrition, and management are necessary to return a profit to the owner/manager.*

## Feeding and Housing

All goats need basic protection from weather extremes: rain, snow, wind, heat, etc. Housing need not be elaborate or costly. Existing buildings can often be adapted for goat use. Greenhouse-type structures, hoop houses, and poly domes offer low-cost housing alternatives. During the grazing season, natural shelter (trees or windbreaks), simple sheds, or shade structures may be all that's needed. If kidding occurs during cold or wet weather, a building is usually necessary. Inside the building, you can use panels of different sizes to make individual pens for kidding and group pens for separating pregnant and lactating does.



You'll need storage space for feed, straw (or other bedding), and equipment. Use feeders and waterers, which prevent feed wastage and contamination of feed and water by manure or other foreign material. Allow enough feeder space so all animals can eat at one time and enough water supply (or flow) to meet animal needs. Feeders can be homemade or bought from agricultural supply companies. Local Extension offices may have building



plans for livestock housing, handling, and feeding equipment. You can download building plans from various websites.

## Fencing

Fencing is usually the biggest capital expense in a meat-goat operation. Two types of fencing are required: 1) exterior or perimeter fencing (usually permanent), and 2) interior or cross fencing (may be permanent or temporary). Perimeter fencing, often placed around the property boundary, needs to keep the goats in and predators out. Like sheep, goats are vulnerable to predators such as dogs, foxes, bears, and coyotes. Consider predator risk when restoring old fences and/or designing and building new fences. Livestock guardians, such as guardian dogs, llamas, and donkeys, can help protect against predators, but protection starts with a good fence.

Cross fencing subdivides pastures for animal management and controlled grazing. You can build cross fencing from temporary material such as poly wire, tape, or rope;

electric netting; or high-tensile wire with step-in or t-posts. Do realize that not all temporary fences will effectively keep does away from weaned kids and bucks from does.

High-tensile electric fencing is a good choice for goats. It's low cost and relatively easy to build and has a long life. High-tensile fencing uses smooth wire strung tight. Electricity is added to several or all wires to provide a psychological barrier for livestock and to deter predators. For goats, use five, six, or seven strands of high-tensile wire, with wire spacings of about 6, 5, 5, 8, and 10 inches. Like other livestock, goats must be trained to respect electric fences.

Strong, well-braced corners, proper grounding, and a good fence charger (energizer) are the keys to an effective high-tensile electric fence system. A low-resistance energizer with 4,000 volts is usually enough for goats. But even with a good charger, it's usually necessary to spray or mow fence lines to maintain an adequate charge.

Woven wire (horizontal wires with vertical stays) is also popular with goat producers, though the cost is higher than high

tensile. Electric or barbed wires at the top of the fence and one or more electric “offset” wires make a woven wire fence more predator-proof and keep goats from sticking their heads through the fence. A wire along the ground can serve as a “rust” wire and add to the fence’s life.

To adapt board fences for goat use, place strands of electric wire between the gaps or cover the fence with mesh wire.

## Breeds and Breeding

Although any goat is a potential meat producer, certain breed types are more desirable. Note that generally there’s as much variation among breeds as between breeds. Regardless of the breed(s) you choose, use the following criteria when selecting breeding stock:

- 1) adaptability to the environment
- 2) reproductive ability
- 3) growth rate
- 4) carcass value

### Breeds

*Boer.* The South African Boer was introduced to the United States in the late 1980s. The Boer, which translates as “farmer’s goat” in Dutch, is a true meat-type goat, bred and

selected specifically for superior body conformation (shape), high growth rate, and fertility. Boer goats are large-framed with short, white hair on their bodies and black, brown, or reddish markings on their heads and necks.

*Spanish.* Until the arrival of the Boer, the Spanish goat was the standard in U.S. meat-goat production, especially in Texas and other southern states. Spanish goats descend from goats brought to Texas by early settlers and Spanish explorers. The Spanish goat isn’t a specific breed so much as a type or name to set it apart from fiber-producing goats.

*Brush.* Like “Spanish,” “brush” is a generic term for goats that don’t fit any particular breed category. Also called wood, hill, briar, or native goats, they’re a mixture of breeds and adapt well to most areas.

*Myotonic.* Of unknown Tennessee origins, the Myotonic goat goes by several names, including the Tennessee Fainting, Nervous, Wooden, or Stiff Leg goat. These colorful aliases refer to how the goats “faint” (or stiffen) when startled or frightened. Though these fainting spells can be a management nuisance, the breed is valued for meat production because of its hardiness, high fertility, long breeding season, and good muscle-to-bone ratio.

## Demand for Goat Meat Outstrips Supply

Goats (caprines), one of the earliest animals to be domesticated, are underrated as farm livestock. Goat meat is a preferred protein source in many parts of the world. Globally, more people probably eat dairy goat products than dairy cow products. An important source of fiber and skins, goats are often used to control unwanted vegetation. They’ve even been used as pack animals.

Traditionally, most fiber and meat goats have been raised in Texas and the Southeast. Recently, however, the number of goats being raised for meat throughout the United States has increased.

The U.S. Department of Agriculture estimates the meat-goat industry is growing by 10 to 15 percent a year. Domestic production of goat meat can’t meet current demand.

Changing immigration patterns and population demographics have increased demand for goat meat. Muslims, Hispanics, and Caribbean islanders are among the largest goat-meat consumers. The importation and subsequent integration of the South African Boer goat has had a large impact on the U.S. meat-goat industry.

*Kiko.* The Kiko was developed by a group of New Zealand goat breeders who practiced intensive selection of the native population and upgraded with dairy bucks. Brought here in the early 1990s, the Kiko is large-framed, often white, and known for its hardiness and its ability to thrive under less than ideal conditions. Like the Boer, the Kiko is strictly a meat producer.

*Pygmy.* Also known as the West African Dwarf Goat, the Pygmy was brought to the United States in the early 1960s for biomedical research and for display in petting zoos. Though raised mostly as pets, Pygmy goats have some potential for meat production because of their out-of-season fertility and compact, meaty body style.

*Angora.* Purebred Angoras are generally not desirable for meat production because of their small frame and lower-than-average kidding rate. However, crosses between Angoras and meat-type goats work well; increasingly the Angora is being seen as a dual-purpose breed.

*Nubian.* The (Anglo-) Nubian is the most popular U.S. dairy goat breed. Though selected here mainly for milk production, the Nubian was developed originally as a



dual-purpose animal. It can trace its roots to North Africa, where it's raised mostly for meat. You can tell Nubians from other dairy breeds by their long, droopy ears and Roman noses.

*Other dairy breeds.* The Alpine, Saanen, Toggenburg, and Oberhasli, known as a group as the Swiss breeds, along with the (American) La Mancha, are generally less suitable for meat production. They have large teats, a leggy build, and large, drooping udders—all drawbacks to meat production. However, they cross well with Boers. Their crosses are widely used in the industry and will likely continue to play a large role in many areas of the country.

## Buying Breeding Stock

The best place to buy meat-goat breeding stock is from reputable breeders who raise healthy animals and keep records that show how their herd performs. When records aren't available, you can learn a lot about a doe (nanny) by examining her mouth (to find out age and soundness), her udder (for soundness and evidence of kidding), and body condition. New goat producers are best starting with mature does. When selecting bucks for breeding, examine the reproductive organs closely. A buck's testicles should be large and free from defects. The buck (billy) should be masculine, thickly muscled, and structurally correct. Only buy naturally horned bucks for breeding.

## Breeding Systems

Inbreeding is the mating of closely related individuals, such as sister to brother and father to daughter. It's discouraged in commercial meat-goat production. Outcrossing is the mating of unrelated individuals of the same breed. It's a better breeding practice because it keeps the herd fit and able to reproduce well. However, crossbreeding (mating of different breeds or types) is the recommended breeding strategy for most commercial meat-goat operations.

Crossbreeding is one of two ways of improving a meat-goat herd genetically. Crossbreeding results in heterosis or hybrid vigor—the crossbred offspring is superior to the average of its purebred parents. You

can make the most of heterosis by breeding crossbred females to a buck of another breed. Another advantage to crossbreeding: it balances the strong and weak points of different breeds.

Selection (choosing which animals to keep for breeding) is another way to improve stock genetically. Traits that aren't usually improved by crossbreeding can be improved by selection. The term "heritability" refers to the extent to which genetics contribute to the expression of a trait. Traits are also affected by environmental factors such as nutrition, health, and management. Reproductive traits have a low heritability, meaning the number of kids born is influenced more by environmental factors than it is by genetics. Conversely, growth and carcass traits are moderately heritable. These traits can be improved by selecting and breeding the fastest-growing, meatiest animals in the herd.

Keep only productive does in the breeding herd. Select replacements from the most productive dams and families. Identify all goats with ear tags or tattoos and keep accurate records. A good measure of doe productivity is the pounds of kid weaned per year. A good buck should settle (impregnate) a large number of does on their first heat. His offspring should have good conformation and gain weight well after weaning.

## Reproductive Management

Various genetic and environmental factors affect the onset of puberty (sexual maturity) in goats. While most goats can breed by the time they're five to seven months old, let doe kids gain 60 to 75 percent of their mature weight before being bred. Bucks mature faster than does; let bucks gain about 50 to 60 percent of their mature weight before using them for breeding. (Weigh mature goats in your herd for comparison.)

Goats are generally seasonal breeders, meaning they come into heat (estrus) and breed during the fall as days grow shorter. The normal breeding season for most goats is August to March, though some breeds and individuals will breed all year long. If they're not bred at their first heat, they'll go into heat again (recycle) every 20 to 21 days until



bred or they'll return to anestrus (their non-breeding state).

During estrus, the doe will be in "standing heat" (be receptive to the buck for mating) for anywhere from 12 to 48 hours. The doe will seek out the buck for breeding, and the presence of the buck can bring on heat and synchronize breeding in does. Signs of heat in the doe include tail wagging, bleating, and urination near the buck. Usually, the vulva swells and discharges mucous. Ovulation (egg release from the ovary) occurs 24 to 36 hours after the onset of heat.

Artificial insemination (AI)—introducing semen into the reproductive tract without sexual contact—is a possible option in goats. AI can speed up genetic improvement and provide access to breeds or bucks not readily available. Owning a buck is still advisable for telling when does come into heat and for breeding does that don't conceive through AI. Heat detection is easier in the presence of a buck because a female will seek out the male when she's in heat.

Though some producers run their buck(s) with does year-round, separate the buck from the breeding herd except during the desired breeding season. If you know when to expect kidding, you can better control and time when to vaccinate, add feed supplements, and market. By keeping bucks separate, you can use the "buck effect" to bring does into heat. "Flushing" or increasing nutrient intake for several weeks before breeding and during the first several weeks

of the breeding season may increase the number of kids born, especially if the does are thin. Generally, only leave the buck with the doe herd for two to three heat cycles (42 to 63 days). This practice keeps the kidding season reasonably short.

A doe's gestation lasts about five months or 150 days. Some producers breed their does once a year. However, accelerated kidding (kidding more than once a year) is a way of increasing profits, as long as you keep management and nutrition levels high enough to meet does' needs. Manage and feed young does separately from mature does. Young does, which are 60 to 75 percent of their mature size and bred to kid when they're less than 18 months old, are still growing and have higher nutritional needs than mature does. Young does may also have difficulty competing with mature does for feed. Yearlings (1 to 2 year olds) may give birth to singles or twins, whereas twins and triplets, and sometimes quadruplets, are most common with mature does.

Does should kid in a clean setting, either a clean, well-rested pasture (one that presents a low rate of worm infection) or an open area of a building bedded with straw or other absorbent material. Few does need help during kidding, though problems are always possible. Be prepared to help if needed. Normal delivery is the nose between the two fore legs. A backwards birth (hind legs coming out first) can also be normal. Hard labor begins after the water sac breaks. Kids are usually born within one hour of hard labor. If a doe hasn't progressed enough toward delivery after her water breaks (meaning if labor lasts beyond one hour), probe her birth canal, find out the delivery status of the fetus(es), and take a course of action. After some practice and instruction, producers can learn to help with difficult births.

*Clip, dip, strip, and sip.* After kidding, the doe and kid(s) can be placed in a small pen (about 4 x 5 ft) for one to three days. Clip the navel cords of newborn kids to 1 inch (if necessary) and dip the exposed stub in a gentle iodine solution (or other anti-bacterial solution) to prevent entry of disease-causing organisms. Strip (squeeze and pull down) the doe's teats to make sure the teat canals aren't

plugged with wax and the flow of milk is plentiful.

Newborn kids need to drink plenty of colostrum or "first milk" during their first few hours. Colostrum contains antibodies newborn kids need for a healthy immune system. A newborn needs to take in 10 to 20 percent of its body weight in colostrum during its first 24 hours.

Creep feeding is a method of providing supplemental feed to nursing kids. A creep is an area where kids can enter but does can't. To creep feed, begin feeding kids by the time they're 10 days old. You can successfully wean meat-goat kids at various ages, depending on the management and feeding regime. It's common to wean kids when they're about two to three months old or to leave them with their dams (on pasture) until they're three months or older. Separate buck and doe kids by the time they're three months old to prevent inbreeding and unwanted pregnancies. If you practice late weaning, castrate buck kids. If you're feeding does grain, reduce the amount five days before weaning to help prevent mastitis (infection in the udder). After weaning, feed does poor-quality hay to help dry up their udders. Keep the kids in familiar surroundings to reduce their stress level. If you're using pasture, place weaned kids on clean, high-quality pasture.

## Health Care

### Vaccination

Vaccinate goats with CD-T (*Clostridium perfringens* type C & D and tetanus toxoid) to prevent enterotoxemia (overeating disease) and tetanus. Vaccinate does four to six weeks before kidding, so kids receive temporary immunity through the colostrum. The first vaccination requires two shots, followed by a yearly booster. Goats don't respond as well to CD-T vaccine as other livestock; therefore, some veterinarians advise revaccinating goats every six months for adequate immunity. Give kids their first CD-T vaccination when they're six to eight weeks old and then give them a booster shot two to four weeks later. If you later place kids into a feed lot

for grain feeding, a third vaccination is recommended.

State diagnostic laboratories and large-animal veterinarians can help diagnose other health problems in the herd and recommend additional vaccinations or herd health practices.

## Internal parasites

The most common health problem affecting goats in the mid-Atlantic region is gastro-intestinal parasites or stomach worms. Essentially, all healthy goats have worms in their guts; thus the goal is to control, not get rid of, internal parasites. For effective internal parasite control use a combination of animal and pasture management and strategic dewormings. It's important to recognize that kid goats are much more at risk than adults, who have developed some natural immunity to parasites. Does have a temporary loss of immunity around kidding time.

Treating goats too often for internal parasites, with little regard for environmental and pasture conditions and health, is costly and may lead to a false sense of security and dead animals. Also, frequent exposure to antiparasitic (anthelmintic) drugs causes stomach worms to become drug resistant. Fecal egg counts can help you determine when to treat. Some veterinarians and animal health diagnostic labs can perform fecal egg counts. Producers can also learn to do their own fecal egg counts using a simple microscope. You can also use the FAMACHA<sup>©</sup> eye anemia test to tell when an animal needs deworming. The color of the goat's lower eyelid can indicate anemia, the primary symptom of barber pole worm infestation. Goats with pale (pinkish-white or white) eyelids require deworming. FAMACHA charts are available to producers who complete an approved training.

Reducing the worm burden—the number of worm larvae—on pasture will go a long way toward preventing losses from parasites. Treating goats at strategic times can reduce pasture contamination. De-worm does before or shortly after kidding to prevent the peri-parturient (around kidding) rise in worm eggs excreted with the feces. Some vets advise successive, early spring treatments to prevent the summer explosion of worm

eggs. In a normal rainfall year, parasites begin multiplying in the spring and reach their highest numbers in July and August. Levels may also be high in the fall, after a summer drought. Winter deworming kills dormant larvae.

Moving animals to a clean or rested pasture 48 hours after deworming will prolong the effectiveness of a treatment, but will result in worm populations that resist drug treatment. Harvesting a hay crop or plowing and reseeded a pasture lowers worm burdens. Clip pastures as needed to allow the sunlight to kill off worm eggs excreted in the feces. Multi-species grazing is another way of managing parasite burdens. Because only sheep and goats share the stomach worms, you can co-graze goats with cattle or horses, or alternate pastures between species to reduce parasitism in goats.

Anti-parasitic drugs are available in many forms: as an oral drench, paste, gel, bolus, injection, pour-on, and feed additive. Oral drenching is the recommended method of deworming goats, regardless of the drug's form. Oral products clear the animal's system faster and are generally more effective. The following antiparasitic drugs are used in goats, though only fenbendazole and morantel are FDA-approved for goat use:

- Albendazole (Valbazen<sup>®</sup>)
- Doramectin (Dectomax<sup>®</sup>)
- Fenbendazole (Safeguard<sup>®</sup>, Panacur<sup>®</sup>)
- Ivermectin (Ivomec<sup>®</sup>)
- Levamisole (Tramisol<sup>®</sup>, Levasol<sup>®</sup>, Prohibit<sup>®</sup>)
- Morantel tartrate (Rumatel<sup>®</sup>, Positive Pellet Goat Dewormer)
- Moxidectin (Cydectin<sup>®</sup>, Quest<sup>®</sup>)
- Pyrantel pamoate (Strongid T<sup>®</sup>)

Using any drug outside of its labeled use is called extra-label drug use; only your vet can prescribe extra-label drug use.

Resistance problems have been reported in all drug families, but most commonly in the benzimidazole family (Fenbendazole and Albendazole) and Ivermectin. Rotate antiparasitics yearly. The macrolytic lactones (Ivermectin, Doramectin, and Moxidectin) are effective against some (biting) external parasites. The benzimidazoles are effective



against tapeworms. Albendazole is effective against adult liver flukes. In addition to being effective against external parasites, the macrolytic lactones have a residual effect, meaning they'll continue to kill worms after they've been administered.

Goats metabolize antiparasitics differently than sheep or cattle and require higher doses. Ask a vet for the right dosage level for goats. Some forages may have antiparasitic effects, including sericea lespedeza, chicory, and birdsfoot trefoil. Goats that browse have fewer internal parasite problems. Managing grazing height, in general, will help control parasites because 80 percent of worm larvae is found in the first two inches of grass growth.

## Coccidiosis

Coccidia are single-celled protozoa that can be devastating, especially to kids, resulting in death or permanent damage to the lining of the small intestines. The species of coccidia that affects goats is different from species that affect other livestock, including sheep. Coccidiosis is best prevented by good management and sanitation. Keep feed off

the ground. Avoid overcrowding, especially when animals are confined and under intensive grazing. Note that drugs effective against gastro-intestinal worms have no effect on coccidiosis. Adding monensin (Rumensin®), lasalocid (Bovatec®), or decoquinate (Deccox®) to the feed or trace mineral mix helps control coccidiosis during high-risk periods, such as weaning time. Drench sick goats with amprolium (Corid) or Albon® or other sulfa drugs, and treat all animals in the pen. These products aren't approved for goats; use them only under a vet's advice. Rumensin and Bovatec are poisonous to horses, donkeys, and mules.

## Hoof Care

Goats may require frequent hoof trimming to prevent lameness and hoof diseases such as foot rot and foot scald. Check hooves regularly and trim as needed, while the goat is standing. You can also use turntables, crushes, and sheep chairs to restrain the goat.

## Management Techniques

### Disbudding

Most goats are naturally horned. Many producers remove the horns for safety and ease of management. Goats with horns can get their heads stuck in feeders or fences and can sometimes injure each other as well as people. However, many producers like horns for handling and it's quite common to leave horns on meat and fiber goats. Show goats (market goats) should have their horns tipped or removed entirely.

Disbudding is usually done with a hot iron. Disbud as soon as the horn bud is visible, usually between three days and two weeks old. Producers can learn to disbud their own kids. Take care not to burn the kid's skull, yet apply enough heat to prevent scurs (partial or underdeveloped horns) from growing.

Breeding two naturally hornless (polled) goats increases the chances of producing offspring that are hermaphrodites (an intersex condition: animals have both sex organs and

are sterile). To prevent this, breed naturally hornless animals to horned animals.

## Castration

Base the decision to castrate buck kids on management needs and marketplace demands. Intact males grow faster than wether (neutered) and doe kids. Often, customers prefer to buy intact male goats. On the other hand, most youth-market goat shows prohibit the showing of intact male goats. If male kids aren't castrated, wean and separate them from females by the time they're three months old.

Of the several ways to castrate a goat, one of the simplest is to remove the bottom one-third of the buck's scrotum with a knife or scalpel and pull the two testicles out. Use antiseptics; don't use this method during fly season. Other methods are the elastrator, an instrument used to apply rubber bands to the scrotum, and the Burdizzo emasculator, which crushes the spermatic cords.

Regardless of the method, always castrate when the buck is young. It's important to vaccinate goats for tetanus before or at the time of castration. The tetanus organism seeks an open wound for entry and prefers an anaerobic (oxygen-free) environment. Banding increases the risk of tetanus. Kids whose dams have been vaccinated with CD-T toxoid will be protected through the colostrum; however, if you delay vaccination until castration, use the antitoxin to provide immediate, short-term immunity. Though the toxoid's immunity is longer lasting, it takes 10 days to take effect.

## Nutrition and Feeding

Feed typically accounts for about 70 percent of the total costs in a meat-goat enterprise. The feeding program greatly affects herd productivity and overall profitability. There is no *one* feed or feeding program for meat goats. Base yours on the animals' nutritional needs and the availability and cost of various feeds.

Goats require water, protein, energy, minerals, and vitamins. Water is by far the most important nutrient. Animals can go a long time without food but not without water. Meat goats generally drink  $\frac{1}{2}$  to  $1\frac{1}{2}$  gallons



of water per day. Energy (calories), expressed as TDN or total digestible nutrients is usually the most important ingredient in meat-goat rations, protein the most expensive. Cereal grains (corn, barley, wheat, oats) offer the most concentrated sources of energy, whereas good-quality hay, pasture, and browse are good sources of protein and minerals. Protein meals (soybean, cottonseed, etc.) provide the most concentrated source of protein. By-product feeds, such as soybean hulls or cottonseed hulls, can sometimes supply nutrients at a lower cost than traditional feeds.

Calcium and phosphorus are the two most important minerals when feeding meat goats. The ratio of calcium to phosphorus should be at least 2:1 to prevent kidney stones (urinary calculi) from forming in the urinary tract of males, especially wethers (neutered males). Feed grains with caution; they're high in phosphorus. Forages, especially legumes, tend to be high in calcium. You can add ammonium chloride to the ration to help prevent kidney stones.

Mid-Atlantic soils are generally thought to be low in selenium, an important trace mineral. Adding selenium to the diet is preferred over injections. Unlike sheep, goats tolerate copper in their diet and should eat feeds and minerals that contain sources of copper. Goats require vitamins A, D, E, and K, but produce the B vitamins in their rumens. B vitamins are often given to sick goats to stimulate the microbes in their rumens and improve appetite. A thiamine (vitamin B1) deficiency can cause Polioencephalomalacia (polio).

The nutritional needs of meat goats vary according to their weight, age, and stage of growth and/or breeding cycle. Environment can also have an impact on the goat's nutritional needs. Goats kept outside during the winter need more feed than those housed indoors. In general, a goat needs daily to eat an amount equal to about three percent of its body weight to stay healthy. See Table 1, Nutrient Needs for Meat- and Fiber-Producing Goats.

**Table 1. Nutrient Needs for Meat- and Fiber-Producing Goats**

|   | % Crude Protein | % Total Digestible Nutrients |
|---|-----------------|------------------------------|
| Buck  | 11              | 60                           |
| Dry doe   | 10              | 58                           |
| Late gestation                                  | 10              | 60                           |
| Lactating doe                                   | 11              | 60                           |
| High-lactating                                  | 14              | 65                           |
| Weaned kid<br>(30 lb, average daily gain > .44) | 14              | 68                           |
| Yearling (60 lb)                                | 12              | 65                           |

Sources: National Research Council 1981. F. Pinkerton 1989.

Diet should be mostly pasture and/or browse (shrubs, vines, and trees); as ruminant livestock, goats' digestive systems are designed for forage and other fibrous materials. In most cases, these are also the most economical feed source. Goats can eat a wide variety of grass, browse, and forbs (weeds). They're natural browsers and if given the choice will eat a larger proportion of browse in their diets than other livestock. When browse isn't available, goats do well on managed grass pastures.

The number of goats an acre of land can support depends on many factors: pasture quality, plant species, and management. In general, it takes one and one-half to two acres of pasture to support one animal unit (1,000 pounds of grazing animal). However,

pasture with a lot of browse species, as opposed to grass pasture, can support more goats relative to cattle; goats eat a greater variety of plants and select more nutritious plants than cattle. Have a controlled grazing system with two or more paddocks (enclosed areas). Rotational grazing—animals are rotated among paddocks according to plant growth—prevents selective grazing, helps control weeds, and results in a more nutritious pasture. Plants require a rest period to recover; they supply the highest nutrition when they are eaten in a vegetative stage. Under rotational grazing, stocking rates can usually be increased. One animal unit per acre is an obtainable goal in the mid-Atlantic. On the other hand, rotational grazing may have little impact on parasites, because pastures generally don't receive a long enough rest period to rid pastures of infective larvae. In intensive rotational grazing systems, parasites may actually increase.

When fresh forage can't supply enough nutrition, add hay and/or grain. For non-grazing goats or goats on a winter feeding program, a typical ration consists of hay, grain, and minerals. Goats can eat most types of hay; it's the nutritional value of the entire ration that's important, not just the hay. Though grain and mineral supplements can make up for poor-quality hay, good-quality hay can prevent the need for expensive supplements. When you're buying hay for goats, plant maturity is an indication of nutritional value; nutrition declines as plants get more mature. To find out the hays' actual feed value, have a forage-testing lab test the hay. Buy hay by weight or have the price converted to a cost per ton.

In your feeding program, choose feed(s) that offers nutrients (protein, energy, minerals, and vitamins) at the lowest cost. Goats are flexible in what they eat, as long as feed changes are gradual and their diet includes some roughage. However, goats don't do well on extremely poor-quality forage because food remains in their gut for a relatively short time. Because goats need fiber in their diet, don't feed them only grain. When goats are eating increasing amounts of grain, you can feed them baking soda or ammonium chloride as a buffer (to control rumen acidity).

Only use grain supplements to the point they support profitable production. It's questionable whether goats can be grain fed profitably to the extent that other livestock can. Goats grow more slowly and can be picky eaters.

Producers have several options in grain rations. Commercially prepared goat feeds, available in 50- or 100-pound sacks, are nutritionally balanced and don't require mineral supplements. However, they tend to be expensive. Some producers have their rations custom-mixed at a feed mill, using local grain or even their own grain. It's also possible to mix simple rations on the farm. For example, lactating does can eat a homemade ration with a ratio of 3 pounds of shelled corn to 1 pound of soybean meal. This yields a 16-percent protein ration. To avoid feeding a mineral supplement, you can replace the soybean meal with a protein pellet that also contains vitamins and minerals. Older goats can be fed whole grains. It isn't necessary to grind, flake, or pellet grain, though pelleting will prevent sorting by self-feeding goats. The rumens of goats less than six weeks old are generally not fully developed, so these goats need grain products processed for easy digestion. A typical creep ration might include cracked corn, soybean meal, and minerals.

## Marketing

The meat-goat industry is built almost entirely around ethnic demand from religious and social traditions of people who have immigrated to the United States, particularly recently. In addition, some U.S. natives have converted to religions that favor goat meat. The largest goat-consuming ethnic populations in the U.S. are Hispanics, Muslims, and Caribbean islanders. Population groups may prefer different types and weights of goats. Hispanics tend to prefer young, light-weight kids (20–40 lb), Muslims tend to want a heavier kid (60–80 lb), and Caribbean Islanders prefer mature bucks. Most consumers prefer lean goat meat.

Target a specific consumer market and familiarize yourself with its customs, holidays, and preferences. Then produce a goat or goat meat product that meets those



demands. Some ethnic groups may also want the goat fed and processed in a specific way.

In addition to ethnic markets, two other potential niche markets for goats are: 1) markets serving health-conscious consumers (goat meat is low in saturated fat), and 2) restaurants that feature ethnic foods or goat meat as a gourmet food. Though these markets are largely untapped, they present a challenge: average Americans of Northern European descent usually don't eat goat meat.

A high percentage of meat-goat sales are made at the farm gate; most of the rest take place at public livestock auctions. Unlike other livestock, goats are generally sold by the head, ungraded. However, efforts are being made to change these practices.

In Spanish, goat meat is called *cabrito*, which typically refers to meat from a young goat. *Chevon*, the French word for goat meat, usually indicates a larger kid goat. Texans commonly call a meat-goat kid a mutton, not to be confused with meat from a sheep older than a year. In the meat-goat industry, does are called nannies and bucks are billies. These are common terms used in the marketplace and by producers.

## Economics

Producing meat goats can be profitable, but pay strict attention to details. Control feed costs and keep your production levels high. Table 2, Sample Budget for Raising Meat Goats, appears on page 11.

To qualify for favorable tax treatment as a farmer or goat producer, you must establish that you're in business to make a profit. You must report income three out of five tax years.

## Table 2. Sample Budget for Raising Meat Goats 2006

(Covers Annual Kidding)

| Herd Composition: |      |  | Biological Parameters:  |  |  |      |
|-------------------|------|--|-------------------------|--|--|------|
| Number of does    | 50   |  | Percent kid crop raised |  |  | 160% |
| Number of bucks   | 2    |  | Doe replacement rate    |  |  | 20%  |
| Adult death loss  | 5.0% |  | Buck replacement rate   |  |  | 33%  |

| Income       | Number | Weight | Net Price | Unit | Total   | Per      |
|--------------|--------|--------|-----------|------|---------|----------|
| Market kids  | 70.0   | 70     | \$1.00    | lb   | \$4,900 | \$98.00  |
| Cull does    | 7.5    | 90     | \$0.75    | lb   | \$506   | \$10.13  |
| Cull bucks   | 0.66   | 170    | \$0.75    | lb   | \$84    | \$1.68   |
| Total Income |        |        |           |      | \$5,490 | \$109.81 |

| Operating                   | Number | Amount       | Cost              | Unit | Total   | Per     |
|-----------------------------|--------|--------------|-------------------|------|---------|---------|
| Feed costs                  |        |              |                   |      |         |         |
| Hay                         | 52     | 0.25         | \$90.00           | ton  | \$1,170 | \$23.40 |
| Grain                       | 52     | 135          | \$0.09            | lb   | \$632   | \$12.64 |
| Salt & other minerals       | 52     | 6.0          | \$0.18            | lb   | \$56    | \$1.12  |
| Supplemental feed for kids  | 80     | 0.0          | \$0.10            | lb   | \$0     | \$0.00  |
| Pasture maintenance         | 52     | 10.0         | \$30.00           | acre | \$300   | \$6.00  |
| Health program              |        | <b>Doses</b> |                   |      |         |         |
| Deworming (adults)          | 52     | 2            | \$1.00            | dose | \$104   | \$2.08  |
| Deworming (kids)            | 80     | 2            | \$0.75            | dose | \$120   | \$2.40  |
| CD-T booster (adults)       | 52     | 1            | \$0.50            | dose | \$26    | \$0.52  |
| CD-T vaccinations (kids)    | 52     | 2            | \$0.50            | dose | \$52    | \$1.04  |
| Other vet costs             | 52     |              | \$2.00            | head | \$104   | \$2.08  |
| Buck replacement            | 0.66   |              | \$200.00          | head | \$132   | \$2.64  |
| Bedding                     | 52     |              | \$3.00            | head | \$156   | \$3.12  |
| Marketing and hauling       | 78     |              | \$6.00            | head | \$469   | \$9.38  |
| Supplies                    | 52     |              | \$3.00            | head | \$156   | \$3.12  |
| Miscellaneous               | 52     |              | \$0.00            | head | \$0     | \$0.00  |
| Interest on operating money | 2.0%   |              | Cost for 6 months |      | \$70    | \$1.39  |
| Total costs                 |        |              |                   |      | \$3,547 | \$70.93 |

|   |                |                |
|---|----------------|----------------|
| <b>Return to Land, Labor, and Capital</b> | <b>\$1,944</b> | <b>\$38.88</b> |
|---|----------------|----------------|

|                                   |               |
|-----------------------------------|---------------|
| <b>Cost Per Pound Live Weight</b> | <b>\$0.60</b> |
|-----------------------------------|---------------|

|                                      |                    |               |
|--------------------------------------|--------------------|---------------|
| <b>Cost Per Pound Carcass Weight</b> | <b>Yield 47.0%</b> | <b>\$1.28</b> |
|--------------------------------------|--------------------|---------------|

| Capital Costs                                | Number | Cost  | Unit  | Total      | Per      |
|--|--------|-------|-------|------------|----------|
| Does   | 50     | \$125 | head  | \$6,250    | \$125.00 |
| Bucks  | 2      | \$250 | head  | \$500      | \$10.00  |
| Fencing                                      |        | \$0   | total | \$0        | \$0.00   |
| Corral/working pens                          |        | \$0   | total | \$0        | \$0.00   |
| Pasture establishment/improvement            | 10.0   | \$0   | acre  | \$0        | \$0.00   |
| Watering system                              |        | \$0   | total | \$0        | \$0.00   |
| Housing cost                                 |        | \$0   | total | \$0        | \$0.00   |
| Supplies and equipment                       |        | \$0   | total | \$0        | \$0.00   |
| Start-up costs                               |        |       |       | \$6,750    | \$135.00 |
| <b>Number of Years to Pay Off Investment</b> |        |       |       | <b>3.5</b> |          |

## References

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P.O. Box 676  
Sonora, TX 76950  
915-387-6100  
www.meatgoats.com

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www.boergoats.com

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