

Can You Make Money With Sheep?

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Before entering into sheep production, you should be aware of the capital costs of getting started, annual operating costs, and annual income that can be expected for the enterprise. Sheep production, like most agricultural enterprises, requires a major investment of time and labor, so it is desirable to have some idea in advance if a profit can be expected. Even if profit is not a primary goal, it is desirable to have an estimate for planning purposes of the amount of money the operation will require for start-up and operation.

There are some good spreadsheets available free of charge on the internet from agricultural universities that allow you to develop a sheep enterprise budget. Two that I am most familiar with are from Cornell University (Thonney, 2004) and the University of Maryland (Shoenian, 2004). These budgets have been constructed in EXCEL spreadsheets, and they can be downloaded to your computer for easy access. They come with default values but also allow you to put in your own figures to tailor the results to your particular situation. For this paper, the University of Maryland spreadsheet is used.

Start-up Costs

Start-up or capital costs are the big ticket items that are required to get started in the sheep business. Generally, these capital costs are paid for over several years. Below is the capital cost table from the University of Maryland spreadsheet.

Capital Costs ***You can only edit values highlighted in yellow.***

	Number	Cost	Unit	Total	Per Ewe
Ewes	50	\$150	head	\$7,500	\$150.00
Rams	2	\$300	head	\$600	\$12.00
Fencing		\$4,000	total	\$4,000	\$80.00
Corral/Working pens		\$2,000	total	\$2,000	\$40.00
Pasture est./improvement	10.0	\$170	acre	\$1,700	\$34.00
Watering system		\$100	total	\$100	\$2.00
Housing cost		\$0	total	\$0	\$0.00
Supplies and equipment		\$1,000	total	\$1,000	\$20.00
Other		\$0	total	\$0	\$0.00
TOTAL START-UP COSTS				\$16,900	\$338.00
# YEARS TO PAY OFF INVESTMENT				10.6	

You may notice that land, the most expensive item for a farming operation, is not included as a capital cost. It would need to be included if you were entering sheep production as an investment completely separate from the rest of your life. However, we will make the assumption that the farm was purchased as a place for you to live. You have to live somewhere, so the cost of the farm will not be charged against the sheep operation. This budget also assumes that there is an existing building on the farm that can house sheep.

We will assume a flock of 50 ewes and 2 rams utilizing 10 acres of pasture. This assumes that 1 acre of pasture can support 5 ewes and their lambs during the grazing season. This will vary depending upon soil fertility, rainfall, pasture species, and pasture management. Purchase price of ewes is \$150/head (normal range: \$100 - \$250) and of rams is \$300/head (normal range: \$250 - \$450). Capital fencing costs will vary depending upon quality of existing fences on the farm. If sheep have not been raised on this farm in the past, fencing will be a major cost. Materials for perimeter fencing around 10 acres of pasture will require about \$2,700 (\$1.00/ft.). Additional materials for internal fencing and/or labor for installation can bring total fencing costs to \$4,000 or more. A working facility for sheep has been included for \$2,000. A cost of \$170/acre has been included for custom establishment of new legume-grass pastures (Barnhart et al., 2006). Pasture costs would be reduced considerably if good quality pastures already existed on the farm. A minimal cost of \$100 for watering (a tank and some hoses) has been included. Capital equipment of \$1,000 has been included (electric shearing machine and blades, hand shears, drenching gun, foot trimming shears, elastrator for docking and castrating, ear tag applicator, ram marking harnesses, orphan lamb rearing bucket, 10 four-ft. panels for lambing jugs, etc.). Purchase used equipment when available or purchase seasonal equipment jointly with a neighbor to reduce your equipment costs.

The total capital costs for starting this 50-ewe flock, without any land or building costs, is estimated at \$16,900 or \$338 per ewe.

Production of Commercial Lambs and Wool – Marketed Through Normal Channels

Operating Costs

In addition to the capital costs that are to be covered out of profits over a few years, there are annual operating costs, and estimates of these are presented in the following table.

OPERATING COSTS:	No. Head	Amt/hd	Unit	Cost	Total	Per Ewe
Feed costs						
Hay	52	0.3	ton	\$100.00	\$1,560	\$31.20
Grain	52	180	lb.	\$0.100	\$936	\$18.72
Salt and Minerals	52	12.0	lb.	\$0.18	\$112	\$2.25
Supplemental feed for lambs	80	180.0	lb.	\$0.130	\$1,872	\$37.44
Pasture maintenance	132	10.0	acre	\$40.00	\$400	\$8.00
Health program		doses				
Deworming (adults)	52	2	doses	\$2.00	\$208	\$4.16
Deworming (lambs)	80	2	doses	\$1.50	\$240	\$4.80
CD-T booster (adults)	52	1	doses	\$1.00	\$52	\$1.04
CD-T vaccinations (lambs)	80	2	doses	\$1.00	\$160	\$3.20
Other vet costs	52		head	\$5.00	\$260	\$5.20
Shearing	52		head	\$3.50	\$182	\$3.64
Ram replacement	1.00		head	\$300.00	\$300	\$6.00
Bedding	52		head	\$6.00	\$312	\$6.24
Marketing and Hauling	80		head	\$5.00	\$398	\$7.95
Supplies	52		head	\$5.00	\$260	\$5.20
Manure disposal (\$70/hr)			Total cost	\$350.00	\$350	\$7.00
Building maintenance			Total cost	\$300.00	\$300	\$6.00
Interest on operating money	6.0%		Cost for 6 months		\$237	\$4.74
TOTAL OPERATING COSTS					\$8,139	\$162.78

It is assumed that ewes, rams, and lambs will have access to grazing for 7 months of the year. The greatest operating costs involve providing supplemental feed to the breeding flock. Five months of winter hay feeding (150 days x 4 lb./hd/day = 600 lb. hay/hd/year), grain for the ewes (2 lb./hd/day for 60 days of lactation + 1 lb./hd/day for 30 days of flushing + 1 lb./hd/day during the last 30 days of pregnancy = 180 lb./ewe/year; and an equal amount for the rams), and mineral for the ewes and rams totals \$52.17/ewe/year or 32 % of total operating costs. Lambs will be supplemented with 1.0 to 1.2 lb. of grain per head per day while grazing pastures or fed 3.0 to 3.5 lb. of grain per day in drylot at the end of the grazing season for a total grain consumption of 180 lb./hd.

Pasture fertilization, periodic reseeding, weed control, and maintenance of fencing are estimated to cost \$40.00/acre/year. Flock animal health costs are estimated at \$920/year or \$18.40/ewe/year.

Bedding needs are estimated at 1 lb./ewe and ram/day during the 5 month winter housing period for a total of 7,800 lb. or approximately 4 tons. At \$75/ton for small square bales of wheat straw, the 4 tons cost \$300.

Total annual operating costs are estimated to be \$8,139/year or \$162.78/ewe/year.

Income

Let's determine if there is enough income to pay for the annual operating costs and to pay off the capital costs. Estimated income is presented in the table below.

FLOCK COMPOSITION:		PRODUCTION PARAMETERS				
Number of Ewes	50	Percent lamb crop raised			160%	
Number of Rams	2	Ewe replacement rate			20%	
Adult death loss	3.0%	Ram Replacement Rate			50%	
INCOME CALCULATION:						
	No. Head	lbs./hd	Net Price	Unit	Total	Per Ewe
Market lambs	70	130	\$0.95	lb.	\$8,645	\$172.90
Cull ewes	8.5	165	\$0.50	lb.	\$701	\$14.03
Cull rams	1.00	250	\$0.50	lb.	\$125	\$2.50
Shorn Wool	52	8.0	\$0.30	lb.	\$125	\$2.50
Wool LDP	52	8.0	\$0.16	lb.	\$67	\$1.33
Unshorn Lamb Pelt Payment	70	6.865	\$0.16	lb.	\$77	\$1.54
Additional income					\$0	\$0.00
TOTAL INCOME					\$9,739	\$194.79
RETURN TO LAND, LABOR AND CAPITAL (profit over operating expenses)					\$1,601	\$32.01
BREAKEVEN LAMB PRICE PER POUND LIVE WEIGHT						\$0.80
BREAKEVEN PRICE PER POUND CARCASS WEIGHT				Yield	52.0%	\$1.55

It is assumed that the flock will raise to market weight 1.6 lambs/ewe for a total of 80 lambs. The ewe replacement rate is 20 % so 10 ewe lambs will need to be retained in the flock, leaving 70 lambs for sale each year. In addition, 8 to 9 cull ewes and 1 cull ram are sold each year. Eight pounds of wool is shorn from the 50 ewes and 2 rams each year. The lambs are sold without being shorn. Wool and unshorn lambs qualify for a loan deficiency payment. Check with your County Farm Service Agency (FSA) on requirements for obtaining the LDP wool and unshorn lamb payments.

Total annual income is estimated at \$9,739/year or \$194.79/ewe/year, and income minus annual operating expenses is \$1,601/year or \$32.01/ewe/year. It would take 10.6 years to pay off the capital costs if the total annual “profit” of \$1,601 was used for this purpose each year. If a loan was taken out for the capital costs at 6 % interest to be paid back in 7 years, this would add \$3,800 in interest costs and another 2.4 years until the capital costs were paid (13.0 years total).

Improving Profits by Increasing Production and/or Price

Increased litter size and/or lamb survival. One way to increase income is to increase the number of lambs raised per ewe in the flock. The example above has a return per ewe of \$32.01 when 1.60 lambs are raised per ewe. If lambs raised per ewe increases to 1.80, return per ewe increases to \$50.05, and it takes 6.8 years to pay off capital costs. If lambs raised per ewe increases to 2.00, return per ewe increases to \$68.09, and it takes 5.0 years to pay off capital costs. Flocks in which most ewes give birth to twins and triplets and successfully rear them will make a greater profit than flocks in which ewes produce mostly singles.

Increased price for lambs. A \$.10/lb. increase in live lamb price from \$.95 to \$1.05/lb. due to more creative marketing will increase return per ewe from \$32.01 to \$50.21 when 1.60 lambs are raised per ewe. The \$.10/lb. increase in live lamb price results in about the same increase in returns per ewe as increasing number of lambs raised from 1.60 to 1.80. Direct marketing of lambs may be a way to obtain higher prices, but it also may be associated with greater marketing costs.

Increased value for your wool. There is an increasing demand for quality fleeces by hand-spinners, fiber artists, and crafts people. If you raise a breed that can produce these desirable fleeces without decreasing lamb production and you take special care during the year to avoid contamination of the fleeces with dirt, manure, and vegetable matter, a premium can be obtained by direct marketing your fleeces. If your ewe and ram fleeces brought \$2.50/lb. instead of \$.30/lb., returns per ewe would increase from \$32.01 to \$50.32; about the same increase in returns per ewe as would be realized from increasing lambs marketed per ewe from 1.60 to 1.80 or from increasing live lamb price from \$.95 to \$1.05/lb.

Combination of increased production and price. If an increase in lambs raised per ewe (from 1.60 to 1.80) is combined with an improved price of live lambs (from \$.95 to \$1.05/lb.) and fleeces (from \$.30 to \$2.50/lb.) through direct marketing, the sheep operation starts to look somewhat more economically viable. Returns per ewe would increase from \$32.01 to \$89.16 and it would take 3.8 years to pay off the capital investment.

Breeding stock sales. Selling purebred breeding stock may also be an avenue to greater returns. If you could sell 10 ram lambs for \$350 each, 20 ewe lambs for \$250 each, and forty 130 lb. market lambs at \$.95/lb., returns per ewe would increase from \$32.01 to \$122.36. This increased income per ewe has taken into account the purchasing of 2 stud rams per year at \$750 each and greater marketing costs of \$1,610.

Improving Profits by Decreasing Operating Costs

The primary way to decrease costs is to feed the ewes and lambs at a lower cost. The grain and hay costs presented in this simulation assume commercial market prices. However, if you can produce your own feed at a lower price, your returns will increase. For example, if your production costs were \$50/ton for hay and \$2.50/bu. For corn, returns per ewe would increase from \$32.01 to \$75.00. If you purchase all your feed, opportunities to reduce costs are fewer. Feed costs can be reduced some by feeding grass or grass/legume hay because ewes do not need high protein alfalfa hay. The amount of hay fed can be reduced if the grazing season can be extended more than 7 months by grazing stockpiled pastures during the winter. If very high quality pastures are maintained, the amount of grain fed to ewes and lambs may be able to be reduced also.

Conclusions

Sheep production is not highly profitable given the production, cost, and income figures used in this simulation. The greatest opportunities for increasing returns will come from increasing the number of lambs marketed per ewe and from increasing the price received for lambs and wool through direct marketing.

The sheep operation also may provide some tax advantages that would improve its economic appeal, and you should discuss this possibility with an accountant familiar with agricultural enterprises. In addition, there may be recreational, hobby, and quality of life reasons to raise sheep that may be more important than, or just as important as, the economic reasons.

Literature Cited

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