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# AGRICULTURAL ALTERNATIVES

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## Dairy Goat Production

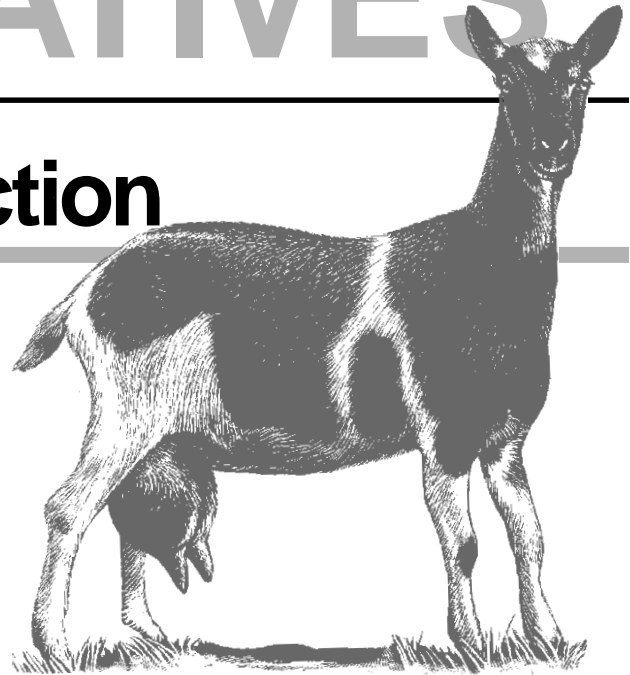
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Dairy goat production is an alternative livestock enterprise suitable for many small-scale or part-time livestock operations. Some dairy goat producers have been successful in pasteurizing goat milk and building an on-farm jugging business; others have ventured into processed milk products for retail distribution. The potential also exists for selling milk to processors, usually on a regional basis. Although fluid milk and processed products are important markets, dairy goat producers should also consider the potential for selling animals to hobbyists and youth involved in vocational agriculture livestock projects.

Goat's milk has specialized markets because of its composition. It has higher digestible protein and fat content than cow's milk. This combination is beneficial in infant diets (both human and animal) as well as in invalid and convalescent diets. Goat's milk tends to have a buffering quality that makes it useful in the treatment of ulcer patients. Goat's milk can often be consumed by people who have allergies to cow's milk, and it can be used as milk replacer for other farm animals.

The main marketing limitation for prospective dairy goat producers is the number of commercial processors to whom raw milk can be shipped. It is against the law in most states, including Pennsylvania, to sell raw milk unless it is inspected by state milk inspectors. An alternative use for goat's milk is as an on-farm substitute for milk replacer in lamb, veal, and pig diets. To use goat's milk as an alternative feed source requires that the dairy goat producer buy and market lambs, veal animals, or piglets. This means additional management and marketing skills are necessary, but it does allow the use of goat's milk without state inspection.

Dairy goat producers must also realize that income from the kid goat crop is important. In addition to marketing fluid milk or using it as an on-farm milk replacer, the producer



must have a kid goat marketing strategy. It may be beneficial to raise kid goats to different market weights and for different market seasons. Many ethnic groups in the northeastern United States will buy kid goats. Producers must be aware of the desired weights and times when demand is greatest in such markets.

The six major dairy goat breeds are the Saanen, Nubian, Toggenburg, LaMancha, Oberhasli, and Alpine.

### Sample Budgets

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The sample budgets in this publication are an example of costs and returns to:

- A commercial production system for 100 does with milk sold to a milk processor.
- A production system for 10 to 20 does with the milk fed to veal.

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These sample budgets 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 these budgets as a first approximation and then make appropriate adjustments using the “Your Estimate” column to reflect your specific production situation.

## Production

The lactation period for dairy goats averages 284 days. Peak production usually occurs four to six weeks after kidding. Table 1 lists specific production data for the various goat breeds.

Dairy goats reach sexual maturity at four to five months of age. The young does should be bred at a body weight ranging from 66 to 75 pounds, which usually is at an age of seven to ten months. A gestation period ranges from 145 to 155 days with an average length of 149 days.

Does normally produce two kids per year weighing approximately 6.5 pounds at birth. Daily weight gains after birth are shown in Table 2.

To ensure efficiency and productivity of an enterprise, the three most important recommendations are:

- Manage young does to have them ready for breeding at seven months of age. This increases the total lifetime herd production of milk and meat and reduces the number of nonproducing animals in the herd at any one time.
- Encourage freshening of the does over as wide a time span as possible. This provides the customers with a year-round source of milk.
- Cull animals to eliminate low producers. This can increase the herd productivity if animals are culled for genetic reasons.

## Herd Health and Nutrition

To maintain milk production and body condition, goats should be fed a balanced ration of hay, grain mixes, good pasture, and perhaps mineral and vitamin supplements. Ready access to good water also is essential for milk production and herd health.

Most herd problems relate to nutrition, metabolism, and reproduction rather than to infectious and contagious diseases. Mastitis may be an exception, but the best defenses against this disease are sanitary conditions, good milking procedures, and well-ventilated and drained housing. Injuries to udders and teat ends also contribute to this disease, which can lower milk production and cause permanent damage to does.

Good nutrition, proper milking procedures, reproductive management, and disease and parasite control will help keep your herd healthy. A healthy goat herd, in turn, will yield dividends in productivity, longevity, and economic returns.

## Housing and Equipment

There are four requirements for efficient dairy goat housing. First, the buildings should be adequately ventilated and the walls and ceiling should be free from condensation. Second, the bedded area should be dry and clean. Third, feeders and watering devices must be well built and located so that feed and water are not contaminated or wasted. Fourth, housing should be arranged to minimize the amount of labor and time required for maintaining a clean facility.

The milking area should be separated from the stable area and have a concrete floor to make cleaning easy. The milking platform should be 15 to 18 inches higher than the floor to permit easy milking.

Milk must be cooled immediately after milking and held at a temperature under 40°F until processed or consumed. Cooling is critical to retention of milk flavor and quality. Bacteria in warm milk begin to multiply in a short period of time and cause a deterioration of the milk quality.

Regardless of the size of the dairy goat herd, refrigeration must be available to cool the milk quickly. Cold water is more efficient than cold air for cooling milk. The refrigerator or cooler for small herds should accommodate a pan of water equal to the amount of milk in one or more milking buckets. A herd producing 10 or more gallons per day will need a water-immersion cooler or a bulk tank cooler.

**Table 1. Representative production data.**

BREED	BODY WEIGHT LB	MILK PRODUCTION LB/LACTATION	MILK FAT %	MILK PROTEIN %
Saanen	135	2,154	3.6	—
Alpine	135	2,134	3.5	—
Toggenburg	120	2,026	3.3	—
LaMancha	130	1,837	3.9	—
Nubian	135	1,797	4.5	—
1997 PA-DHIR <sup>a</sup>	—	2,028	3.8	3.3

<sup>a</sup>Records provided by the Pennsylvania Dairy Herd Improvement Association.

**Table 2. Growth and average daily weight gain data.**

GROWTH STAGE	MALES AVERAGE DAILY GAIN	FEMALES AVERAGE DAILY GAIN
First 8 months	0.24 to 0.31 lb	0.20 to 0.24 lb
Fattening	0.40 to 0.51 lb	0.40 to 0.44 lb
Vealing at 20 to 40 days	0.44 lb	0.40 lb

Prepared by Virginia A. Ishler, program assistant for dairy and animal science; George L. Greaser, senior research associate for agricultural economics; Clair C. Engle, associate professor of animal science; and Jayson K. Harper, associate professor of agricultural economics.

## Sample Dairy Goat Budget (per doe, per year)

Does averaging two kids. Fixed costs are based on a 100-doe facility (artificial insemination).

Item	Per doe	Amount	Unit	Price	Total	Your estimate
<b>Receipts</b>						
Milk sales		20	cwt	\$21.00	\$420.00	_____
Does culled (5% death loss, 40% culled)	0.4	120	pound	\$1.20	\$57.60	_____
Male kids sold (8% death loss)	0.92	30	pound	\$1.50	\$41.40	_____
Replacements sold (fertile, nonfertile)	0.52		head	\$130.00	\$67.60	_____
<i>Total receipts</i>					\$586.60	_____
<b>Variable costs</b>						
Feed						
Concentrates for doe and replacement		13.1	cwt	\$10.00	\$131.00	_____
Kids for meat sold at 30 pounds		0.4	cwt	\$12.00	\$4.75	_____
Hay		0.8	ton	\$95.00	\$76.00	_____
Milk fed to replacements		9.24	gallon	\$2.41	\$22.30	_____
<i>Total feed costs</i>					\$234.05	_____
Other variable costs						
Building and equipment repairs				\$6.00	\$6.00	_____
Bedding (straw)		0.15	ton	\$50.00	\$7.50	_____
Misc. livestock supplies				\$8.00	\$8.00	_____
Breeding fees				\$15.00	\$15.00	_____
Health program				\$10.00	\$10.00	_____
Milk testing (DHIA)				\$15.00	\$15.00	_____
Utilities, gasoline, fuel, oil				\$15.00	\$15.00	_____
Milk hauling, freight		20	cwt	\$2.50	\$50.00	_____
Marketing, advertising, coop dues		20	cwt	\$0.05	\$1.00	_____
<i>Total other variable costs</i>					\$127.50	_____
<i>Total variable costs</i>					\$361.55	_____
<b>Fixed costs</b>						
Family and hired labor		22	hour	\$5.00	\$110.00	_____
Insurance and taxes				\$3.00	\$3.00	_____
Milking equipment depreciation		10	year	\$132.00	\$13.20	_____
Building, other equipment depreciation		10	year	\$100.00	\$10.00	_____
<i>Total fixed costs</i>					\$136.20	_____
<b>Total costs</b>					\$497.75	_____
<b>Returns</b>						
Returns over variable costs					\$225.04	_____
Net returns					\$88.84	_____

### Initial resource requirements

- Land: 10 acres
- Labor (per/head): 22 hours x 100 animals = 2,200 hours
- Capital
  - Livestock (per head): \$200 x 100 does = \$20,000
  - Existing buildings, improvements, fencing: \$13,800
  - Milking equipment, storage: \$8,200

## Sample Dairy Goat Budget (per doe, per year)

Fixed costs based on 10 to 20 does and one buck. Each doe averaging two kids. Milk used as a livestock feed.

Item	Per doe	Amount	Unit	Price	Total	Your estimate
<b>Receipts</b>						
Value of milk as feed		20	cwt	\$11.00	\$220.00	_____
Does culled (5% death loss, 40% culled)	0.40	120	pound	\$1.20	\$57.60	_____
Male kids sold (8% death loss)	0.92	30	pound	\$1.50	\$41.40	_____
Replacements (fertile, nonfertile) sold	0.52		head	\$130.00	\$67.60	_____
Buck (cull)	0.03	150	pound	\$1.00	\$3.75	_____
<i>Total receipts</i>					\$390.35	_____
<b>Variable costs</b>						
<b>Feed</b>						
Concentrates for does, replacements, rams		13.50	cwt	\$10.00	\$135.00	_____
Kids for meat sold at 30 pounds		0.40	cwt	\$12.00	\$4.75	_____
Hay		0.82	ton	\$95.00	\$77.90	_____
Milk fed to replacements		9.24	gallon	\$1.26	\$11.68	_____
<i>Total feed costs</i>					\$229.33	_____
<b>Other variable costs</b>						
Building and equipment repairs				\$3.00	\$3.00	_____
Bedding (straw)		0.15	ton	\$30.00	\$4.50	_____
Misc. livestock supplies				\$2.00	\$2.00	_____
Health program				\$5.00	\$5.00	_____
Milk testing (home test)				\$2.00	\$2.00	_____
Utilities, gasoline, fuel, oil				\$4.00	\$4.00	_____
Milk hauling and freight				\$0.00	\$0.00	_____
Marketing				\$2.00	\$2.00	_____
<i>Total other variable costs</i>					\$22.50	_____
<i>Total variable costs</i>					\$251.83	_____
<b>Fixed costs</b>						
Family and hired labor		18	hour	\$5.00	\$90.00	_____
Insurance and taxes				\$3.00	\$3.00	_____
Milking equipment depreciation		10	year	\$75.00	\$7.50	_____
Building, other equipment depreciation		10	year	\$50.00	\$5.00	_____
<i>Total fixed costs</i>					\$105.50	_____
<b>Total costs</b>					\$357.33	_____
<b>Returns</b>						
Returns over variable costs					\$138.52	_____
Net returns					\$33.02	_____

### Initial resource requirements

- Land: 10 acres
- Labor (per head)
  - 18 hours x 15 does = 270 hours
  - 12 hours x 4 bucks = 48 hours
- Capital
  - Livestock (per head)
    - \$200 x 15 does = \$3,000
    - \$350 x 1 buck = \$350
  - Existing buildings, improvements, and fencing: \$4,550

## For More Information

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### Reference Books

*Cheesemaking Made Easy*

*Raising Milk Goats the Modern Way*

Storey Communications, Inc.  
Pownal, VT 05261

*Dairy Reference Manual*

Northeast Regional Agricultural Engineering Service  
Cooperative Extension  
152 Riley-Robb Hall  
Ithaca, NY 14853-5701

Hall Press

P.O. Box 5375  
San Bernardino, CA 92412

*NRC Nutritional Requirements of Goats*

Publication No. 15  
National Academy Press  
2101 Constitutional Ave., N.W.  
Washington, DC 20418

*System Solutions for Dairy Sheep*

Alfa-Laval Agri. International AB  
S-14700 Tumba, Sweden

### Periodicals

*Dairy Goat Journal*

W. 2997 Market Road  
Helenville, WI 53137

*Statewide Goat Sales*

P.O. Box 204  
Wellington, OH 44090

*United Caprine News*

P.O. Drawer A  
Rotan, TX 79546

### Registry Associations

American Dairy Goat Association  
P.O. Box 865  
Spindale, NC 28160

American Goat Society, Inc.  
Rt. 1, Box 56  
Esperance, NY 12066

International Dairy Goat Registry  
Rt.1, Box 265  
Maple Valley, WA 98038

Arian Dairy Goats  
P.O. Box 70343  
Denver, CO 80207

## Milking Goat and Sheep Equipment

Alfa-Laval Agri. Inc.  
11100 N. Congress Avenue  
Kansas City, MO 64153-1222

Arkansas Gold Products  
P.O. Box 210  
Lamar, AR 72846

Gascoigne Milking Equipment, Ltd.  
Edison Road, Hound Mills  
Basingstoke, Hampshire  
United Kingdom RG21 2YJ

Fullwood & Bland Ltd.  
Ellesmere, Shropshire  
United Kingdom SY12 9DF

Hastings Welding  
1630 Vermillion Street  
Hastings, MN 55033

The Schlueter Company  
216 Center Street  
P.O. Box 548  
Janesville, WI 53547

New England Cheesemaking Supply Co.  
P.O. Box 85  
Ashfield, MA 01330

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