
University of California Agriculture and Natural Resources
Cooperative Extension
UC Davis Department of Agricultural and Resource Economics

SAMPLE COSTS FOR SHEEP PRODUCTION



3,000 Head (Ewes) Operation San Joaquin Valley South-2022

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CONTENTS

INTRODUCTION	2
ASSUMPTIONS	3
Production Operations	3
Table A. Operations Calendar	4
Livestock Inventory	5
Table B. Animal Inventory	5
Marketing and Revenue	6
Cash Overhead	7
Non-Cash Overhead	8
REFERENCES	9
Table 1. COSTS AND RETURNS FOR SHEEP PRODUCTION	10
Table 2. MONTHLY COSTS FOR SHEEP PRODUCTION	12
Table 3. RANGING ANALYSIS FOR SHEEP PRODUCTION	13
Table 4. EQUIPMENT, INVESTMENT AND BUSINESS OVERHEAD	14

INTRODUCTION

In 2019 California was home to about 395,000 ewes, of which, 84,000 or about 20 percent were based in Kern County. In general, sheep numbers in California and across the nation decline by about 1-2 percent annually. Issues such as international competition, and opportunities, new regulatory requirements, changing feed costs, changing consumer demand, cost of labor, economies of scale, and competing land uses all affect the economics of sheep production.

Sheep producers utilize rangeland forage and alfalfa stubble seasonally based on availability and quality of feed. One challenge facing sheep producers is the conversion of alfalfa acreage to permanent crops. This conversion reduces availability of and increases competition for critical forage resources for sheep producers. The cost of labor presents another challenge to sheep producers as it is expected to double by 2025.

Sample costs to raise lambs from a 3,000 ewe operation are presented. This study is intended as a guide only. It can be used to guide production decisions, estimate potential returns, prepare budgets and evaluate production loans. Sample costs for labor, materials, equipment, and custom services are based on April 2022 figures. A blank column titled “*Your Costs*” is provided in Table 1 for your convenience.

The authors wish to thank the rancher cooperators, UC Cooperative Extension, and other industry representatives who provided information, assistance, and expert advice. For more information contact the UC Davis Department of Agricultural and Resource Economics, at 530-752-4651 or destewart@ucdavis.edu. The local extension office can be contacted through; Julie Finzel at 661-868-6219 or jafinzel@ucanr.edu.

A cost and returns study is a compilation of specific commodity data collected from meetings with agriculture producers actively engaged in producing the commodity discussed. Cost of Production studies for many commodities are available for download from <http://coststudies.ucdavis.edu>. Archived studies are also available on the website.. **The use of trade names and ranching practices in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by**

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ASSUMPTIONS

The following assumptions pertain to sample costs to raise 3,000 ewes in the southern San Joaquin Valley of California (Tables 1 through 4). Practices described are not recommendations by the University of California, but represent husbandry and production practices and materials considered typical of a well-managed flock in the southern San Joaquin Valley. Husbandry practices can vary significantly based on operation and region; the practices described here will not apply to every situation. This study does not represent any single operation and is intended as a guide only. Costs are presented on an annual, per head basis.

Overview. The sheep producer rents all range and pasture land. The farm is a “typical” owner-operated commercial sheep operation in the southern San Joaquin Valley. Actual flock numbers in California vary widely, ranging from part-time operations of less than 10 sheep to operations running thousands. This cost study is based on expected costs and returns for a flock of 3,000 sheep. A typical large, commercial flock consists of cross-bred sheep utilizing Suffolks (75%) and Rambouillets (25%) to balance the demand for meat and high-quality fine wool production. Rambouillet rams are used to produce replacement ewes.

Sheep production operations in California can be generally classified into three types. The first type can be described as a part-time operation that runs a small number of animals (less than 50) usually a hobby-type enterprise. The second type includes medium-sized operations (75-500 sheep) that are run as a business, but the ranch is supplemented with income from other enterprises or from off-ranch sources. These operations may be meeting a demand for a specialty market, raising purebred breeding stock, or incorporating sheep into a diversified cropping system. The final category applies to large commercial sheep operations (>500 sheep) of varying sizes that may be part of a larger diversified operation with farming and other businesses. Often the ranches in the first and second categories are not profitable as an individual enterprise, while in category three, the ranches are generally a profitable business enterprise.

A fourth type of sheep operation in California is a targeted grazing business model. In a targeted grazing sheep operation, business owners are paid to graze areas to reduce fire fuel loads or manage invasive species. Given recent events and the large fires that have plagued California, this is a growing area of the industry that presents an important opportunity for sustaining the sheep industry in California, protecting homes and communities, and supporting important ecosystem services. The costs and returns reported in this cost study do not account for any payments received for targeted grazing services provided.

The cost calculations are based on economic principles that include all cash costs and non-cash overhead costs. This analysis has used a rental value of the Animal Unit Month, (AUM) as a cost of operation. An AUM is defined as the amount of forage it takes to feed one cow and her suckling calf for one month. The production equivalent in sheep is considered to be five sheep for every cow/calf pair. Forage production per acre varies throughout California based on precipitation, elevation, soil type, range and pasture management, slope, aspect and more. For this reason, land taxes, fence and building depreciation, and land value are not considered in the costs.

Production Operations

Land/Pasture Rent, Hay and Supplements. All pasture is leased and rates vary based on forage type. Alfalfa stubble leases are from zero to \$125/acre, based on the time of year and the stage of alfalfa production. In this study, alfalfa stubble is leased for \$60 per acre, while spring and summer rangeland grazing leases for \$4 to \$6 per acre. About 3,500 acres of alfalfa stubble are needed to support a 3,000 head flock, and about 9,000 acres of spring and summer rangeland pasture are required to support the 3,000 head flock. Large sheep flocks are typically managed in groups or ‘bands’ of 1,000 head. Supplementing with hay is kept to a minimum to reduce costs. Salt or mineral blocks are provided as needed based on forage quality and availability throughout the year.

Table A. Operations Calendar. Lambing typically occurs on alfalfa stubble and begins on or around October 1 and continues through the end of January. Lambs are ear-marked and processed periodically throughout the lambing season. Dry ewes are culled and shipped at the end of lambing season. At the beginning of February flocks are moved to spring grazing leases, typically utilizing annual grass rangeland or annual forbs in the nearby Mojave Desert. The flock is sheared in March or April. Lambs are weaned and shipped directly to feedlots by the end of April. Cull ewes and rams are sold when lambs are shipped in April. Replacement rams are purchased in March and April for about \$650 per ram. Rams are turned out in May. During the summer, flocks may be hauled to summer range in northern California, Idaho, or US Forest Service allotments; in some cases, flocks remain in the central valley. The flocks return in September before the start of lambing season.

Table A. Operations Calendar

<u>Months</u>	<u>Operation</u>
<u>Winter:</u>	
October	Freight/trucking, hauling animals and water to range
October to February	Winter grazing, pasture
October to January	Lambing; (marking, processing), lambs nursing and receiving colostrum
December to January	Vaccinate lambs for sore mouth (if needed)
<u>Spring:</u>	
February	Freight/trucking, hauling animals and water to range
February to May	Spring grazing, pasture
March	Vaccinate lambs (clostridium C and D toxoid)
March	Booster shots of clostridium C and D to lambs (2 – 4 weeks later)
March to April	Replacements rams purchased
March	De-worm ewes, lambs and rams (during the grazing season)
March to April	Shearing (whole body)
April	Rams (*BSE exam) (60 days prior to breeding)
April	Freight/trucking, cull ewes and rams sold
April	Lambs weaned, shipped direct to feed lots
April	Vaccinate (1st booster) and de-worm all ewes and rams (30 days prior to breeding)
<u>Summer:</u>	
June	Freight/trucking, hauling animals and water to range
June to September	Summer grazing, pasture
May	Sell wool
May to July	Breeding (rams brought in)
July to August	Vaccinate replacement ewes (2nd booster) (Campylobacteriosis and Chlamydia)
September	Vaccinate pregnant ewes with clostridium C and D toxoid and tetanus toxoid
September	Shearing (tagging)

* Breeding soundness check (BSE) for lameness, body condition, semen evaluation and general health.

Livestock Inventory

Livestock. Livestock inventory includes 3,000 bred ewes, 750 replacement ewe lambs, and 75 rams for a total of 3,825 animals. The operation has a 115 percent lamb crop, with an anticipated death loss of 4 percent from lambing to weaning. Twenty-five percent of ewes are replaced annually and 40 percent of rams are replaced annually. Rambouillet rams are typically kept 4-5 years; Suffolk rams are kept about 2 years. The average ram to ewe ratio is 1 ram for every 40 ewes. Horses are not typically kept or utilized.

Table B. Animal Inventory

Animals	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Wether Lamb	0	0	0	0	550	825	1,100	1,375	1,650	1,650	0	0
Ewe Lamb	0	0	0	0	492	832	1,172	1,510	1,662	1,662	0	0
Ewes (bred)	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Ewes (replacements)	750	750	750	750	750	750	750	750	750	750	750	750
Rams	75	75	75	75	75	75	75	75	75	75	75	75
Dogs (guard)	10	10	10	10	10	10	10	10	10	10	10	10
Dogs (herd)	12	12	12	12	12	12	12	12	12	12	12	12

Table B. Animal Inventory per Month. This table shows one year of a multi-year operation that starts with 3,000 ewes for the beginning of the breeding season in May. The replacement ewes are brought into the herd in May for the breeding season. October through January show that lambs are born during those months, (cumulative). The number of bred ewes is continuous through the lambing season for pasture charges with realization that the numbers would coincide with lambs born. Replacement and cull rams are bought and sold around the same time of year, March and April. The dogs are retired and replaced with no particular schedule.

Livestock Freight; Owned and Hired. The sheep flock is transported between leases and pastures using large tractor-trailers. Sheep are rarely trailed or herded between grazing locations. Typically, at least one tractor-trailer combination is owned and the remainder of the transportation needs are met using hired drivers and trucks. Each tractor-trailer can haul 200-250 ewes or 400-500 feeder lambs. It is estimated that the entire sheep flock is transported three times a year, when the sheep are moved to each of the seasonal pastures described above in the operations calendar. The transportation costs are included under the operating inputs of Tables 1 and 2.

Labor – wages, room and board, insurance and taxes. Most commercial sheep producers utilize immigrant workers under the H-2A program. The H-2A program benefits both the sheep industry and the immigrant worker. The base wage is \$3,445 per month per person. A typical 3,000 ewe operation employs 6 herders. Room and board for all herders is estimated at \$220-\$300 per herder per month. Workers compensation and social security usually cost about \$190 per herder per month. Additional costs associated with the purchase, maintenance and movement of portable trailer housing for the herders during breeding season are included. Note: Herder wages are determined by the state and are adjusted annually. Due to recent legislation herder wages are projected to increase dramatically; up to \$4,381 per month in 2025.

Owner/Operator/Management. Returns to operator labor and management are included in net revenue. Assignment of Ranch Management costs differ by operation. Some ranches hire direct labor and some hire management that is paid a monthly salary. Owner/Operator labor for daily tasks involved in managing a sheep production operation are not included as explicit costs, but the value of management time and effort must be considered in assessing ranch profits.

Guard Dogs and Herding Dogs. Guard dogs serve an essential role on sheep operations helping to protect the flock and reduce losses due to predation. Two guard dogs are generally able to protect one band of sheep. However, on a 3,000 ewe operation, 10 guard dogs are kept to allow for flexibility in flock distribution. Each dog costs about \$110 per month for food and medical care, including regular deworming.

Herding dogs have an important purpose on sheep operations as they increase the efficiency of sheep herders when they are working with and moving sheep. Each herder usually has two dogs. The costs of food and medical care are about \$110 per month per dog.

Puppies are purchased as needed at an average cost of \$200 for each herding dog and \$650 for each guard dog. The dogs are trained by the herdsman. Prices vary by location.

Flock health care, veterinary services, and marking supplies. This includes the cost of vaccines, medications, veterinary services, and paint brands. Other animal care supplies used include chalk sticks, sheep hooks and ear tags. See Table A calendar for detail and timing of these operations.

Shearing. In March or April every year, every sheep has its whole body sheared. In September, just prior to lambing, ewes are partially sheared, or tagged. Tagging refers to shearing only the rear end of the ewe for sanitary purposes. Spring shearing costs about \$5.00 per head. Tagging in the fall costs about \$2.25 per head. Square packs are used to store and ship the wool. Each pack holds about 400 pounds of wool, or 60 to 70 fleeces.

Electricity and Fencing. Portable electric fencing is used for the entire operation. Fencing maintenance and replacements are included in cost estimates.

Water and Water Freight. Drinking water is hauled to the sheep year round. When the sheep are on spring and summer rangeland pasture water must be purchased. Sheep consume two to three gallons per head per day in the summer and one-half to 1 gallon per head per day in the winter. Typically, about five water trucks, each equipped with a 2,000 gallon tank, are needed to meet the needs of the entire flock. One truckload of water cost about \$20. The cost to operate the truck is estimated at \$6,000 per truck per year including license, insurance, fuel, and tires.

Vehicles and Equipment. A 3,000 ewe operation is considered a family operation. Often two generations are working together to manage the lamb and wool production. Two pickups are used by the owners of the operation and two pickups are used by the foremen. These are typically a 3/4 ton four-wheel drive pickup that accrue 35,000 miles annually. Four UTV's are utilized for the operation. Travel trailers with propane tanks are provided as housing for the herders. Usually one gooseneck livestock trailer is kept as well as 3 flatbed trailers. Mileage charges (which includes maintenance & repairs) for the pickups is calculated at 0.65 per mile, mileage for the UTV's is calculated at 0.40 per mile, and mileage for the trailers at 0.25 per mile.

Equipment Maintenance and Repair. Maintenance and repair charges for the equipment are included in Tables 1 and 2.

Marketing and Revenue

Wool. The marketing of wool can be done in several ways. Various wools can be sorted according to type, i.e. white face, black face, bellies, and tags. The higher value wool, such as white face or fine wool, can also be graded to various lines and sold for premium prices. The second marketing option is to combine all the wool, but a lower price will be received for the minimal amount of handling preparation. It is recommended that the wool at least be sorted, according to type. There is a six (6) cents assessment per each pound of wool sold, paid to the California Sheep Commission. The wool is put into packs with a hydraulic wool press, and each pack holds about 400 pounds of wool, or 60 to 70 fleeces. The price used for whiteface wool is \$1.84 per pound; coarser wool from blackface or cross-bred sheep is lower and in some cases the wool may not be marketable.

Marketing Order (checkoff). Lambs are sold direct to feeders. Wethers typically weigh 110 pounds when shipped and ewe lambs weigh slightly less at 100 pounds. The producer is paid on the weight of the truck before shipping. Shrink is calculated at 5-7% and charged up front. Lambs are held overnight with no food or water. The

buyer pays freight. The American Lamb Board lamb checkoff is charged at 0.007 cents per pound of lamb sold.

In late March or April, when the animals are brought together for shearing they are also separated. The cull ewes and cull rams are removed from the flock and shipped and sold at the same time the lambs are weaned and shipped to the feedlot.

Revenue/Sales/Ranging Analysis. Returns are based on the livestock sales operation listed above. A range of marketing prices are shown in Table 3. Lamb and mutton prices vary with age, size, and quality. Returns estimated in Table 1 reflect current lamb prices the time of publication.

Risk. Production and marketing risks are significant in the sheep production business. This study makes every effort to model a production system based on typical, real world practices. However, it cannot fully represent financial and market risks, which affect the profitability and economic viability of sheep production operations. To support a sustainable business model, good risk management must combine risk analysis, effective risk control strategies, and insurance opportunities carefully tailored to fit each operation.

Cash Overhead

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 can include property taxes, interest on operating capital, office expense, liability and property insurance, equipment repairs and management.

Insurance. Insurance for farm investments varies depending on the assets included and the amount of coverage.

Liability Insurance. A standard farm liability insurance policy fee of \$1,841 is included as a cost for the entire ranch. This is the cost for the application of the basic policy and paperwork. Additional coverage will incur additional costs. A standard farm liability insurance policy will help cover the expenses for which the owner becomes legally obligated to pay for bodily injury claims on owned property and damages to another person's property as a result of a covered accident. Note: operations that provide targeted grazing services may require additional liability insurance.

Livestock Insurance. No amount of livestock insurance is specified as the most common way to cover livestock is to insure them as a herd. Livestock (cows, swine, goats, lambs and sheep) and poultry (chickens and turkeys) coverages can vary widely among farm insurance companies. It's important to understand what is covered in your farm insurance policy and what is not. Insurance packages provide broad causes of loss protection for livestock, which includes the following: accidental shooting, attacks by dogs or wild animals (does not apply to sheep), earthquake loss, electrocution, flood loss, loading and unloading accidents, and sudden and accidental collision damage causing death. Individual policies and blanket policies are available to cover all of your farm property (livestock, equipment, structures, etc.) in one lump sum amount.

Fire Insurance. No amount of fire insurance is specified. Some operations opt to purchase fire insurance for high-risk rangeland, such as areas near busy roads or areas prone to burn frequently.

USDA Insurance Programs. The USDA, through the Risk Management Agency and the Farm Services Agency, offers a number of insurance programs to livestock producers. Non-insured Crop Disaster Assistance Program (NAP) provides payments to producers based on percent forage loss over 50 percent and number of acres insured. Other insurance programs are offered through federal assistance programs. This study assumes no participation in government insurance programs.

Business Insurance and Taxes. These costs are for annual insurance and taxes for the equipment and overhead listed in Table 4.

Office Expense. Office and business expenses are estimated at \$4,000 per year. These expenses include a part-time accountant, office supplies, permits and miscellaneous administrative charges.

Interest on Operating Capital. Interest on operating capital is based on cash operating costs and is calculated monthly until sale months at a nominal rate of 6.0 percent per year.

Interest charge is the cost of your money that is tied up in sheep production. It reflects the amount of money you pay on borrowed money (Line of Credit) or that amount you could have earned had you invested your own resources in alternative uses. The interest cost of post animal sales is discounted back to the last sale month using a negative interest charge. The interest rate will vary depending upon various factors, the rate in this study is considered a typical lending rate by a farm lending agency as of June 2022. As revenue is received from animal sales it is used to pay back the operating loan (Table 2).

Non-Cash Overhead

Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments.

Capital Recovery Costs. Capital recovery cost is the annual depreciation and interest costs for a capital investment. This includes equipment, machinery, dogs, and livestock. It is the amount of money required each year to recover the difference between the purchase prices and salvage value (unrecovered capital). 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 more accurately represents the annual costs of ownership because it takes the time value of money into account (Boehlje and Eidman). The formula for the calculation of the annual capital recovery costs is: $((\text{Purchase Price} - \text{Salvage Value}) \times \text{Capital Recovery Factor}) + (\text{Salvage Value} \times \text{Interest Rate})$.

Salvage Value. Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (tractors and implements), the remaining value is a percentage of the new cost of the investment (Boehlje and Eidman). For other investments including irrigation systems, buildings, and miscellaneous equipment, the value at the end of its useful life is zero. The purchase price and salvage value for equipment and investments are shown in Table 4.

Capital Recovery Factor. 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 used and the life of the machine.

Interest Rate. The interest rate of 5.0 percent used to calculate capital recovery cost is the effective long term interest rate effective April 2022. The interest rate is provided by a local farm lending agency and will vary according to risk and amount of loan.

Portable Fencing/Working Facilities/Troughs. Includes portable electric fencing supplies, portable loading and unloading chute, lamb table, creep feeders, and portable water & feed troughs.

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

REFERENCES

American Society of Agricultural and Biological Engineers. (ASABE). 2015. “*American Society of Agricultural Engineers Standards Yearbook*”. Russell H. Hahn and Evelyn E. Rosentreter (ed.). St. Joseph, MO. 41st edition, ANSI/ASAE S279_17.PDF. hq@asabe.org

Boehlje, M., and Vernon R. Eidman. 1984. “*Farm Management*”. John Wiley and Sons. New York, New York.

California Chapter of the American Society of Farm Managers and Rural Appraisers. 2021 “*Trends in Agricultural Land & Lease Values*”. American Society of Farm Managers and Rural Appraisers, Woodbridge, CA. www.calasfmra.com

California Department of Insurance, Rate Regulation Branch.
<http://www.insurance.ca.gov/0500-about-us/>

California Wool Growers Association, <http://www.cawoolgrowers.org/>

Energy Information Administration. *Weekly Retail on Highway Diesel Prices*..
<http://www.eia.gov/petroleum/gasdiesel/>

Finzel, Julie, N.M. Anderson, D. Stewart, D.A. Sumner. *Sample Costs for Beef Cattle Production, Cow-Calf Production, 300 Head, San Joaquin Valley, South-2016*. University of California, Agricultural and Resource Economics, Davis. <https://coststudies.ucdavis.edu/en/>

USDA, Risk Management Agency, Livestock. <https://www.rma.usda.gov/>

UC COOPERATIVE EXTENSION
UC DAVIS AGRICULTURAL AND RESOURCE ECONOMICS
Table 1. COSTS AND RETURNS FOR SHEEP PRODUCTION
3,000 Head (Ewes) Operation, San Joaquin Valley South-2022

Livestock Production	Head	Lbs. of Wool	Units/Head	Unit	Price/Unit	Total Value	Value/Head	Your Costs
Wether Lamb	1,650		110.00	lbs.	3.00	544,500	330.00	
Ewe Lamb	912		100.00	lbs.	3.00	273,600	300.00	
Cull Ewes	750		180.00	lbs.	1.10	148,500	198.00	
Cull Rams	30		200.00	lbs.	1.10	6,600	220.00	
Wool (47 packs at 400 lbs. each)		400	47.00	lbs.	1.84	34,592	9.04	
Revenue from Sales						1,007,792	1,057.04	
Assessment on Wool Sale		18,800		lbs.	0.06	1,128	0.29	
Total Gross Revenue						1,006,664	1,056.75	
Operating Inputs		Units		Units	Cost/Unit	Total Costs	Cost/Head	
Pasture (fall/winter) Alfalfa Stubble	3,825	head	3,500	acre	60.00	210,000	54.90	
Pasture (spring)	3,825	head	9,000	acre	4.00	36,000	9.41	
Pasture (summer)	3,825	head	9,000	acre	6.00	54,000	14.12	
Alfalfa Hay	25	tons	1	year	300.00	7,500	1.96	
Supplement (grain, molasses, salt)	27	tons	1	year	500.00	13,500	3.53	
Livestock Freight/trucking (owned)	3,825	head	1	each	8.94	34,196	8.94	
Livestock Freight/trucking (hired)	3,825	head	1	each	5.36	20,502	5.36	
Water Freight, (12 months)	5	trucks	10,000	miles	0.85	42,500	11.11	
Water	3,825	head	365	gallons	0.01	13,961	3.65	
Marketing Order Promo (checkoff)	259,065	lbs. meat	1	pound	0.007	1,813	0.47	
Vaccine/Wormer/Etc.-flock	3,825	head	1	each	15.00	57,375	15.00	
Veterinary Service-flock	3,825	head	1	each	0.75	2,869	0.75	
Animal Care and Marking Supplies		No inventory	1	each	3,000.00	3,000	0.78	
Shearing - Spring	3,825	head	1	each	5.00	19,125	5.00	
Shearing - Fall	3,825	head	1	each	2.25	8,606	2.25	
Guard Dogs (feed, vet)	10	dogs	12	months	110.00	13,200	3.45	
Herding Dogs (feed, vet)	12	dogs	12	months	110.00	15,840	4.14	
Yearling Rams Purchased (Rambouillet & Suffolk)	30	rams	1	each	650.00	19,500	5.10	
Labor - 6 Herders (base wage)	6	employee	12	months	3,445.00	248,040	64.85	
Labor - 6 Herders (room and board)	6	employee	12	months	300.00	21,600	5.65	
Labor - 6 Herders (insurance and taxes)	6	employee	12	months	190.00	13,680	3.58	
Labor - Part-time Bookkeeper	1	employee	12	months	1,500.00	18,000	4.71	
Pickup Trucks-3/4 ton 4x4 Quad-cab	4	pickups	35,000	miles	0.65	91,000	23.79	
Gooseneck Livestock & Flat-bed Trailers	4	trailer	10,000	miles	0.25	10,000	2.61	
Travel Trailers for Herders	6	trailers	500	miles	0.25	750	0.20	
UTV's	4	each	1,500	miles	0.40	2,400	0.63	
Equipment and Materials (maint and repair)		No inventory	1	each	5,000.00	5,000	1.31	
Electricity	12	months	1	\$/month	220.00	2,640	0.69	
Operating Costs						986,597	257.93	
† Interest on Operating Capital @ 6.0%						(106)	(0.03)	
Total Operating Costs						986,491	257.91	

UC COOPERATIVE EXTENSION
UC DAVIS AGRICULTURAL AND RESOURCE ECONOMICS

Table 1. CONTINUED
3,000 Head (Ewes) Operation, San Joaquin Valley South-2022

Cash Overhead		
Ranch Liability Insurance	1,841	0.48
Business Insurance and Taxes (Table 4)	8,806	2.30
Office Expenses	4,000	1.05
Total Cash Overhead Costs	14,647	3.83
Total Cash Costs	1,001,138	261.74
Revenue Above Total Cash Costs	5,526	1.44
Annual Capital Recovery (Table 4)	137,486	35.94
Total Costs	1,138,731	297.71
Revenue Above Total Costs	(132,067)	(34.53)

*Annual Capital Recovery is shared with other operations on the ranch and charged at 67% of the total from Table 4.

UC COOPERATIVE EXTENSION
UC DAVIS AGRICULTURAL AND RESOURCE ECONOMICS

Table 2. MONTHLY SUMMARY OF CASH RETURNS AND EXPENSES FOR SHEEP PRODUCTION
3,000 Head (Ewes) Operation, San Joaquin Valley south-2022

	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total
Production/Sales													
Wether Lamb	0	0	0	0	0	0	0	0	0	0	544,500	0	544,500
Ewe Lamb	0	0	0	0	0	0	0	0	0	0	273,600	0	273,600
Cull Ewes	0	0	0	0	0	0	0	0	0	148,500	0	0	148,500
Cull Rams	0	0	0	0	0	0	0	0	0	6,600	0	0	6,600
Wool (47 packs at 400 lbs. each)	0	0	0	0	0	0	0	0	0	0	0	34,592	34,592
Revenue from sales	0	0	0	0	0	0	0	0	0	155,100	818,100	34,592	1,007,792
Assessment on wool sale (\$0.06/lb.)													1,128
Total Revenue	0	0	0	0	0	0	0	0	0	155,100	818,100	34,592	1,006,664
Operating Inputs													
Pasture (fall/winter)	0	0	0	0	52,500	52,500	52,500	52,500	0	0	0	0	210,000
Pasture (spring)	0	0	0	0	0	0	0	0	12,000	12,000	12,000	0	36,000
Pasture (summer)	10,800	10,800	10,800	10,800	0	0	0	0	0	0	0	10,800	54,000
Alfalfa Hay	625	625	625	625	625	625	625	625	625	625	625	625	7,500
Supplement (grain, molasses, salt)	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
Livestock Freight/trucking (owned & hired)	13,674	0	0	0	13,674	0	0	0	13,674	0	0	13,674	54,698
Water Freight (12 months)	3,542	3,542	3,542	3,542	3,542	3,542	3,542	3,542	3,542	3,542	3,542	3,542	42,500
Water	1,163	1,163	1,163	1,163	1,163	1,163	1,163	1,163	1,163	1,163	1,163	1,163	13,961
Marketing Order Promo (checkoff)	0	0	0	0	0	0	0	0	0	0	0	1,813	1,813
Vaccine/Wormer/Etc.-flock	0	0	8,196	8,196	0	0	8,196	8,196	0	16,393	8,196	0	57,375
Veterinary Service-flock	0	0	410	410	0	0	410	410	0	820	410	0	2,869
Animal Care and Marking Supplies	250	250	250	250	250	250	250	250	250	250	250	250	3,000
Shearing (Spring & fall)	0	0	0	0	8,606	0	0	0	0	0	19,125	0	27,731
Guard Dogs (feed, vet)	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	13,200
Herding Dogs (feed, vet)	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	15,840
Yearling Rams Purchased	0	0	0	0	0	0	0	0	0	19,500	0	0	19,500
Labor - 6 Herders (base wage)	20,670	20,670	20,670	20,670	20,670	20,670	20,670	20,670	20,670	20,670	20,670	20,670	248,040
Labor - 6 Herders (room and board)	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	21,600
Labor - 6 Herders (insurance and taxes)	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	13,680
Labor - Part-time Bookkeeper	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	18,000
Pickup Truck-3/4 ton (4)	7,583	7,583	7,583	7,583	7,583	7,583	7,583	7,583	7,583	7,583	7,583	7,583	91,000
Gooseneck Sheep Trailer	0	0	0	0	3,333	0	0	0	3,333	0	0	3,333	10,000
Travel Trailers for Herders (6)	0	0	0	0	250	0	0	0	250	0	0	250	750
UTV (4)	200	200	200	200	200	200	200	200	200	200	200	200	2,400
Equipment and Materials (Maint and repair)	417	417	417	417	417	417	417	417	417	417	417	417	5,000
Electricity	220	220	220	220	220	220	220	220	220	220	220	220	2,640
Operating Costs	67,129	53,455	62,061	62,061	121,019	95,155	103,761	103,761	71,913	91,368	82,386	72,526	986,597
Net Returns above Op. Costs (Cumulative)	-67,129	-53,455	-62,061	-62,061	-121,019	-95,155	-103,761	-103,761	-71,913	63,732	735,714	-37,934	20,067
† Interest on Operating Capital @ 6.0%	335.65	267.28	310.31	310.31	605.10	475.78	518.81	518.81	359.56	-318.66	-3,678.57	189.67	-105.97
Total Operating Costs	67,465	53,722	62,372	62,372	121,624	95,631	104,280	104,280	72,272	91,049	78,708	72,716	986,491
Net Revenue above Operating Costs													20,173

UC COOPERATIVE EXTENSION
 UC DAVIS AGRICULTURAL AND RESOURCE ECONOMICS
Table 3. RANGING ANALYSIS FOR SHEEP PRODUCTION
 3,000 Head (Ewes) Operation, San Joaquin Valley south-2022

Production/Sales	Total Head	Weight cwt	Market Prices									
			(\$ per cwt)									
Wether Lamb	1,650	1.10	\$275	\$280	\$285	\$290	\$295	\$300	\$305	\$310	\$315	\$320
Ewe Lamb	912	1.00	\$275	\$280	\$285	\$290	\$295	\$300	\$305	\$310	\$315	\$320
Cull Ewes	750	1.80	\$85	\$90	\$95	\$100	\$105	\$110	\$115	\$120	\$125	\$130
Cull Rams	30	2.00	\$85	\$90	\$95	\$100	\$105	\$110	\$115	\$120	\$125	\$130
Wool (47 packs @ 400lbs. each)	400	47.00	\$1.59	\$1.64	\$1.69	\$1.74	\$1.79	\$1.84	\$1.89	\$1.94	\$1.99	\$2.04
Revenue From Sales			\$899,667	\$921,292	\$942,917	\$964,542	\$986,167	\$1,007,792	\$1,029,417	\$1,051,042	\$1,072,667	\$1,094,292
Assessment on Wool Sale			\$1,128	\$1,128	\$1,128	\$1,128	\$1,128	\$1,128	\$1,128	\$1,128	\$1,128	\$1,128
Total Gross Revenue			\$898,539	\$920,164	\$941,789	\$963,414	\$985,039	\$1,006,664	\$1,028,289	\$1,049,914	\$1,071,539	\$1,093,164
Total Operating Costs			\$986,491	\$986,491	\$986,491	\$986,491	\$986,491	\$986,491	\$986,491	\$986,491	\$986,491	\$986,491
Net Revenue above Operating Costs			-\$87,952	-\$66,327	-\$44,702	-\$23,077	-\$1,452	\$20,173	\$41,798	\$63,423	\$85,048	\$106,673
Net Revenue per Head above Operating Costs	3,000		-\$29.32	-\$22.11	-\$14.90	-\$7.69	-\$0.48	\$6.72	\$13.93	\$21.14	\$28.35	\$35.56

UC COOPERATIVE EXTENSION
UC DAVIS AGRICULTURAL AND RESOURCE ECONOMICS
Table 4. EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD
3,000 Head (Ewes) Operation, San Joaquin Valley south-2022

	Units	Purchase Price	Total Price	Salvage/Cull Value	Livestock Share (%)	Useful Life (yr.)	†Annual Taxes and Insurance	**Annual Capital Recovery
OVERHEAD (Capital Recovery)								
IMPROVEMENTS AND EQUIPMENT								
Squeeze/Loading Chute & Corral Panels	1	18,020	18,020	1,261	100	15	0	1,677
Creep feeders	6	600	3,600	252	100	15	0	335
Water Tanks 500 gallon/Feed roughs	4	1,700	6,800	476	100	20	0	531
Shop/Fencing Tools	1	5,500	5,500	385	100	20	0	429
Portable Electric Fencing/Chargers/Transformers	1	20,400	20,400	1,428	100	10	0	2,528
TOTAL FOR IMPROVEMENTS AND EQUIPMENT		46,220	54,320	3,802			0	5,501
*LIVESTOCK INVENTORY								
Ewes (bred)	3,000	144	432,000	222,000	100	4	0	70,320
Ewes (replacements)	750	144	108,000	55,500	100	4	0	17,580
Rams	75	650	48,750	18,000	100	4	0	9,572
Guard dogs	10	650	6,500	0	100	10	0	842
Herding dogs	12	200	2,400	0	100	10	0	311
TOTALS FOR LIVESTOCK INVENTORY		1,788	597,650	295,500			0	98,624
MACHINERY AND VEHICLES								
UTV	4	9,500	38,000	9,500	100	8	63	4,884
Semi-Truck and Trailer (hauling sheep)	1	290,000	290,000	72,500	100	15	3,500	24,570
Pickup 3/4-Ton 4x4 Quad-cab	4	52,000	208,000	52,000	100	8	2,400	26,733
Stock Trailer 5 th -Wheel (hauling sheep)	1	19,200	19,200	4,800	100	10	500	2,105
Travel Trailers	6	10,750	64,500	16,125	100	20	3,000	4,686
Flatbed Trailers	3	9,600	28,800	7,200	100	20	180	2,092
Water Trucks-new & used (2,000 gal)	5	85,000	425,000	106,250	100	15	3,500	36,008
TOTALS MACHINERY AND VEHICLES		476,050	1,073,500	268,375			13,143	101,079
TOTAL OVERHEAD		524,058	1,725,470	567,677			13,143	205,203
TOTAL CAPITAL RECOVERY CHARGED AT 67%								137,486

* The costs of insurance for livestock is not included in this study.

† These costs are for property insurance and taxes.

Salvage value for the Equipment is calculated at 7%.

Cull value for the Livestock is calculated at market value.

Salvage value for the Machinery and Vehicles is calculated at 25%.

**Formulas; the capital recovery, amortization factors are from

Boehlje and Eidman, 1984, "Farm Management" Appendix Table IV.