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SAMPLE COSTS FOR A 500-HEAD DAIRY GOAT OPERATION

Goat Milk for Cheese Production in California's North Coast

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INTRODUCTION

This study presents the sample costs of operating a dairy goat business in the North Coast region of California (an area extending north of San Francisco to the Oregon border). The hypothetical ranch used in this study is 55 acres in size, including the milking parlor, barns, storage, housing, fencing, and other areas required for a herd of 500 dairy goats. The milk produced at the dairy is meant for the cheese market. This study is intended as a guide that can be used to make production decisions, determine potential returns, prepare budgets, and evaluate production loans. The practices described here are based on production procedures considered typical for this enterprise and area. Sample costs for labor, materials, equipment, and custom services are based on current figures. Some costs and practices presented in this study will not apply to every situation. To help you determine your particular situation, [table 3](#) outlines the costs and returns of a dairy goat operation and provides a blank column for entering your own costs. The publication also contains tables for a monthly summary of cash returns and expenses ([table 4](#)), an investment summary ([table 5](#)), and a ranging analysis ([table 6](#)) for a dairy goat operation.

The hypothetical dairy operation, production practices, overhead, and calculations are described in the section "Assumptions" below. For additional information or an explanation of the calculations used in the study, call the UC Davis Department of Agricultural and Resource Economics, at 530-752-2414. For calculating metric equivalents, a conversion table is provided at the end of this publication.

Sample cost of production studies for many commodities are available and can be requested through the UC Davis Department of Agricultural and Resource Economics, at 530-752-4424. Studies produced during the last 5 years can be obtained from selected county UC Cooperative Extension offices or downloaded from the department Web site, <http://coststudies.ucdavis.edu>.

THE COMMERCIAL GOAT MILK INDUSTRY IN CALIFORNIA

California has a long history of producing goat milk. Many farms used to be in Southern California, but now most commercial herds are located in the central part of the state. A commercial herd is defined as one run by an inspected operator that sells milk to a processor or makes an inspected farmstead product such as cheese. The goal of commercial operators is to make a living from the enterprise, although many small farms in California rely on some off-farm income.

According to our best estimate, between 50 and 60 commercial goat herds now exist in the state. Several factors make it difficult to determine the exact number of commercial herds or goat dairies in California. The state and county milk inspec-



tors do not have easily available lists that distinguish between goat milk producers and cow milk producers. Because of new food security concerns, the state does not make sites of food production available to the public. The California Dairy Herd Improvement Association (DHIA) issued a report for the year 2004 that lists 35 herds on their testing program in California. The average herd size was 28 does. This number indicates that many herds on test are not commercial herds. Conversations with herd owners indicate that few commercial producers are members of the DHIA. The following numbers, therefore, are not from published data but were generated through industry contacts.

The San Joaquin Valley of California has approximately 40 commercial goat dairies that sell milk for fresh milk and cheese. Some of these are long-established goat farms and some are new ones. The size of these herds ranges from 150 to 1,200 goats. A single processor buys most of the milk and then sells it as fresh and dried milk throughout the nation.

In Northern California several other regions are active in the commercial goat milk industry. The Santa Rosa area has about five commercial producers, with herd size ranging from 30 to 2,000 goats. Their milk is sold mainly for cheese, yogurt, and fresh milk. Serving this region are two processors and a dozen boutique cheese makers spread throughout northern California. Goat milk is also delivered by truck back and forth between the Central Valley and the Santa Rosa area. In the Sacramento Valley there are several goat herds and one processor buying goat milk for cheese. Another area is Humboldt County, located 650 miles north of San Francisco and home to a rapidly growing goat cheese processor. Currently there are five commercial milk producers milking about 1,000 goats in this area.

Goat milk is also shipped into California in the form of frozen curd, which is added to fresh milk to make cheese. Because of this importation, it is difficult to report on the pounds of goat cheese produced and relate it to the milk produced in the state. Interest in goat milk production is increasing as the demand for cheese and other dairy products grows.

ASSUMPTIONS

The following assumptions pertain to sample costs of producing goat milk destined for the cheese market on the North Coast of California. Practices described here are not recommendations by the University of California but instead represent management and production practices and materials considered typical of a well-managed goat dairy herd. Some costs, practices, and materials may not be applicable to your situation nor used during every year. Additional ones not indicated may be needed. Management practices vary by dairy and region and variations can be significant. These costs are on an annual basis. Some recommended practices such as herd improvement testing, membership dues in associations, ultrasounding does, and others are not included in this study.

Land

The hypothetical ranch consists of 5 acres of owned land and 50 acres of rented pasture. We used a number of \$5,000 per acre for the owned land and \$30 per acre for the rented land. This is not a study about start-up costs; it is a study on operating costs of an existing dairy. Real estate purchase and rental is very difficult to predict. It is advised that new operators include land payments and interest paid on investment in their individual analysis and business planning.

GOAT DAIRY MANAGEMENT PRACTICES AND MATERIAL INPUTS

Goat Herd

The herd consists of 500 does, 10 bucks, and replacement kids. Annually, 20% of the does in the herd, or 100, are replaced. Does and replacement does are bred in late summer through winter. Kids are born 5 months after breeding. The doe milk production rates take into consideration a lower than normal milk production period during the months of gestation. In this study it is assumed that the 500 does will produce 800 kids. This rate takes into consideration twins, triplets, does that did not conceive, embryo losses, and neonatal deaths. Most of the doe kids and all of the buck kids are sold within 3 days to 1 week after birth through commercial markets (or given away). A group of doe kids is kept to become replacement does in the herd. With good management, young kid survival rates should be 95%.

A set of 130 female kids is retained to become part of the replacement herd. Out of these 130 replacements, 30 will either die or be culled for various reasons during the first year. Does are bred at eight to ten months of age. After kidding, 100 young does are moved into the milking herd. This study assumes that all 30 culled replacement does are sold.

Approximate dates for various operations are shown in [table 1](#).

For breeding purposes, 10 bucks are kept year-round. Twenty percent, or two bucks per year, are replaced for age, breeding, or disease-related issues. The new bucks are purchased outside of the herd.

A flowchart of the goat herd on an annual basis is shown in [figure 1](#). Both herd population and production used for sales are indicated.

Table 1. Months of major operations

Operation	Month
Winter feeding	August–January
Outside grazing	February–July
Breeding	August–January
Kidding	January–March
Weaning	January–March
Milk and goat sales*	annually (varies)

Note: *For milk and goat sale dates see table 2.

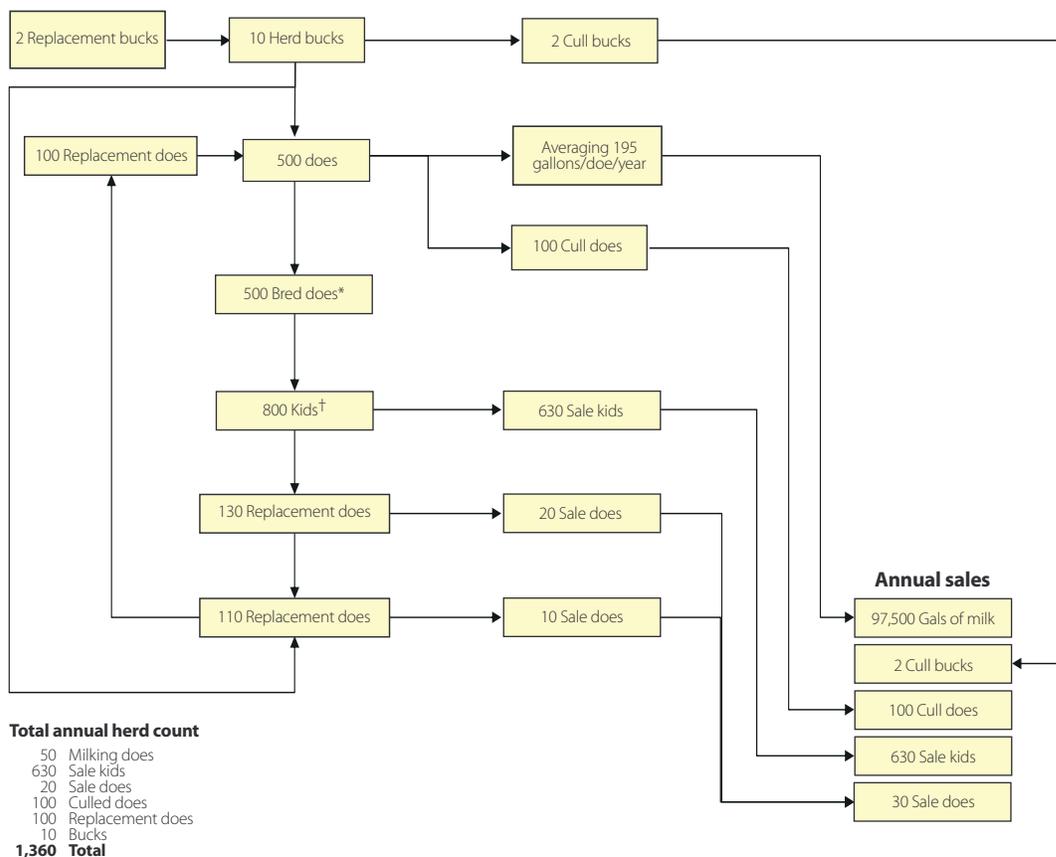


Figure 1. A 500-doe dairy goat operation. Notes: *A 160% conception rate is used; †A 5% mortality is assumed.

Feed

Dairy pellets contain both grain and ground forage. These are desirable as goats can be selective feeders and waste grains when offered a mix. Pellets, however, can present problems with fines and create the extra chore of cleaning feeders, so they are not chosen by some producers. Availability of feed products in the region will vary, and, in some of the counties, dairy pellets are not even available. Some producers order a custom mix that is usually more expensive than dairy pellets. Goats are also fed supplemental minerals and salt in blocks, not mixed with the feed. It is assumed that a herd this size will consume 72 supplemental mineral blocks annually or its equivalent in loose salts (for ease of pricing, blocks are used).

Milking Does

Milking does consume an average of 3.5 pounds of grain per day annually. Does are fed alfalfa hay most of the year, except for the few months when the pasture is sufficient. Milking does consume an average of 5 to 6 pounds of total feed per day.

Bucks

Bucks consume an average of 1 to 2 pounds of grain during most of the year and 2 to 3 pounds during breeding. Bucks are not given any grain during the wet season. They are fed hay, which is included in the hay totals.

Kids

Kids being raised as replacements are fed milk replacement from 2 days old to 8 weeks of age. The pricing used is for a milk replacement bought by the pallet load (40 sacks at 50 pounds each). Kids also consume grain, starting to nibble at 2 weeks and consuming about 1.5 pounds a day by weaning. In the first year the average kid's grain consumption is 450 pounds. Some producers will cut back on grain significantly for several months if optimal weight is reached. Kids are also fed alfalfa hay.

Pasture

Many goat dairies in California's North Coast have pastures or rangeland. These are accessible for browsing and exercise much of the year. Overall, the pastures do not provide much forage, and feeding is essential.

Health Care and Veterinary Management

Dairy goats routinely receive preventive treatments for certain health conditions. Does are treated for more health issues than are bucks. Herds might experience more problems or diseases than those listed below. Vaccination for overeating disease and tetanus, treatment for mastitis and internal parasites, and hoof care are the main concerns on most goat dairies.

On a regular basis all goats are given footbaths to help prevent foot rot, hooves are trimmed, and injuries are treated. This requires about 2 hours of labor every other day throughout the year. Kids are wormed, vaccinated, and disbudded. Milking does on pasture are wormed three to six times a year. These costs are included in tables 3 and 4 under "Veterinary Medicine."

Other health concerns that may occur within the herd are soremouth, abscesses, joint conditions (CAE), Johne's disease, tetanus, scours, pneumonia, parasites, and other problems. This study assumes that \$1,112 per year is spent on miscellaneous veterinary practices for the herd.

Buildings

Goat dairies vary in numbers of buildings and layouts for many reasons. For this study, it is assumed that four buildings are needed for the dairy itself, not including

housing for workers or the owner. A milk parlor, shelters for does and kids, buck shelters, and a storage building for feed, supplies, repairs, and parts are the necessary buildings.

The milking parlor is built to milk 12 does at a time and is laid out in a herringbone pattern. It also has a holding pen for does waiting to be milked. The building, containing a 1,500-gallon bulk milk tank and hot water heater, is 1,200 square feet. For this study, construction costs are \$66,000 with an additional \$75,000 for all the milking equipment including the bulk tank. The \$141,000 total cost is for a new building and new equipment. A producer converting an existing cow dairy parlor or using used machinery may expect lower costs.

Shelters for goats need to accommodate the animals' dislike of wet conditions. Most dairies allow goats to wander into or out of shelters as they wish. The size and type of shelters vary considerably. Some are open on all sides while others are enclosed. This study assumes a 75- by 120-foot pole barn with two enclosed walls for sheltering the doe herd, with separate pens for kids, and an area to store feed and bedding material. The buck shelter is 15 by 10 feet. Neither barn has a concrete floor, and straw bedding is used throughout. This study uses \$24,000 for the doe and kid barn and \$13,000 for the buck shelter.

The storage building measures 500 square feet and is used to keep feed, veterinary supplies, cleaning goods, machinery parts, and other materials. Most of the space is used to store feed and is open on some sides. The storage building costs \$10,250 for materials and construction.

Milking

Lactating does are milked twice daily. The does stand on elevated platforms so the milkers do not have to stoop. In this study the milking parlor has 12 stanchions. Electricity use and cost for dairies varies, but this study estimates a cost of \$8,000 annually. This includes power for lighting, machinery, cooling milk, cleaning equipment, and other uses.

Teats are cleaned and dried prior to milking. This helps keep bacteria counts low in the milk and reduces mastitis. All milking equipment is sanitized before each milking session. Goat dairies maintain the same sanitary conditions in milking parlors, milk cooling areas, and storage as cow dairies do, and these areas are inspected by county or state personnel. The costs of cleaning supplies are included in the miscellaneous expenses.

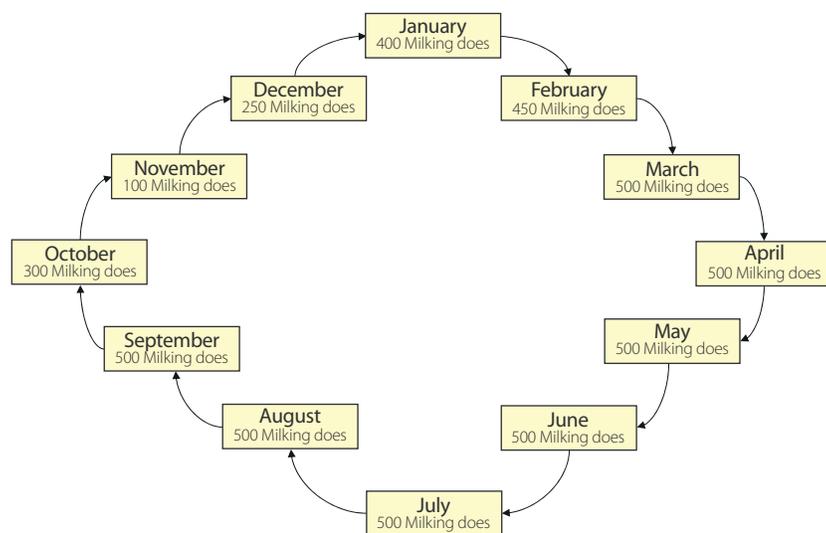


Figure 2. Annual number of does milking each month.

Milk production is expressed in both volume (gallons) and weight (hundredweight) (one gallon of milk weighs 8.6 pounds). In the North Coast most dairy goat producers express milk production in gallons (gal), but hundredweight (cwt) is also used. In this study, a total of 97,500 gallons (8,385 cwt) of milk are produced by the herd annually. Different breeds of goats give varying amounts of milk, with different factors affecting milk quality and, ultimately, price. It is assumed that a doe will produce, on average, 195 gallons (16.77 cwt) of milk annually. The actual numbers will vary by individual dairies. Figure 2 shows the number of does that are being

milked each month during the year as assumed in this study. Since goats are naturally seasonal breeders, some producers use lights and other methods to breed off-season in order to obtain a continual milk production. Some producers dry down the herd for two months and have one kidding season.

For this study the farm is not performing DHIA tests. The costs of DHIA membership, ultrasounds, and other practices are not included in this study.

Transportation Cost

There are two types of transportation costs: one for delivering milk and the other for hauling animals to sale. Milk is picked up two or three times per week, depending on the season, herd size, and the dairy's milk-holding capacity. Hauling costs depend on many factors, such as charges per mile to the plant, stop charges, and milk quality sampling costs. In this study, a transportation charge of \$70 per week is used.

Animals are normally not sold year-round. Producers often transport many at one time to save on costs. Most sales occur after nonreplacement kids are a few days old and when animals are culled from the herd. This study uses a cost of \$200 annually for hauling animals.

Sales and Returns

In this study, goat milk is sold to the cheese production market. The price for milk destined for this market is variable. Protein and butterfat content play a large part in determining the price received by producers. Prices also tend to vary with the season. When milk production is lower in the winter and spring, protein and butterfat levels tend to be higher. Quality premiums for low bacteria counts are not included in the price for this study. A price of \$3.40 per gallon (\$39.53 per cwt) is used for return purposes only. Fluid milk sales are shown in [table 2](#).

Animal sales will also vary depending on birth rates, mortality, and culling. Categories, price per head, and the number of animals used in this study are also shown in [table 6](#).

Labor

Although the basic hourly wage for milkers and general labor is \$6.75, labor rates are calculated at \$9.59 per hour because payroll overhead of 42% is included. This overhead includes the employer's share of federal and California state payroll taxes, workers' compensation insurance for a dairy operation, and a percentage for other possible benefits including the provision of housing. Although a specific cost is not used in this study, most dairies in the North Coast supply housing because of the scarcity of affordable accommodations and low worker wages. Workers' compensation insurance costs will vary among dairies, but for this study the cost is based on the average industry final rate as of January 1, 2005 (California Department of Insurance).

Table 2. Sale prices for commodities marketed

Unit name	Sale date	Unit	Number of units	Price per unit (\$)	Returns (\$)
Fluid milk	annually	gallons	97,500	3.40	331,500
Kids	January–March	head	400	1.00	400
Small kids	April	head	230	15.00	3,450
Cull bucks	June	head	2	100.00	200
Cull and sale does	August–January	head	130	85.00	11,050
TOTAL					346,600

A total of 130 hours of labor per week is estimated. Milking takes 10 hours every day, including cleanup. Many scenarios are possible for the needed labor: a full-time employee working 5 days per week combined with a part-time relief milker working two days a week or the owner milking some shifts, etc. The hired labor totals 70 hours per week at minimum wage. Besides milking, the tasks consist of repairs, feeding, breeding, and all animal management. The owner also provides labor for all aspects of the dairy. The owner works 7 days per week, for a total of 60 hours per week. With 2 weeks away, the study assumes 3,000 hours of owner labor annually. The owners are paid \$20.00 per hour, which includes self-employment taxes and benefits. The owner labor is included in the operating costs. Returns above total costs are a return to risk and management. These are the minimum average labor needs; seasonal differences can be expected.

Equipment Operating Costs

Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by the American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum power takeoff (PTO) horsepower and fuel type. Prices for on-farm delivery of diesel and gasoline are \$1.51 and \$2.05 per gallon, respectively. Costs are based on current delivery prices quoted by distributors and 2004 monthly price data. The cost includes a 2% local sales tax on diesel fuel and an 8% sales tax on gasoline. The gasoline price also includes federal and state excise taxes that are refundable for on-farm use when filing an income tax return. The fuel, lubrication, and repair cost per acre for each operation is determined by multiplying the total hourly operating cost for each piece of equipment used in the selected operation by the hours of operation per acre. Tractor time is 10% higher than implement time for a given operation to account for setup, travel, and down time.

Risk

Running a 500-head dairy goat operation that produces milk for the cheese market entails significant risks. While this study makes every effort to model a production system based on typical real-world practices, it cannot fully represent financial, agronomic, and market risks that affect the profitability and economic viability of a dairy goat operation. A market channel should be determined before starting a goat dairy for either fluid milk or cheese markets. Goat milk is not part of a state or federal marketing order.

Interest on Operating Capital

Interest on operating capital is based on cash operating costs and is calculated monthly until the first cash returns, at a nominal rate of 7.65% per year. A nominal interest rate is the typical rate for borrowed funds.

CASH OVERHEAD COSTS

Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm and not to a particular operation. These costs include property taxes, office expenses, liability and property insurance, and, if used, management services.

Property Taxes

Counties charge a base property tax rate of 1% on the assessed value of the property. Some counties have special assessment districts that charge additional taxes on property including equipment, buildings, and improvements. For this study, county taxes are calculated as 1% of the average value of the property. The average value equals new cost plus salvage value divided by 2 on a per-acre basis.

Office Expenses

Office and business expenses are estimated at \$5,000 annually and are included in miscellaneous expenses. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, and so forth.

Insurance

Insurance for farm investments depends on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.690% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$529 for the farm.

NON-CASH OVERHEAD COSTS

Capital Recovery Costs

Although farm equipment on a stock farm in the North Coast region might be purchased new or used, this study shows the current purchase price for new equipment. The new purchase price is adjusted to 60% to indicate a mix of new and used equipment. Annual ownership costs for equipment and other investments are shown in the various tables. They represent the capital recovery cost for investments on an annual per-acre basis.

Capital recovery cost is the amount of money required each year to recover the difference between the purchase price and salvage value (unrecovered capital). Put another way, it is equivalent to the annual payment on a loan for the investment with the down payment equal to the discounted salvage value. This is a more complex method of calculating ownership costs than straight-line depreciation and opportunity costs, but it more accurately represents the annual costs of ownership because it takes the time value of money into account (Boehlje and Eidman 1984). The calculation for the annual capital recovery costs is as follows:

$$\text{Capital Recovery Cost} = [(\text{Purchase Price} - \text{Salvage Value}) \times (\text{Capital Recovery Factor})] + [\text{Salvage Value} \times \text{Interest Rate}]$$

Salvage Value

Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (e.g., tractors and implements) the remaining value is a percentage of the new cost of the investment (Boehlje and Eidman 1984). The percent remaining value is calculated from equations developed by the ASAE based on equipment type and years of life. The life in years is estimated by dividing the wearout life, as given by the ASAE, by the annual hours of use in this operation. For other investments including irrigation systems, buildings, and miscellaneous equipment, the value at the end of its useful life is zero. The salvage value for land is equal to the purchase price because land does not depreciate.

Capital Recovery Factor

The capital recovery factor is the amortization factor or annual payment whose present value at compound interest is 1. The amortization factor is a table value that corresponds to the interest rate and the life of the equipment.

Interest Rate

The interest rate used to calculate capital recovery cost is 6.01%. This is the U.S. Department of Agriculture Economic Research Service (ERS) 10-year average of California's agricultural sector long-term rate of return to production assets from current income. It is used to reflect the long-term realized rate of return to these specialized resources that can be used effectively only in the agricultural sector. In other words, the next best alternative use for these resources is in another agricultural enterprise.

Table Values

Due to rounding, the totals may be slightly different from the sum of the components.

Table 3. Costs and returns for a 500-head goat dairy with milk sold for cheese production in California's North Coast

	Unit	Total number of head or units	Price or cost per unit (\$)	Total value (\$)	Value or cost per head (\$)	Your value
GROSS RECEIPTS						
Milk	gallon	97,500	3.40	331,500	663.00	
Kids	head	400	1.00	400	0.80	
Small kids	head	230	15.00	3,450	6.90	
Cull bucks	head	2	100.00	200	0.40	
Cull and sale does	head	130	85.00	11,050	22.10	
Total Receipts				346,600	693.20	
OPERATING COSTS						
Rented pasture	acre	50	30.00	1,500	3.00	
Mineral block	block	72	8.20	590	1.18	
Alfalfa hay	ton	75	180.00	13,500	27.00	
Oat hay	ton	75	120.00	9,000	18.00	
Dry minerals	ton	1	380.00	456	0.91	
Mixed grain and pellets	ton	320	253.00	81,023	162.05	
Kid grain	ton	16	200.00	3,200	6.40	
Calf milk replacer	sack	40	42.50	1,700	3.40	
Inspection	dairy	1	350.00	350	0.70	
Veterinary medicine	dairy	1	10,089.00	10,089	20.18	
Miscellaneous veterinary	treatment	556	2.00	1,112	2.22	
Miscellaneous expenses	month	12	666.67	8,000	16.00	
Milk transportation	week	52	70.00	3,640	7.28	
Animal transportation	trip or fuel	4	50.00	200	0.40	
Dairy electricity	month	12	666.67	8,000	16.00	
Straw bedding	biweekly	24	50.00	1,200	2.40	
Hired labor	hour	3,650	9.59	35,004	70.01	
Owner labor	hour	3,000	20.00	60,000	120.00	
Machinery (fuel, oil, lube, repair)	dairy	1	84	84	0.17	
Vehicles (fuel, lube, repair)	dairy	1	6,832	6,832	13.66	
Equipment (repair)	dairy	1	370	370	0.74	
Housing and improvements (repair)	dairy	1	3,973	3,973	7.95	
Taxes and insurance	dairy	1		5,497	10.99	
Subtotal				255,319		
Interest on operating capital	dairy	135,259	7.65%	10,347	20.69	
Total Operating Costs				265,666	531.33	
INCOME ABOVE OPERATING COSTS				80,934	161.87	
CASH OVERHEAD COSTS						
Interest on retained livestock				2,226	4.45	
Office expense				4,003	8.06	
Total Cash Overhead Costs				6,229	12.51	
NON-CASH OVERHEAD						
Capital recovery				22,206	44.41	
Total Non-Cash Overhead Costs				22,206	44.41	
TOTAL COSTS				294,102	588.26	
RETURNS TO RISK AND MANAGEMENT				52,498	104.94	

Table 4. Monthly summary of cash returns and expenses for a 500-head goat dairy with milk sold for cheese production in California's North Coast

	Returns and expenses (\$)												Total
	Sep 04	Oct 04	Nov 04	Dec 04	Jan 05	Feb 05	Mar 05	Apr 05	May 05	Jun 05	Jul 05	Aug 05	
PRODUCTION													
Milk	40,926	24,556	8,185	4,093	4,093	12,278	32,741	40,926	40,926	40,926	40,926	40,926	331,500
Kids	0	0	0	0	175	175	50	0	0	0	0	0	400
Small kids	0	0	0	0	0	0	1,950	1,500	0	0	0	0	3,450
Cull bucks	0	0	0	0	0	0	0	0	0	200	0	0	200
Cull and sale does	0	0	0	0	0	0	0	0	0	5,950	5,100	0	11,050
Total Receipts	40,926	24,556	8,185	4,093	4,268	12,453	34,741	42,426	40,926	47,076	46,026	40,926	346,600
OPERATING INPUTS													
Mineral block	49	49	49	49	49	49	49	49	49	49	49	49	590
Alfalfa hay	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	13,500
Oat hay	750	750	750	750	750	750	750	750	750	750	750	750	9,000
Dry minerals	38	38	38	38	38	38	38	38	38	38	38	38	456
Mixed grain and pellets	6,831	6,641	6,641	6,641	6,641	6,641	6,831	6,831	6,831	6,831	6,831	6,831	81,023
Kid grain	278	278	278	278	0	0	139	417	417	420	347	347	3,200
Calf milk replacer	0	0	0	0	850	850	0	0	0	0	0	0	1,700
Inspection	0	0	0	0	350	0	0	0	0	0	0	0	350
Veterinary medicine	0	780	2,875	2,715	748	58	0	2,914	0	0	0	0	10,089
Miscellaneous veterinary	0	0	102	102	202	202	202	102	100	100	0	0	1,112
Miscellaneous expenses	667	667	667	667	667	667	667	667	667	667	667	667	8,000
Milk transportation	280	350	280	280	350	280	280	280	350	280	350	280	3,640
Animal transportation	0	50	0	0	0	0	50	50	0	50	0	0	200
Dairy electricity	667	667	667	667	667	667	667	667	667	667	667	667	8,000
Straw bedding	100	100	100	100	100	100	100	100	100	100	100	100	1,200
Machinery (fuel, oil, lube, repair)	71	1	1	1	1	1	1	1	1	1	1	1	84
Vehicles (fuel and repair)	547	547	571	571	571	571	547	547	591	591	591	591	6,832
Equipment (repair)	30	30	33	33	33	33	30	30	30	30	30	30	370
Housing improvements (repair)	318	318	358	358	358	358	318	318	318	318	318	318	3,973
Taxes and insurance	0	0	0	1,374	0	0	0	0	0	1,374	2,748	0	5,497
Hired labor	3,203	3,203	1,918	1,918	2,282	3,203	3,213	3,213	3,213	3,213	3,213	3,213	35,004
Owner labor	5,000	5,000	4,750	4,750	4,900	5,000	5,100	5,100	5,100	5,100	5,100	5,100	60,000
Interest on operating expenses	127	258	395	529	664	796	923	1,070	1,200	1,333	1,462	1,590	10,347
Total Operating Costs	20,080	20,851	21,597	22,946	21,345	21,388	21,028	24,267	21,546	23,035	24,386	21,696	264,166
CASH OVERHEAD COSTS													
Interest on retained livestock	186	186	186	186	186	186	186	186	186	186	186	186	2,226
Office expenses	459	459	459	459	459	459	459	459	459	459	459	459	5,503
Total Cash Overhead Costs	644	644	644	644	644	644	644	644	644	644	644	644	7,729
TOTAL CASH COSTS	20,724	21,495	22,241	23,590	21,989	22,032	21,673	24,911	22,190	23,679	25,030	22,340	271,895
NET RETURNS ABOVE CASH COSTS	20,202	3,060	-14,056	-19,497	-17,722	-9,579	13,068	17,515	18,736	23,396	20,996	18,586	74,705

Note: Differences due to rounding.

Table 5. Investment summary for a 500-head goat dairy with milk sold for cheese production in California's North Coast

	Purchase price (\$)	Salvage/cull value (\$)	Livestock share (%)	Useful life (yr)	Annual taxes and insurance (\$)	Interest (\$)	Annual capital recovery (\$)
BUILDINGS, IMPROVEMENTS, AND EQUIPMENT							
Milking parlor	141,000	14,100	100	40	620		9,292
Barn or shelter: does	25,500	2,550	100	40	112		1,680
Barn or shelter: bucks	13,200	1,320	100	40	58		870
Storage building	10,350	1,035	100	40	46		682
Corrals	3,000	300	100	30	13		214
Fencing	5,000	500	100	30	22		357
Land	25,000	25,000	100	20	200		1,503
Veterinary equipment	390	65	100	15	0		37
Gooseneck trailer	6,930	1,155	100	20	4		573
Squeeze	1,080	180	100	10	1		133
Total Buildings, Improvements, and Equipment	231,450				1,076		15,343
PURCHASED LIVESTOCK							
Bucks	1,000	200	100	5			188
Total Purchased Livestock	1,000						188
RETAINED LIVESTOCK (Beginning Value)							
Does	60,000	28,000	100			1,760	
Replacement does	12,500	6,000	100			370	
Bucks	4,000	800	100			96	
Total Retained Livestock	76,500					2,226	
MACHINERY AND VEHICLES							
30 HP tractor and loader	20,000	2,000	100	20	0		17
Pickup 4×4 ¾ ton	26,000	2,600	75	5	2,652		4,060
Pickup ½ ton	23,000	2,300	65	7	1,768		2,599
Total Machinery and Vehicles	69,000				4,420		6,676
TOTAL					5,497	2,226	22,206

Table 6. Ranging analysis for a 500-head goat dairy with milk sold for cheese production in California's North Coast**Table 6A.** Income at various market prices of dairy goat milk

	Units	Units produced	Market prices (\$ per unit)						
Milk	gallon	97,500	2.80	3.00	3.20	3.40	3.60	3.80	4.00
Kids	head	400	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Small kids	head	230	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Cull bucks	head	2	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Cull and sale does	head	130	85.00	85.00	85.00	85.00	85.00	85.00	85.00
Gross Income (units produced × market prices)			288,100.00	307,600.00	327,100.00	346,600.00	366,100.00	385,600.00	405,100.00
Total Operating Costs (from table 3)			265,666.00	265,666.00	265,666.00	265,666.00	265,666.00	265,666.00	265,666.00
NET INCOME ABOVE OPERATING COSTS			22,434.00	41,934.00	61,434.00	80,934.00	100,434.00	119,934.00	139,434.00
Total Cash Costs (from table 4)			271,895.00	271,895.00	271,895.00	271,895.00	271,895.00	271,895.00	271,895.00
NET INCOME ABOVE CASH COSTS			16,205.00	35,705.00	55,205.00	74,705.00	94,205.00	113,705.00	133,205.00
Total Costs (from table 3)			294,102.00	294,102.00	294,102.00	294,102.00	294,102.00	294,102.00	294,102.00
NET INCOME ABOVE TOTAL COSTS			-6,002.00	13,498.00	32,998.00	52,498.00	71,998.00	91,498.00	110,998.00
NET INCOME PER DOE (500 DOES)			-12.00	27.00	66.00	105.00	144.00	183.00	222.00

Table 6B. Returns above total operating costs for dairy goat milk

Milk Gallons produced	Market prices (\$ per gallon)						
	2.80	3.00	3.20	3.40	3.60	3.80	4.00
90,000	1,434	19,434	37,434	55,434	73,434	91,434	109,434
92,500	8,434	26,934	45,434	63,934	82,434	100,934	119,434
95,000	15,434	34,434	53,434	72,434	91,434	110,434	129,434
97,500	22,434	41,934	61,434	80,934	100,434	119,934	139,434
100,000	29,434	49,434	69,434	89,434	109,434	129,434	149,434
102,500	36,434	56,934	77,434	97,934	118,434	138,934	159,434
105,000	43,434	64,434	85,434	106,434	127,434	148,434	169,434

Note: Returns include both milk and animal sales although only milk prices and production vary.

Table 6C. Returns above total cash costs for dairy goat milk

Milk Gallons produced	Market prices (\$ per gallon)						
	2.80	3.00	3.20	3.40	3.60	3.80	4.00
90,000	-4,795	13,205	31,205	49,205	67,205	85,205	103,205
92,500	2,205	20,705	39,205	57,705	76,205	94,705	113,205
95,000	9,205	28,205	47,205	66,205	85,205	104,205	123,205
97,500	16,205	35,705	55,205	74,705	94,205	113,705	133,205
100,000	23,205	43,205	63,205	83,205	103,205	123,205	143,205
102,500	30,205	50,705	71,205	91,705	112,205	132,705	153,205
105,000	37,205	58,205	79,205	100,205	121,205	142,205	163,205

Note: Returns include both milk and animal sales although only milk prices and production vary.

Table 6D. Returns above total costs for dairy goat milk

Milk Gallons produced	Market prices (\$ per gallon)						
	2.80	3.00	3.20	3.40	3.60	3.80	4.00
90,000	-27,002	-9,002	8,998	26,998	44,998	62,998	80,998
92,500	-20,002	-1,502	16,998	35,498	53,998	72,498	90,998
95,000	-13,002	5,998	24,998	43,998	62,998	81,998	100,998
97,500	-6,002	13,498	32,998	52,498	71,998	91,498	110,998
100,000	998	20,998	40,998	60,998	80,998	100,998	120,998
102,500	7,998	28,498	48,998	69,498	89,998	110,498	130,998
105,000	14,998	35,998	56,998	77,998	98,998	119,998	140,998

Note: Returns include both milk and animal sales although only milk prices and production vary.

REFERENCES

- Berg, Jolene, Peter Robinson, and Deborah Giraud. 2005. Raising dairy goat kids. Oakland: University of California Division of Agriculture and Natural Resources, Publication 8160.
- Boehlje, Michael D., and Vernon R. Eidman. 1984. Farm management. New York: Wiley.
- California Department of Insurance. 2005. Industry: Rate Filings Web site, <http://www.insurance.ca.gov/0200-industry/0800-rate-filings/index.cfm>.
- ERS (U.S. Department of Agriculture Economic Research Service). 1991. Economic indicators of the farm sector: National financial summary. Washington, DC: ERS Agriculture and Rural Economics Division.
- Hahn, Russell H., and Evelyn E. Rosentreter, eds. 2002. American Society of Agricultural Engineers standards yearbook. 41st ed. St. Joseph, MO: American Society of Agricultural Engineers.
- Hutton, Granville A. Jr. 1978. Sample costs to produce goat milk. Davis: University of California, Davis, Department of Agricultural and Resource Economics.
- McNulty, R. W., A. D. Aulenbacher, E. C. Loomis, N. F. Baker, and R. R. Bushnell. 1980. Your dairy goat. Oakland: University of California Division of Agriculture and Natural Resources Publication 2736. Available online from the Washington State University Extension Web site as Publication EM4894, <http://cru.cahe.wsu.edu/CEPublications/em4894/em4894.pdf#search=%22mcnulty%20your%20dairy%20goat%22>.
- Reed, Barbara A., and Dan L. Brown. 1988. Feeding California's dairy goats. California Agriculture 42(1): 8–9.
- Reed, Barbara A., and Christine M. Bruhn. 2003. Sampling and farm stories prompt consumers to buy specialty cheeses. California Agriculture 57(1): 76–80.

English–metric conversion table

1 foot	0.3048 m
1 mile	1.609 km
1 acre	0.4047 ha
1 square foot	0.093 m ²
1 gallon	3.785 l
1 pound	0.454 kg

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