
AGRICULTURAL ALTERNATIVES

agalternatives.aers.psu.edu

Meat Goat Production

Goat is the most highly consumed meat in the world, and more goats' milk is consumed worldwide than cow's milk. In the United States, meat goat production increased by 4 percent from 2007 to 2008 because of goats' economic value as efficient converters of low-quality forages into quality meat, milk, and hide products for specialty markets. Imports from other countries have increased by about 10 percent each year over the past decade.

There are several reasons for goats' growing popularity in this country. A big factor is the larger number of ethnic groups who have settled in this country and who 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.

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.

General Characteristics and Information

Goats have unique behaviors. They 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 bucks or bucklings. Young goats are called kids.

Bucks usually do not make good family pets because of their aggressive behavior and strong urine-like odors. Buck odors are most offensive during the breeding season, usually 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 biological herbicide for controlling many undesirable plants and shrubs.

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.

PENNSSTATE



College of Agricultural Sciences
Agricultural Research and Cooperative Extension

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 more than 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 flocks of dairy goats may be an important income source. This versatility allows the producer to plan and operate a more stable economic production unit.

Fiber Breed

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, 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.

Meat Goat Breeds

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.

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 also are 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 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 natural conditions.

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. The higher collagen content and lower solubility of goat meat, compared with lower levels of the same features in lamb, reduces the overall palatability and tenderness of goat meat. Breeding and slaughtering techniques appear to be key in improving the tenderness factor of goat meat.

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. Since 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 are capable of maintaining a birth rate of 1.93 to 2.25 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 allows the producer 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. Also, 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 sizeable 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 can vary from 148 to 152 days, but five months is the average time. If breeding does two times per year, kids should be weaned at two to three 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.

Pasture Management

Pasture productivity is often measured in animal unit months (AUM). An AUM is the minimum area of grazing land required by one 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.

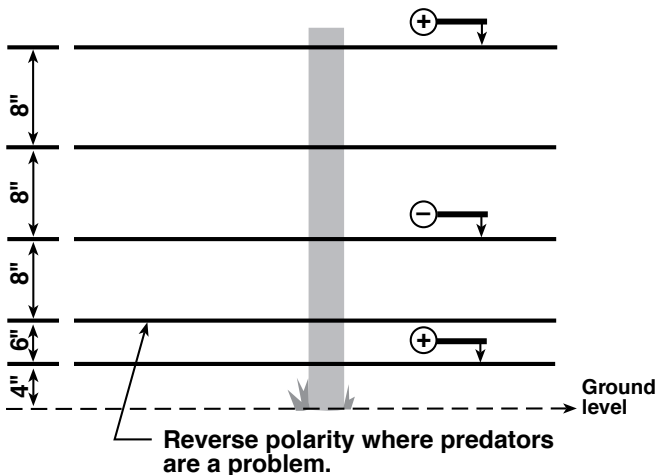
If stocked according to area recommendations, meat goats can be grazed along with other livestock. In marginal grazing lands, goats have been shown to complement both sheep and cattle. Goats consume a higher percentage of brush and other less desirable plants; thus, they help maximize the use of marginal 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 because they provide excellent feed for milk production. Supplemental grazing in stubble fields, corn fodder, small grain pastures, and brassicas can be used either to extend the grazing season or to boost required nutrient levels for some critical phase of production. Moving goats out of pasture before the grass is less than three inches tall will help prevent internal parasite infection.

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. Woven wire fencing may be used; however, the goat's horns may become entangled in the fencing, severely harming 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).

Figure 1. High-tensile electric fence wire.



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 to 12 square feet per doe can provide shelter during extremely hot or cold weather.

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.

Markets for Goat Meat

Like goats' milk and cheese, 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 demand for meats with less fat.

Cabrito stands for roasted meat from goat kids four to eight 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 to 60 pounds or six to nine months old. Of these two types, cabrito is the tenderest.

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 reflection 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) target 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 can provide real opportunities, especially for producers within close proximity to the market.

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 and livestock budgets can be found in *Agricultural Alternatives: Enterprise Budget Analysis*.

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

For More Information

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

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

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

Greaser, G., and J. Harper. *Agricultural Alternatives: Enterprise Budget Analysis*. University Park: The Pennsylvania State University, 1994.

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

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

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

Weaver, S. *Goats: Small-scale Herding for Pleasure and Profit*. Laguna Hills, Calif.: Bow Tie Press, 2000.

Associations and Web Sites

Alberta Goat Breeders Association
Box 330
Hay Lakes, Alberta
Canada T0B 1W0
Phone and fax: 780-878-3814
www.albertagoatbreeders.ca

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

American Meat Goat Association
PO Box 676
Sonora, TX 76950
Phone: 325-387-6100
www.meatgoats.com

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

Publications

The Goatkeeper's Veterinary Book. 3rd ed. Ipswich, U.K.: Farming Press.

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: 915-655-4434.

Table 1. Spring kidding program for one hundred meat-type does and three bucks.

INCOME AMOUNT/DOE	ENTERPRISE ESTIMATE (\$)	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 \$25/acre x 10 acres	\$250.00	\$2.50	
Depreciation	\$4,381.40	\$43.81	
Repairs and maintenance	\$336.05	\$3.36	
Insurance	\$271.02	\$2.71	
Interest	\$1,352.54	\$13.53	
Total fixed costs	\$6,591.00	\$65.91	
Total costs	\$14,020.88	\$140.21	
Net returns	\$2,922.87	\$29.23	

ASSUMPTIONS

*175 percent kidding rate with 20 doe kids saved as replacements (number of kids sold reflects 3% 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 post weaning.

Fixed Expense Sheet

ITEM	COST EACH	USEFUL LIFE	AMOUNT NEEDED	TOTAL COST	CALCULATIONS	SALVAGE VALUE	ANNUAL DEPRECIATION	INTEREST ON INVESTMENT	INSURANCE	REPAIRS
Doe	\$200.00	6	100	\$20,000.00	200-85/6	\$8,500.00	\$1,916.67			
Buck	\$200.00	4	3	\$600.00	200-85*3/4/100	\$255.00	\$86.25			
Barn	\$12,500	25	1	\$12,500.00	12,500/25/100	\$—	\$500.00			
Fencing	\$5.00	10	2,640	\$13,200.00	2640*5/10/100	\$—	\$1,320.00			
Working chute	\$4,000.00	20	1	\$4,000.00	4,000/20/100	\$100.00	\$195.00			
Gates	\$100.00	10	4	\$400.00	100*4/10/100	\$40.00	\$36.00			
Feeders	\$150.00	10	6	\$900.00	150*6/10/100	\$60.00	\$84.00			
Hay feeder	\$325.00	10	2	\$650.00	325*2/10/100	\$65.00	\$58.50			
Kidding pens	\$700.00	10	1	\$700.00	700/10/100	\$—	\$70.00			
Waterers	\$510.00	15	2	\$1,020.00	510*2/15/100	\$100.00	\$61.33			
Hoof trimmer	\$19.00	5	1	\$19.00	19/5/100	\$—	\$3.80			
Drench gun	\$13.00	5	1	\$13.00	13/5/100	\$—	\$2.60			
Ear tagger	\$22.00	5	1	\$22.00	22/5/100	\$—	\$4.40			
Tube feeder	\$3.00	5	1	\$3.00	3/5/100	\$—	\$0.60			
Collars	\$3.00	5	5	\$15.00	3*5/5/100	\$—	\$3.00			
Leads	\$4.00	5	5	\$20.00	4*5/5/100	\$—	\$4.00			
Marking harness	\$27.00	5	4	\$108.00	27*4/5/100	\$—	\$21.60			
Lamb puller	\$12.00	5	1	\$12.00	12/5/100	\$—	\$2.40			
Thermometer	\$2.50	2	1	\$2.50	2.50/2/100	\$—	\$1.25			
Buckets	\$5.00	2	4	\$20.00	5*4/2/100	\$—	\$10.00			
includes breeding stock =====>			all depreciable assets	\$54,204.50		\$9,120.00	\$4,381.40	\$1,352.54	\$271.02	\$336.05
			facilities & equipment	\$33,604.50			per 100 does	per 100 does	per 100 does	

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

Visit Penn State's College of Agricultural Sciences on the Web: agsci.psu.edu

Penn State College of Agricultural Sciences research, extension, and resident education 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, national origin, race, religious creed, sex, sexual orientation, gender identity, or veteran status. Discrimination or harassment 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, 814-863-1150/TTY.

Produced by Ag Communications and Marketing

© The Pennsylvania State University 2009

Code # UA340 Rev1.5M8/09mpc3995c