

AGRICULTURAL ALTERNATIVES

agalternatives.aers.psu.edu

Meat Goat Production

Goat meat is consumed widely throughout the world, especially in developing countries. However, it is not usually sold in traditional marketplaces in the United States. Sheep and goat meat is the fourth most consumed meat, following pork, poultry, and beef. Meat goat production, like any other animal production enterprise, requires that good husbandry practices be followed in the areas of sanitation, health, feed, water, and shelter. These are all integral parts of managing a successful goat enterprise.

In the United States, goat production increased by about one-third in the past decade because of their economic value as efficient converters of low-quality forages into quality meat, milk, and hides for specialty markets. There are several reasons for the growing popularity of goats in this country. A big factor is the larger number of ethnic groups that have settled in this country and have a preference for goat meat, milk, and cheese products. Another factor is the determination of many Americans to be self-sufficient. Where resources are limited, a small herd of goats may be the only livestock that a small, part-time farmer can raise to achieve self-sufficiency. According to the National Agricultural Statistics Service (NASS) meat goats account for over 80 percent of the total of goats produced in the United States. Pennsylvania produces more than 40,000 meat goats annually.



Markets for Goat Meat

Goat meat is unique in flavor and palatability. It is leaner than many other red meats and usually less tender. However, its leanness has a place in today's market for meats with less fat. Cabrito stands for roasted meat from goat kids 4–8 weeks of age. Its main use is for barbecue meat, and it is highly sought after by certain ethnic groups. Chevon is meat from goat kids 48–60 pounds or 6–9 months old. Of these two types, cabrito is the most tender. The higher collagen content and lower solubility of goat meat, compared with lower levels of the same features in lamb, reduce the overall palatability and tenderness of goat meat. Breeding and slaughtering techniques appear to be key in improving the tenderness factor of goat meat.

Marketing options include direct marketing off the farm, supplying goat meat for specialty markets (particularly holiday sales to various ethnic groups), or producing kids for commercial marketing firms. Success is often a reflec-

This publication was developed by the Small-scale and Part-time Farming Project at Penn State with support from the U.S. Department of Agriculture-Extension Service.

PENNSTATE



Cooperative Extension
College of Agricultural Sciences

tion of how well a producer tends to all aspects of breeding, health, management, and marketing. All these factors have their respective roles in producing and marketing a quality product.

Along with direct marketing to ethnic groups, there are two other potential niche markets for goat meat: (1) targeted markets serving health-conscious consumers wanting low-fat diets and (2) the restaurant trade serving ethnic or gourmet foods featuring goat meat. These markets are largely untapped and may provide real opportunities, especially for producers within close proximity to the market.

Goat Production Characteristics

Goats are intensely curious and will investigate anything that sparks their interest. Coupled with curiosity, their jumping and climbing ability can present some real management challenges. Goats can climb through a new “goat-tight” fence, pull the wash off the line, nip the rosebuds, or bounce onto a parked vehicle.

Female goats are called does or sometimes doelings if they are less than a year old. Males are called bucks or bucklings. Young goats are called kids. Bucks tend to be aggressive and emit strong urine-like odors, which is most offensive during the breeding season from September to early January. Does do not secrete strong odors from their scent glands.

Goats adapt well to hot environments because of their small size and higher ratio of body surface area to body weight. Also, their ability to conserve body water, their limited subcutaneous fat cover, and their hairy coats are good survival traits under a wide variety of climatic conditions.

The foraging preferences of goats encompass a wider spectrum of plants than those of other small ruminants. Goats are inclined to forage or browse from the top of a plant downward, making them an effective control for many undesirable plants and shrubs. Goats are called “nonselective browsers” because of their desire to choose from a large variety of vegetative types. This grazing behavior enables them to survive harsher climates and more marginal grazing conditions than either sheep or cattle.

Goat Breeds

More than sixty recognized or “official” breeds of goats exist in the world. These multipurpose breeds produce milk, meat, fiber, and skins. In the United States there are three primary types: the Angora or Mohair breed of approximately 185,000 head, and the meat and dairy breeds estimated at over 2.9 million head.

In many small-herd dairy goat enterprises, not all does must be milked, so meat is often the main product. Along with meat, the sale of breeding stock from small herds of dairy goats may be an important income source. This versatility allows the producer to plan and operate a more

stable economic production unit. In some parts of the world, all breeds may be raised for fiber, meat, and milk and cheese production. Kids of all breeds can be used for meat. However, meat goat carcasses are generally leaner and more muscular than dairy goat carcasses.

Angora goats originated in central Turkey, a mountainous area with a dry climate and extreme temperatures. Both sexes are horned and open faced, with long locks of hair over the rest of the body. Mature bucks weigh from 125 to 175 pounds and mature does 80 to 90 pounds. Angora goat hair is called mohair. The fiber quality of mohair from goats raised under more rainy or high-humidity conditions usually does not match that of mohair produced in more arid regions.

Spanish meat goats are larger than Angora, have less hair, and come in a variety of colors. They are very hardy and require a minimum of management and labor. Their unique feature is their reproductive physiology. Unlike dairy goats, which breed only in the fall to winter months, Spanish goats are polyestrous (they can breed throughout the year). This allows for year-round kidding and yearling meat production.

Another meat breed, the Boer, was introduced from South Africa. Boer goats are also polyestrous. Under good management, many does are known to rebreed while still nursing. Boer goats are highly versatile in their ability to adapt to various climates and production systems.

The Kiko breed of goats originated in New Zealand and the breed was selected for survivability and growth rate; consequently, there is no common coat color or pattern. Kiko goats consistently produce a lean, well-muscled goat of large frame and exceptional survivability under a wide range of climatic conditions.

Breeding and Selection

Important considerations in a selective breeding program are multiple births, twice-a-year kidding, rapid growth, good conformation (sound feet, legs, and mouth), and attention to color standards for certain breeds. Because income is derived primarily from the sale of kids, multiple births should be a high priority in the selective breeding program. Give preference to early born kids for replacements, and select doe kids from does that kid twice each year.

Good reproductive performance can be an indicator of a breed’s compatibility with the environment. Meat goats have a reputation for high fertility, averaging 98 percent of does bred under good management and nutrition. Given proper care, the does should be capable of maintaining a birth rate of 1.9–2.3 kids per doe.

Although meat goats are polyestrous, peak sexual activity occurs during the autumn months. The apparent decline in male libido during late spring and summer can lower reproductive rates during these times. To improve herd management, bucks should not be allowed to run with the does throughout the year. A planned breeding season also allows you to better manage does during pregnancy. Kids will also be more uniform in size at weaning, which is preferable

for marketing as well as raising doelings as replacements. A continuous breeding season is discouraged because it subjects underdeveloped replacement doe kids to the buck. These factors can have a negative influence on overall profitability. A well-planned breeding program is highly recommended for any producer interested in expanding to a sizable commercial operation of greater than fifty head of breeding-age does. Focus your breeding schedule to take advantage of the best marketing opportunities for your area.

The gestation period for does varies from 148 to 152 days. If does are bred two times per year, kids should be weaned at 2–3 months of age. The weaning period is a good time to accustom future replacement stock to a supplement feed should the need arise to provide a limited amount of a concentrate feed. These replacement doe kids can return to the breeding flock when they reach desirable size (two-thirds their mature weight) or are one year old.

Fencing and Facilities

Goats require tight fencing. Electric netting fence can provide a temporary enclosure, but goats will eat through such a fence if it is used as a confinement structure and not continuously electrified. Woven wire fencing may be used, but the goat's horns may become entangled in the fencing and severely harm the goat. If woven wire is used, you will need to check the goats frequently to free trapped goats. A five- or six-strand high-tensile fence with electrified first, third, and top wires has proved to be an effective goat-tight fence (Figure 1).

Like other livestock, goats need some type of restraint facility and shelter when on pasture. Regular sheep-working pens are adequate for goats. Cattle pens can be easily adapted by making the lower section goat tight. An open shed arrangement of 10–12 square feet per doe can provide shelter during extremely hot or cold weather.

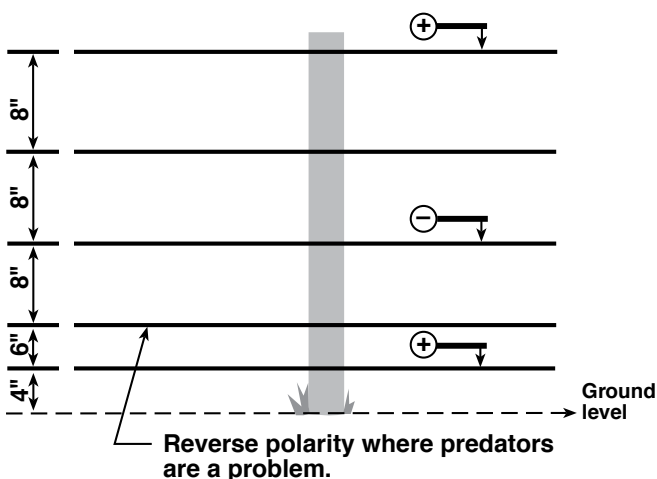


Figure 1. High-tensile electric fence wire.

Herd Health Considerations

A preventative health program should be carefully worked out with your veterinarian. Goats are more susceptible to internal parasites than other types of livestock. Control of internal parasites is probably the most important health issue for goats. Generally, control methods for sheep within a certain region of the country will also be effective for goats. Problem diseases associated with reproduction or kidding can be managed and treated, in most instances, the same as for sheep.

Pasture Management

Pasture productivity is often measured in animal unit months (AUM). An AUM is the minimum area of grazing land required by one mature 1,000-pound beef cow for one month. Where one AUM is enough for a single cow, one AUM is generally enough for five to six meat goat does.

If stocked according to recommendations in your locale, meat goats can be grazed with other livestock. In marginal grazing lands, goats have been shown to complement both sheep and cattle. Goats consume a higher percentage of brush and other less desirable plants; thus, they help maximize the use of marginal pastureland as well as improve forage production over time.

A carefully planned rotational grazing program can enhance pasture production and help control internal parasites. High-quality pastures and small-grain pastures are good for kidding since they provide excellent feed for milk production. Supplemental grazing in stubble fields, corn fodder, small-grain pastures, and brassicas can be used to either extend the grazing season or boost required nutrient levels for some critical phase of production. Moving goats out of pasture before the grass is less than 3 inches tall will help prevent internal parasite infection.

In general, growth rates for meat goats are slower than those of sheep. Under favorable nutritional conditions, meat goats may gain at a rate of more than 200 grams (0.45 pounds) per day from birth to 100 days of age.

Local Regulations

All agricultural operations in Pennsylvania, including small and part-time farming operations, operate under the Pennsylvania Clean Streams Law. A specific part of this law is the Nutrient Management Act (also known as Act 38). Portions of this law may or may not pertain to your operation due to the number and/or size of animals you have. However, all operations may be a source of surface or groundwater pollution. Because of this possibility, you should contact your local Soil and Water Conservation District to determine what regulations may pertain to your operation.

Risk Management

There are several risk management strategies you may employ for your operation. You should insure your facilities as well as your animals. This may be accomplished by consulting your insurance agent or broker. You may also insure your income through a crop insurance program called AGR-Lite. To use AGR-Lite you must have five years of Internal Revenue Service (IRS) Schedule F forms. You can then contact an agent who sells crop insurance and insure the income of your operation. For more on agricultural business insurance, see *Agricultural Alternatives: Agricultural Business Insurance*.

Sample Meat Goat Budget

The sample budget includes cost estimates for a meat goat herd of 100 does and three bucks. The budget summarizes the receipts, costs, and net returns of a meat goat enterprise. This sample budget should help ensure that all costs and receipts are included in your calculations.

Costs and returns are often difficult to estimate in budget preparation because they are numerous and variable. Therefore, you should think of this budget as an approximation and make appropriate adjustments in the “Your Estimate” column to reflect your specific production and resource situation. More information on the use of crop budgets can be found in *Agricultural Alternatives: Enterprise Budget Analysis*.

For More Information

Amundson, C. *How to Raise Goats*. Osceola, WI: Voyageur Press, 2008.

Bowman, G. B. *Raising Meat Goats for Profit*. Atlanta, GA: Bowman Communications, 1999.

Dunn, P. *The Goatkeeper's Veterinary Book*. Ipswich, UK: Old Pond Publishing, 2004.

Greaser, G., and J. Harper. *Agricultural Alternatives: Enterprise Budget Analysis*. University Park: Penn State Cooperative Extension, 1994.

Kime, L., J. Adamik, E. Gantz, and J. Harper. *Agricultural Alternatives: Agricultural Business Insurance*. University Park: Penn State Cooperative Extension, 2004.

Mowlem, A. *Practical Goat Keeping*. Wiltshire, UK: Crowood Press, 2001.

Sayer, M. *Storey's Guide to Raising Meat Goats*. North Adams, MA: Storey Publishing, 2007.

Weaver, S. *Goats: Small-scale Herding for Pleasure and Profit*. Laguna Hills, CA: Hobby Farm Press, 2000.

Associations and Websites

Alberta Goat Breeders Association
Box 4603 – 61 Avenue
Leducs, Alberta T9E 7A4
Canada
Web: www.albertagoatbreeders.ca

American Boer Goat Association
1207 South Bryant Blvd. Suite C
San Angelo, TX 76903
Phone: 325-486-2242
Web: www.abga.org

American Meat Goat Association
PO Box 978
Sonora, TX 76950
Web: www.meatgoats.com

Penn State Meat Goat Home Study Course
bedford.extension.psu.edu/agriculture/goat/goat%20lessons.htm

Publications

Meat Goats, a booklet about the basics of goat production, is available from the Alberta Goat Breeders Association for \$15.00 (U.S.).

Meat Goat Monthly News, news magazine of the American Meat Goat Association, is available from Ranch Publishing, PO Box 2678, San Angelo, TX 76902; phone: 325-655-4434.

Prepared by Melanie E. Barkley, extension educator in Bedford County; Karen Knoll, former extension educator in Adams County; Lynn F. Kime, senior extension associate in agricultural economics; and Jayson K. Harper, professor of agricultural economics

Initial Resources:

- 100 does: \$20,000
- 3 bucks: \$600
- Fencing for 10 acres: \$13,000 to \$13,500
- Chutes, gates, feeders, waterers, etc.: \$7,500 to \$8,500

Sample Budget: Spring Kidding Program for One Hundred Meat-Type Does and Three Bucks

Income Amount/Doe	Enterprise estimate (s)	Per doe estimate	Your estimate
194 kids x \$80/head*	\$15,520.00	\$155.20	_____
16 cull does x \$85/head**	\$1,360.00	\$13.60	_____
0.75 bucks x \$85***	\$63.75	\$0.64	_____
Gross income/enterprise	\$16,943.75	\$169.44	_____
Variable Costs			
Hay (10 tons x \$125/ton)	\$1,250.00	\$12.50	_____
Feed (doe) 60.4 lb per doe	\$900.00	\$9.00	_____
Feed (kids)	\$2,246.25	\$22.46	_____
Salt and minerals (16 lbs x \$0.50/lb)	\$800.00	\$8.00	_____
Veterinary expenses	\$558.00	\$5.58	_____
Marketing and hauling	\$500.00	\$5.00	_____
Vehicle, fuel, utilities, other miscellaneous	\$1,000.00	\$10.00	_____
Labor (4 hrs per doe)			_____
Operating capital interest @ 365 days x 6% interest	\$175.63	\$1.76	_____
Variable cost/enterprise	\$7,429.88	\$74.30	_____
Receipts over variable expenses	\$9,513.87	\$95.14	_____
Fixed Costs			
Land charge	\$250.00	\$2.50	_____
Depreciation	\$3,855.25	\$38.55	_____
Repairs and maintenance	\$283.34	\$2.83	_____
Insurance	\$244.67	\$2.45	_____
Interest	\$1,194.41	\$11.94	_____
Total fixed costs	\$5,827.67	\$58.28	_____
Total costs	\$13,257.55	\$132.58	_____
Net returns	\$3,686.20	\$36.86	_____

Assumptions

*175 percent kidding rate with 20 doe kids saved as replacements (number of kids sold reflects 3 percent death loss). Kids sold at 80 pounds.

**Does culled at average of 8 years of age. Cull does weigh 100 pounds.

***Bucks replaced every 4 years.

Does and bucks cost \$200 each.

Limited supplemental feeding of hay to does during winter; limited grain feeding during late gestation and early lactation. Kids fed 1.0 pound feed per day for 100 days postweaning.

extension.psu.edu

An **OUTREACH** program of the College of Agricultural Sciences

Penn State College of Agricultural Sciences research and extension programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

This publication is available from the Publications Distribution Center, The Pennsylvania State University, 112 Agricultural Administration Building, University Park, PA 16802. For information telephone 814-865-6713.

This publication is available in alternative media on request.

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. It is the policy of the University to maintain an academic and work environment free of discrimination, including harassment. The Pennsylvania State University prohibits discrimination and harassment against any person because of age, ancestry, color, disability or handicap, genetic information, national origin, race, religious creed, sex, sexual orientation, gender identity, or veteran status and retaliation due to the reporting of discrimination or harassment. Discrimination, harassment, or retaliation against faculty, staff, or students will not be tolerated at The Pennsylvania State University. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Director, The Pennsylvania State University, 328 Boucke Building, University Park, PA 16802-5901; Tel 814-865-4700/V, 814-863-0471/TTY.

Produced by Ag Communications and Marketing

© The Pennsylvania State University 2012

Code # **UA340** R1.5M05/12mpc3995c