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A NEW LOOK AT SHEEP FOR COLORADO RANCHERS AND FARMERS

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C. Kerry Gee¹

**A NEW LOOK
AT SHEEP FOR
COLORADO RANCHERS
AND FARMERS**

¹Economist, Economics, Statistics, and Cooperative Service, U.S. Department of Agriculture, Colorado State University, Fort Collins, Colo. 80523.

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Summary

In the last 2 to 3 years sheep production has become highly profitable for Colorado farmers and ranchers in this business. Future earning potential seems to be good. This has stimulated many to take a new look at sheep. This report presents a review on the status of the sheep industry and an evaluation of alternative sheep enterprises for Colorado. Important findings are:

1. Sheep inventory levels in the United States are lowest in history. Numbers continue to decline but at a slower rate in recent years. Although the sheep population may stabilize in the next year or two, it will be several years before numbers grow enough to cause a major price decline.
2. Current sheep producers in Colorado are enjoying substantial profits from sheep production in spite of chronic problems with labor, predators and marketing.
3. Shed lambing is much more profitable than range lambing with present high lamb prices. Added revenues from increased lamb marketing greatly exceed the extra input costs.
4. Weaning lambs at about 60 days of age, creep feeding and fattening them in pens may be a means for many producers to cut lamb losses to predators. Returns, however, are not as high as when the lambs are kept with the ewes during the summer if only normal losses are incurred. Range forage is still much less expensive than harvested feeds when valued at current market rates.
5. Alfalfa pasture for fattening lambs has potential when compared with fattening in pens. A comparison of the two systems shows greater profits from the pasture program.
6. Eastern Colorado has a potential for profitable sheep production. Maximum use of crop residues for the breeding herd can help keep feed costs down.
7. Confinement sheep production is the least likely enterprise to succeed. High feed, labor and investment costs make above average management a necessity if all costs are to be paid.

A New Look At Sheep
For Colorado Farmers and Ranchers

C. Kerry Gee

Introduction

Current high lamb prices and expectations of continued favorable cost-price relationships are stimulating a new interest in sheep as an enterprise for Colorado farmers and ranchers. This report presents information for those desiring to take a new look at sheep. It gives recent industry statistics and estimates of investment, production, costs and returns for existing and alternative management systems for sheep enterprises. Potential producers may use these data as guides in assessing the place of sheep in their farm or ranch businesses.

A Perspective of the United States Sheep Industry

Sheep are users of feeds for which there are few other marketing alternatives. On western ranges sheep consume forage that would otherwise have no economic value. Much of the area is more suitable to sheep grazing than cattle grazing, for sheep consume forbs and shrubs more readily than cattle, require less frequent access to water and have greater ability to traverse rough or steep terrain.

Small flocks of sheep are kept on many farms in the United States to utilize forage on small acreages that cannot be cultivated, crop residues that have feed value but cannot be marketed and harvested roughages for which there may not be a ready local market.

Geographical Distribution of Sheep

Sheep are found in most of the U.S. except the southeastern states where environmental conditions such as disease and parasites prohibit their production (Fig. 1). Largest numbers are found in the north central and western states. Table 1 presents inventories of breeding ewes and farms with sheep. In 1978, 81 percent of ewes were in the 17 western states, 13 percent in 7 north central states, with the remaining 6 percent in other states. Texas is the largest sheep producer with 21 percent of the nation's total. Wyoming and California are next with 9 percent each followed by South Dakota with 6 percent of the total. In the north central states Ohio and Iowa have largest breeding ewe inventories, each with about 3 percent of the nation's total.

Herd size

In 1978, the average U.S. sheep enterprise had about 72 breeding ewes. The average for the 17 western states was 150 head and for the 7 north central states 22 head.

A distribution of farms with sheep and of breeding ewes by herd size is shown with numbers from the 1974 Census of Agriculture (Table 2). Herds of fewer than 25 ewes occurred on 83 percent of all farms with this enterprise.

^{1/} Agricultural Economist, Commodity Economics Division, Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture, stationed at Colorado State University, Fort Collins, Colorado.

Sheep and Lambs—Inventory: 1974
(All Farms—County Unit Basis)

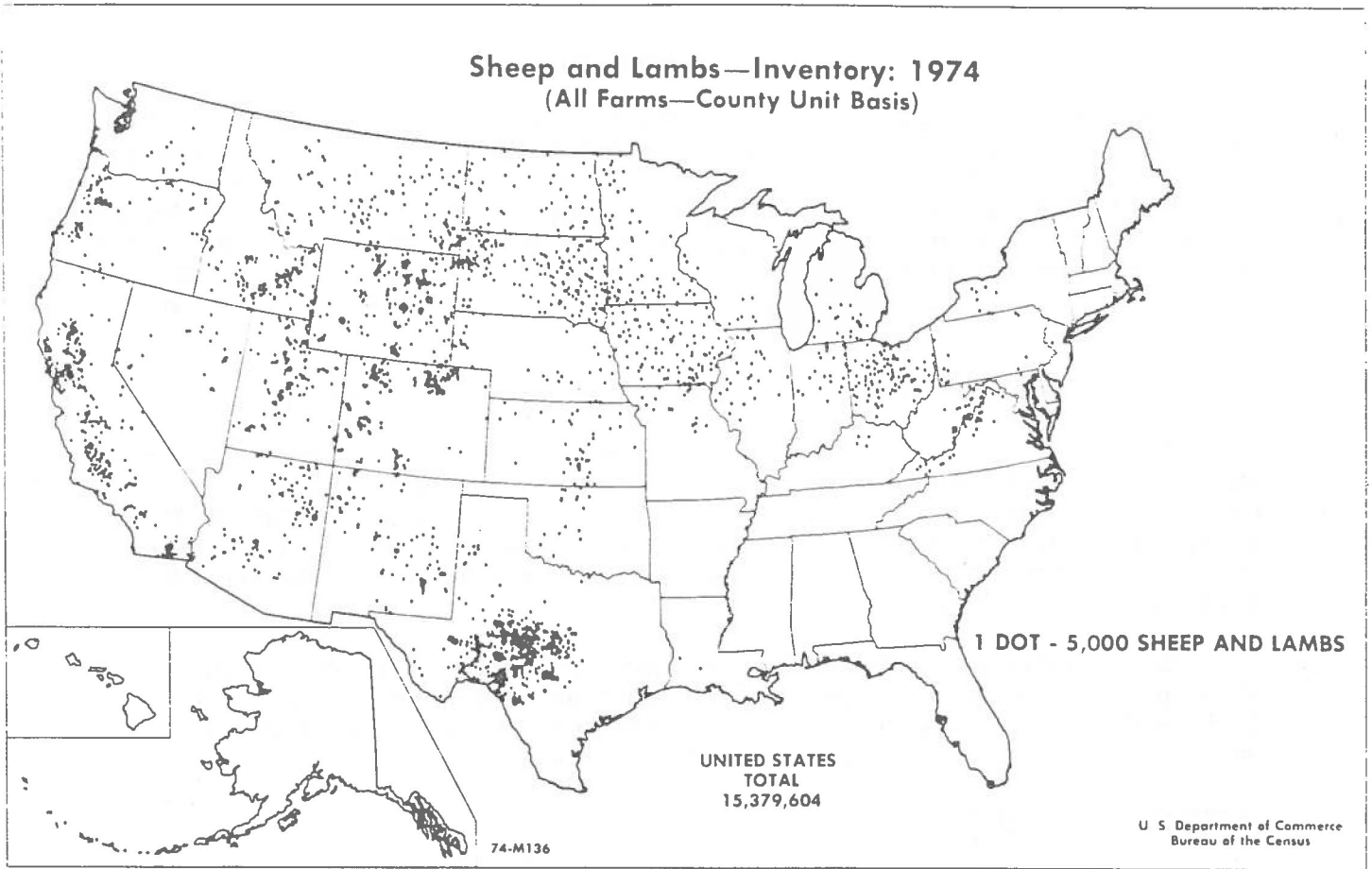


Figure 1.

Table 1--Breeding ewes 1978 and farms with sheep 1977, by state and U.S. total

State	Breeding ewes one year and older January 1, 1978		Farms with sheep 1977	
	1,000 head	Percent	Number	Percent
Arizona	296	3.4	280	.2
California	780	9.1	4,500	3.8
Colorado	380	4.4	2,400	2.0
Idaho	425	4.9	1,900	1.6
Kansas	117	1.4	2,500	2.1
Montana	356	4.1	2,100	1.7
Nebraska	129	1.5	2,800	2.3
Nevada	92	1.1	270	.2
New Mexico	437	5.1	1,400	1.2
North Dakota	126	1.5	2,100	1.7
Oklahoma	55	.6	1,800	1.5
Oregon	250	2.9	4,300	3.6
South Dakota	523	6.1	6,000	5.1
Texas	1,800	21.0	9,000	7.6
Utah	401	4.7	2,300	1.9
Washington	42	.5	1,500	1.2
Wyoming	780	9.1	1,400	1.2
17 Western States	6,989	81.4	46,550	38.9
Illinois	129	1.5	7,500	6.3
Indiana	130	1.5	6,700	5.6
Iowa	240	2.9	11,000	9.2
Michigan	88	1.0	2,800	2.3
Minnesota	160	1.9	7,500	6.3
Missouri	88	1.0	3,400	2.8
Ohio	253	2.9	10,500	8.8
7 Northcentral States	1,088	12.7	49,400	41.3
All other states	509	5.9	23,730	19.8
U.S. total	8,586	100.0	119,680	100.0

Source: Econ., Stat., and Coop. Serv. and Agr. Mark. Serv., U.S. Dept. Agr., Livestock and Meat Statistics, Stat. Bul. No. 522, Supp. for 1977, July 1978; and Sheep and Goats released Jan. 27, 1978 (same agency).

Table 2--Farms with sheep and breeding ewes by herd size, West and United States, 1974

Herd size	Farms with sheep		Ewes one year and older	
	West 1/	United States	West	United States
1-24	35.6	51.9	.9	4.5
25-99	27.4	31.9	4.1	13.8
100-199	12.3	7.5	4.8	9.0
200-499	10.6	4.7	9.2	12.5
500-999	5.2	1.8	10.5	11.1
1,000-2,499	5.5	1.5	24.7	19.8
2,500-4,999	2.4	.5	23.7	15.2
5,000 and over	1.0	.2	22.1	14.1

1/ Includes Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, and Hawaii.

Source: U.S. Dept. Comm., 1974 Census of Agriculture, Vol. II, Part 5.

This large number of small herds explains the low average national herd size discussed above. Yet, this large percentage of producers owns only a small proportion of the total breeding ewes, 18 percent. Large sheep businesses control most of the national inventory--2 percent of producers have 48 percent of the sheep.

In the western range states, large herds are even more predominant. Herds of 1,000 head or more are maintained by only 9 percent of producers. However, these producers control 70 percent of sheep in the specified states (Table 2).

Trends in Sheep Numbers

United States sheep inventories have been falling continuously from their peak of 22 million head in 1960 (Table 3). January 1, 1978 breeding ewe inventories were just 38 percent of 1960 numbers--a drop of 62 percent or 3.4 percent per year. Since 1970 the rate of decline has increased to an annual average of 4.7 percent. In the last two years inventories seem to be stabilizing a little. Reduction in the aggregate breeding herd was only 1.0 percent between 1978-79 compared to 3.4 percent between 1977-78, to 4.6 percent between 1976-77 and 7.6 percent between 1975-76.

Several factors have contributed to the rapid decline in the sheep industry. These are summarized from a 1975 survey as follows:

A combination of factors, many interrelated, has discouraged sheep production. Frustration with predation losses and the restraints against taking strong correction actions were evident among former producers as well as those still in business (nearly two-third of Wyoming's former producers rate predation losses a causal factor in their discontinuance). Low prices for lamb and wool during this period also appeared to contribute, as did difficulties in obtaining good hired

Table 3--Sheep inventories, United States, 1950-78

Year	Breeding ewes one year and older
	January inventory 1,000 head
1950	20,057
1955	21,321
1960	22,406
1965	17,502
1970	13,923
1971	13,609
1972	12,909
1973	12,049
1974	11,058
1975	10,083
1976	9,314
1977	8,886
1978	8,586

Source: U S. Dept Agr. Livestock and Meat Statistics Stat. Bul. No. 522, July 1973, and supplement for 1977, July 1978.

labor. Financial returns were frequently meager or nil. The majority of former producers in Wyoming were suffering operational losses (not even meeting cash costs) when they discontinued production. Even among western commercial sheep producers still in business in 1974, over one-third were not meeting cash costs, and only one-third were making some return on invested capital. ^{1/}

Lamb Consumption

Lamb consumption per capita has been falling in the United States (Table 4). In 1960, 4.8 pounds were consumed per person. By 1977, it had dropped to 1.7 pounds. This trend can be attributed to a long run change in consumer taste for lamb followed by a reduction in lamb availability. Enough lamb is not available in the marketplace. Probably, a larger quantity could be sold in the U.S. at prices profitable to producers..

Lamb Prices

An important factor in assessing the U.S. sheep industry is recent developments in lamb prices. Prices received by producers in 1977-78 have been highest in the industry's history (Table 5). 1977 prices per hundredweight for choice slaughter lambs at San Angelo, Texas, were \$54.28 compared with \$27.45 in 1970--nearly 100 percent increase. Prices in 1978 have held well above 1977 levels. Limited supplies appear to be the major contributor to present high prices.

^{1/} From Factors in the Decline of the Western Sheep Industry, Econ. Res. Serv., U.S. Dept. Agr., AER No. 377, August, 1977.

Table 4--Per capita consumption of lamb and mutton, United States, 1960--77

Year	Pounds/person	Year	Pounds/person
1960	4.8	1970	3.3
1961	5.1	1971	3.1
1962	5.2	1972	3.3
1963	4.9	1973	2.7
1964	4.2	1974	2.3
1965	3.8	1975	2.0
1966	4.0	1976	1.9
1967	3.9	1977	1.7
1968	3.7		
1969	3.4		

Source: ESCS-U.S. Dept. Agr. Livestock and Meat Statistics, Stat. Bul. No. 522 (various supplements).

Table 5--Lamb prices, San Angelo, Texas, 1970-78

Year	Choice slaughter lambs	Choice feeder lambs
<u>Dollars/hundredweight</u>		
1970	27.45	26.97
1971	27.16	15.86
1972	30.70	30.24
1973	38.20	37.17
1974	40.51	36.52
1975	44.45	41.40
1976	49.87	51.28
1977	54.28	55.12
1978		
First quarter	67.67	74.72
Second quarter	69.14	72.38

Source: Livestock and Meat Situation, Econ., Stat., and Coop. Serv., U.S. Dept. Agr., various issues.

U. S. Department of Agriculture projections of lamb prices for 1979 place them well above 1978 levels. Barring a major recession, it is expected that lamb prices will stay at or above current levels for the next several years.

Retail lamb prices have been rising continuously for some time (Table 6). The average for 1978 will be above \$2.00 per pound. The rate of price increase has far exceeded that of either pork or beef. Expectations for the future are continued high retail prices.

Seasonal Variations in Lamb Prices

Within-year fluctuations in farm and retail lamb prices stem from short-run changes in supply-demand relationships. Seasonal changes in quantity demanded are associated with religious traditions and cultural habits of consumers while supplies depend upon the physiology of sheep production, marketing patterns and environmental conditions in sheep-producing areas of the country. Prices for 1958 to 1975 illustrate these patterns (Fig. 2).

At the farm level, lamb prices rise during spring months, reaching a peak about May. Through summer and fall, prices decline with the low point occurring near the end of the year. This pattern is due partly to seasonality in lamb production. Production planning to take advantage of weather conditions and feed supplies causes large numbers of lambs to be marketed in summer and late fall, resulting in low prices during this period. Supplies drop in late winter and spring.

The demand for lamb increases during the season in which supplies are low. Religious holidays in which lamb is a traditional food occur in the spring. High quality milk fat lambs also appear on the market during this season which stimulates lamb consumption. The combination of these factors gives farm level lamb prices their upward swing.

Seasonal movements in retail lamb prices are much less pronounced than at farm levels. However, a slight increase does occur during summer months.

Price and Production Relationships

Patterns of lamb production are the inverse of farm level lamb price movements (Fig. 3). Historically, when production increased, prices fell; when production decreased, prices rose. Prices usually adjust to a level that will clear the market of all lamb produced. It appears that expanded production between 1951-61, except for a short period around 1956, forced lamb prices to extremely low levels. Per capita consumption was high, possibly indicating an increase in number of people eating lamb as well as an increase in consumption by established lamb consumers. Starting in 1961, production began falling, which has continued to the present. Reduced supplies lowered total consumption causing per capita consumption to fall. Consumer bidding on a smaller quantity of lamb forced a continual rise in prices during this period.

A statistical analysis of demand for lamb at the farm level indicates that lamb prices are highly dependent on quantity of lamb marketed. They are affected to a lesser extent by supplies of other meats entering the market and by the level of per capita income in the United States. Producers can expect that for each 1.0 percent change in lamb produced there will be an approximate .6 percent change in price in the opposite direction.

Table 6--Average retail price per pound for selected meats, United States, 1969-78

Year	Lamb	Pork	Beef
	Choice grade	Cents/pound	Choice grade
1969	100.7	74.3	96.2
1970	105.5	78.0	98.6
1971	109.7	70.3	104.3
1972	118.8	83.2	113.8
1973	134.3	109.8	135.5
1974	146.4	108.2	138.0
1975	167.6	135.0	146.0
1976	185.6	134.3	138.9
1977	187.0	125.4	138.3
1978			
January	199.8	133.8	148.2
February	206.8	138.4	151.2
March	214.0	139.4	154.6
April	220.3	140.9	162.9

Source: ESCS-U.S. Dept. Agr. Livestock and Meat Statistics - Supplement for 1977, Stat. Bul. No. 522, July 1978.

Wool Prices

Historically, wool prices received by farmers have been subject to wide fluctuations (Table 7). In 1970, the national average price was 35.5 cents per pound at the farm level. The 1971 price dropped to 19.4 cents per pound, rose to 35.0 cents in 1972 and up to 82.7 cents in 1973 before dropping back to 59.1 cents in 1974 and to 44.7 cents in 1975. Prices increased to 73.0 in 1977 and were slightly above this level in 1978.

It has only been through the wool incentive payment program that producer returns from wool have been stabilized in view of the wide year-to-year movements in wool prices.

A new interest in wool for apparel that began during 1976 may continue, in which case wool prices may strengthen during the next few years. Rising foreign wool price levels will also favorably affect future prices received by U.S. farmers.

Farm level wool prices for 1950-75 exhibit a fairly consistent seasonal pattern. The seasonal peak usually occurs in the spring--most often during June. Prices taper off and reach their seasonal low in November and December.

Seasonal Wool Price Indices

<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
98.6	98.0	101.0	102.1	104.0	105.1	103.0	99.1	97.7	97.1	96.7	96.1

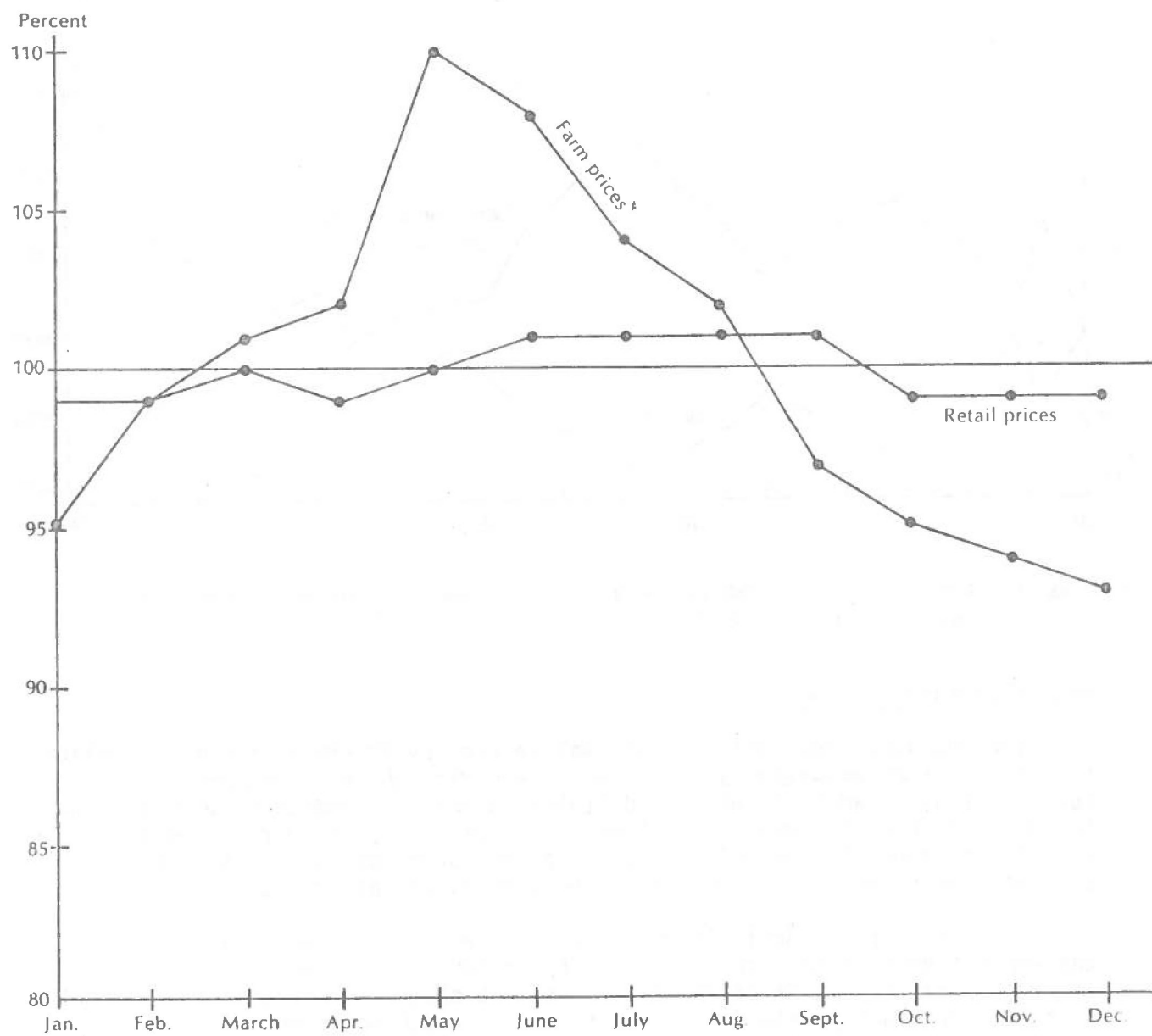


Figure 2. Seasonal farm and retail lamb price indices.

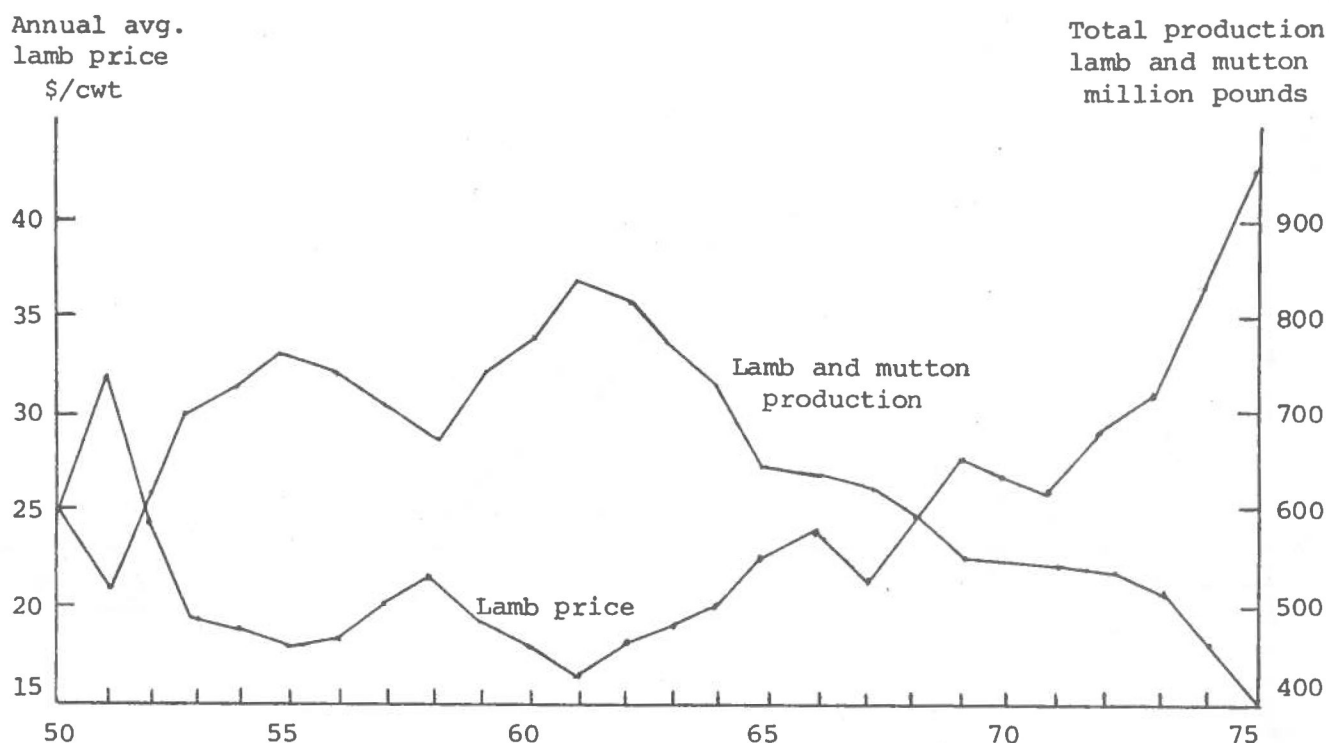


FIGURE 3. Annual average lamb price and total lamb and mutton production, United States, 1950-75.

Wool incentive program

The "National Wool Act of 1954" was enacted by Congress on the assumption that "wool is an essential and strategic commodity which is not produced in quantities and grades in the United States to meet the domestic needs and that the desired domestic production of wool is impaired by the depressing effects of wide fluctuations in the price of wool in the world markets." The Act was to support wool price at a level fair to both producers and consumers.

The Secretary of Agriculture was charged with the responsibility to set the support price after consultation with producer representatives and consideration of changes in costs associated with sheep production. The support price was originally intended to be at a level which would encourage the production of about 300 million pounds of shorn wool, grease basis. The support price was not to exceed 90 percent of the parity price for wool nor be less than 60 percent of the parity price. The support price for pulled wool was to be set at a level in relationship to shorn wool which would maintain normal marketing practices for pulled wool.

Payments for the program were to be financed through the Commodity Credit Corporation with total funds provided from the treasury not to exceed 70 percent of specific and ad valorem import duties on wool and wool manufacturers for the same time period.

The incentive price upon which payments are based is tied directly to shorn wool and expressed in cents per pound.

Table 7--National average wool price received by farmers, 1970-77

Year	Price received by farmers per pound
	<u>Cents</u>
1970	35.5
1971	19.4
1972	35.0
1973	82.7
1974	59.1
1975	44.7
1976	65.7
1977	72.0

Source: Econ. Stat. and Coop. Serv., U.S. Dept. Agr., Livestock and Meat Statistics, Stat. Bul. No. 522 Supp. for 1977, July 1978.

The initial level of 62 cents set by Congress continued until 1966 when it was increased to 65 cents. Annual adjustments were made up to 1970. At that time it was set at 72 cents. It was frozen at this level through Congressional action through 1976. The incentive rates were 99 cents for 1977, \$1.08 cents for 1978 and \$1.15 cents for 1979.

Payments for wool production are of two kinds: on shorn wool and on the sale of unshorn lambs. The shorn wool payment rate is calculated by dividing the difference between the support price and the annual U.S. average price received by producers for shorn wool, by the annual average U.S. price received by farmers. This percentage is multiplied by the net proceeds from the sale of shorn wool for each producer, to determine the amount of his incentive payment. It should be noted that the incentive payment per pound of shorn wool sold varies among producers and is dependent upon the price he receives for his wool in the market. Therefore, the program should encourage the production of high quality wool which can be sold at premium prices.

The unshorn lamb payment rate is established by taking 80 percent of the difference between the support price for shorn wool and the U.S. annual average market price and multiplying the results by 5 pounds, the estimated average wool production per hundredweight of live lamb. The payment rate per hundredweight of unshorn lamb is multiplied by the net weight of lambs sold to determine the amount of unshorn lamb payment. Where lambs are sold for additional feeding prior to slaughter, the second owner can receive payments only on the weight added to the lambs while they are in his possession.

Payments to producers have varied over the years as wool prices have fluctuated (Table 8). The range in payment rates has been from 271.7 percent of the value of wool sold by producers in 1971 to no payment in 1973 when market prices exceeded the 72 cent incentive price level. In 1977 producers received incentive payments equal to 37.5 percent of the value of their wool sales. The incentive price was 99 cents and the national average market price for wool was 72 cents. Since there is a one-year lag in incentive payments, 1978 payment rates have not been calculated.

Table 8--Wool incentive payment rates under the National Wool Act, 1970-77

Year	Incentive price	National average price received by farmers	Shorn wool payment rate
	<u>Cents/pound</u>	<u>Cents/pound</u>	<u>Percent of sales value</u>
1970	72	35.5	102.8
1971	72	19.4	271.1
1972	72	35.0	105.7
1973	72	82.7	0
1974	72	59.1	21.8
1975	72	44.7	61.1
1976	72	65.7	9.6
1977	99	72.0	37.5

The Profitability of Sheep Production

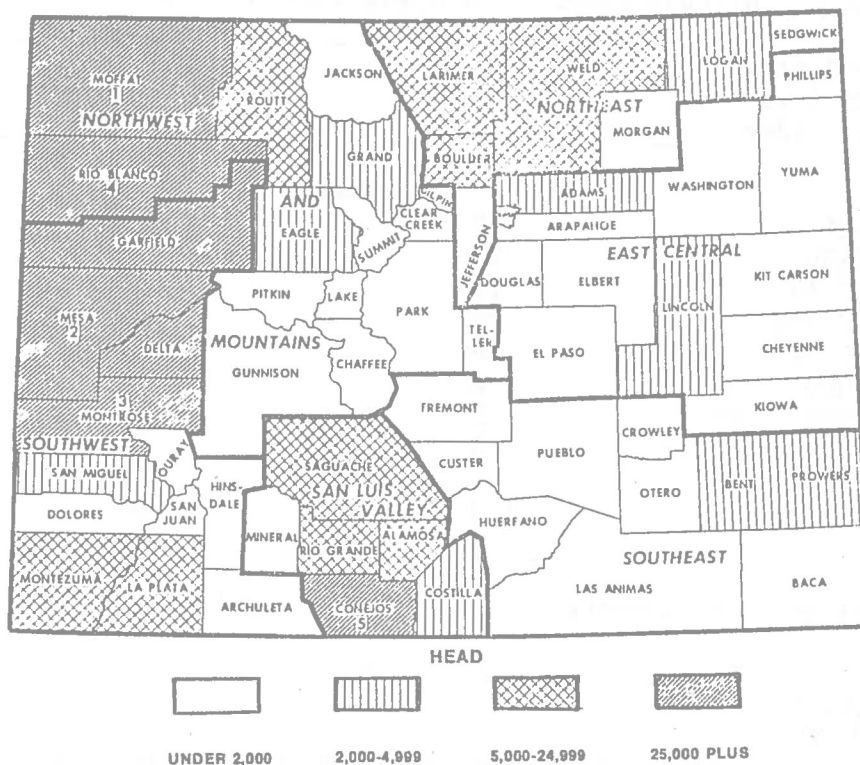
Historically, sheep businesses have not yielded high returns above cash costs. In 1974, many western sheep producers did not even pay all cash costs. Cost data for 1975 in north central states revealed a similar situation for sheep production in that area. Lamb and wool prices had not kept pace with rising production costs. Since 1975, severe shortages of lamb, resulting from rapidly declining sheep numbers, have caused sharp rises in lamb prices and totally changed the financial picture for sheep producers. Cost and return estimates for 1977, 1978, and 1979, soon to be published by USDA, indicate expanded net returns resulting from improved prices. Higher market prices for wool and increased government incentive payment levels have also aided the economic well-being of sheep producers.

Sheep Production in Colorado

Colorado ranks ninth among states in stock sheep inventories. Sheep are found in all but 8 of Colorado's 63 counties. Largest numbers are in the Western Slope and San Luis Valley counties--91 percent. The five principal sheep counties--in order of numbers--are Moffat, Mesa, Montrose, Rio Blanco and Conejos. These counties have 60 percent of the stock sheep. Moffat County alone has 23 percent of the state total (Fig. 4).

Colorado stock sheep numbers for 1978 totaled 450,000 head. This is down 45 percent from the 1970 population of 823,000 head. The average annual drop in numbers for this period is slightly over 41,000 head. The rate of decline has been slowing since 1975. In the southeast and east central parts of the state numbers increased between 1977-78. With continued high lamb prices, the rate of decline should slow even more and possibly stabilize in the next 1 to 2 years.

STOCK SHEEP ON FARMS: COLORADO, 1978
WITH RANKING OF FIRST FIVE COUNTIES



Source: 1978 Colorado Agricultural Statistics,
 Colorado Department of Agriculture.

Figure 4.

Herd size

There are about 2,500 sheep producers in Colorado with a wide range in number of sheep managed. About 36 percent of producers have flocks of fewer than 25 breeding ewes, while 51 percent have fewer than 100 head. Only 12 percent of producers have herds containing more than 1,000 head (Table 9).

The proportion of total breeding ewes in herds of various sizes is just the reverse. Only 4 percent of the total are in flocks numbering fewer than 100 ewes while herds of 1,000 or more account for 74 percent of all ewes.

Annual feed sources

Privately owned range is the principal feed source for the average Colorado sheep producer (Table 10). Federal range is second in importance followed by supplementary feeds. Producers with small herds or flocks obtain little feed from public lands. In contrast, those with large herds may get more than 50 percent from this source. More supplementary feeds are used by small farm flocks than by larger herds, probably because producers have less access to winter range and use more intensive management practices such as shed lambing and creep feeding lambs.

Table 9--Size of Colorado sheep businesses, 1974

Herd size, Ewes 1 year and older	Farms and ranches	Total breeding ewe population
	<u>Percent</u>	
1-24	36	1
25-99	26	3
100-199	11	4
200-499	10	8
500-999	5	10
1,000-2,499	8	30
2,500-4,999	3	25
5,000 and over	1	19
Total	100	100

Source: Department of Commerce, 1974 Census of Agriculture, Colorado

Management practices

About one-half of breeding ewes are shed lambed (Table 11). Size of herd is an important determinant in the use of this practice. Most ewes in small flocks and herds are lambed under cover while few in large operations receive this care.

Similar relationships occur with fencing. Large herds are usually on open range both summer and winter while smaller enterprises are in fenced pasture.

Transporting sheep between major feed areas is a necessity for many producers. Only extremely small flocks are not moved. Method of transportation varies among herd sizes but is about equally divided for the entire population between trucking and trailing (Table 11).

April and May are the heavy lambing months in Colorado (Table 12). About 75 percent of all lambs are born during this period. In smaller herds where more shed lambing is practiced, February and March are the important lambing months.

Lamb marketing extends over the late summer and fall months with the greatest proportion occurring in September (Table 12). Smaller operations which lamb earlier in the spring also market their lambs earlier with many sold in late July and August.

Sheep producers market a large proportion of their lambs directly for slaughter. About 70 percent of lambs sold other than for replacement are of this quality. The remaining 30 percent sell either as feeder lambs or as

Table 10--Sources of feed for sheep enterprise, Colorado

Source of feed	Herd size--Breeding Ewes						
	50-99	100-299	300-999	1,000-2,499	2,500-4,999	5,000 and over	All sizes
	<u>Percent of annual feed</u>						
Bureau of Land Management range	2		2	14	28	29	17
Forest Service range			2	9	12	10	8
State grazing land				1	4	2	2
Privately owned range	26	30	27	34	38	48	35
Irrigated pasture	24	29	26	13	5	3	12
Crop residue	15	6	9	9	4		7
Hay, grain, and concentrate	33	35	34	20	9	8	19
Total	100	100	100	100	100	100	100

Table 11--Selected management practices of sheep producers, Colorado

Management practice	Herd size--Breeding Ewes						
	50-99	100-299	300-999	1,000-2,499	2,500-4,999	5,000- and over	All sizes
	<u>Percent of ewes</u>						
Lambing:							
Shed	92	88	67	67	38	3	49
Range	8	12	33	33	62	97	51
Summer feed:							
Open range			13	64	80	92	59
Fenced pasture	100	100	87	36	20	8	41
Winter feed:							
Open range			20	55	79	92	57
Fenced pasture	100	100	80	45	21	8	43
Transportation between major feed areas:							
Trailed & trucked			25	29	45	67	37
Trailed only		25	31	35	31	25	30
Trucked only		75	44	33	24	8	33
Not moved	100			3			1/

1/ Less than 1 percent when rounded to whole numbers.

Table 12--Lambing and marketing seasons of sheep enterprises, Colorado

Month	Herd size--breeding ewes						
	50- 99	100- 299	300- 999	1,000- 2,499	2,500- 4,999	5,000 and over	All sizes
	<u>Percent of lambs born</u>						
January	6	3	6	1			2
February	33	21	27	2			7
March	36	37	22	14	4	15	15
April	18	26	38	53	30	4	33
May	1	12	7	28	64	74	41
June				2	2	7	2
July							
August							
September							
October							
November							
December	6	1					
Total	100	100	100	100	100	100	100
	<u>Percent of lambs marketed</u>						
January			2		1		1
February				2	1		1
March							
April							
May		6					1/
June	3						1/
July	28	14	16	4			6
August	29	28	28	6		4	10
September	24	34	44	58	67	72	56
October	12	16	7	21	25	2	15
November	4	2	3		6	20	6
December				9		2	3
Total	100	100	100	100	100	100	100

1/ Less than 1 percent when rounded to whole numbers.

slaughter lambs after a fattening period on crop residue or in a feedlot. A percentage disposition of the total lamb crop is as follows:

<u>Lamb crop</u>	<u>Percent</u>
Sold directly for slaughter	61
Sold as feeder lambs	9
Sold as fat lambs after fattening	18
Kept for replacement lambs	12
Total	100

Lambs are generally sold to packer buyers (Table 13). Order buyers are second in importance. Auctions are frequently used by producers with smaller herds. Producers sell to a variety of other buyers--feedlot representatives being the most common. Other farmers and ranchers also purchase some lambs.

In recent years, the number of buyers bidding on any one producer's lambs has averaged fewer than two. This means that many producers are selling lambs with only one bid.

Capital Investment For Sheep Enterprises

Capital requirements for a sheep enterprise include expenditures for breeding stock and facilities. It is assumed that land is already available. The greatest problem in starting a sheep enterprise is probably the purchase of breeding stock. Prices are high and supplies short. From \$60-\$80 per head is common for ewes. Ewe lambs for breeding sell from \$5-\$10 per hundred-weight above slaughter lamb prices. Rams may cost \$200-\$350 per head.

Expenditures for facilities may vary among individual producers depending on the management system and structure already on the farm or ranch. Shed lambing, creep feeding, and fattening lambs in pens all require special facilities. Existing buildings can frequently be adapted to sheep production which reduces investment costs. ^{2/}

Investment requirements used in the budget analysis are shown in Table 14. Facility costs are for materials only on the assumption that producers do the work themselves. Total investment in livestock per breeding ewe is \$75 based on a ewe price of \$65 and rams at \$300. Facility investments per ewe for a 2,400 head enterprise are \$15.30 with range lambing, \$24.53 with shed lambing, and \$30.28 with shed lambing, creep feeding, and fattening pens for lambs. A 500-head enterprise with shed lambing requires about \$15.10 per ewe. With the addition of creep feeding and pens for fattening lambs, investment increases to \$18.66. As indicated above, renovation of old facilities can reduce costs substantially.

Enterprise Budgets

Enterprise budgets are estimated on the assumption that all inputs are paid for at 1978 market prices. Pasture is charged at rental rates even

^{2/} Detailed plans for sheep facilities are presented in Sheep Handbook-Housing and Equipment, MWPS-3 which is available through the Colorado State University bulletin room.

Table 13--Marketing outlets used by sheep producers, Colorado

Type of market	Herd size--breeding ewes						All sizes
	50-99	100-299	300-499	1,000-2,499	2,500-4,999	5,000 and over	
	<u>Percent of lamb sales</u>						
Auction	77	65	17				9
Packer Buyer		21	71	45	79	73	61
Order Buyer	18	7	8	15	17	23	15
Dealer or trader							
Producer pool	5	7		12			4
Other			4	28	4	4	11

though it is owned by the producer. Other homegrown feeds are also valued at market price. Family labor is paid the going wage rate. Management is valued at 7 percent of total costs.

Most costs are treated as cash outlays. Exceptions are depreciation, family labor, management and interest on investment in livestock and facilities. For some producers, part of these could be cash costs. For example, if part of investment capital is borrowed, the interest charged would require a cash expenditure or certain family members may receive a cash wage. There is no depreciation on breeding ewes. Instead, ewe lambs are held from market to replace ewes that are culled or that die.

Sizes of sheep enterprises for which budgets are constructed are:

Western Colorado
2,400 head
500 head

Eastern Colorado
2,000 head
500 head

Several management systems are budgets to demonstrate their effect upon production, costs and returns. These are summarized below:

Table 14 --Investment in sheep and facilities for selected sheep enterprises

Enterprise	Investment		Total
	: Sheep ^{1/}	Facilities ^{2/}	
	Dollars		
<u>Western Colorado:</u>			
2,400 head, range lamb	180,000	36,720	216,720
2,400 head, shed lamb	180,000	58,880	238,880
2,400 head, shed lamb, creep feed, fatten lambs in pens	180,000	72,680	252,680
500 head, shed lamb	38,000	7,550	45,550
500 head, shed lamb, no winter range	38,000	7,550	45,550
500 head, shed lamb, no winter range, creep feed, fatten lambs in pens	38,000	9,330	47,330
500 head, shed lamb, no winter range, creep feed, fatten on alfalfa pasture	38,000	8,770	46,770
<u>Eastern Colorado:</u>			
2,000 head, shed lamb, creep feed, fatten lambs in pens	150,100	60,600	210,700
500 head, shed lambs, creep feed, fatten lambs in pens	38,000	9,330	47,330
<u>Confinement enterprise:</u>			
500 head, shed lamb, creep feed lambs fattened in pens	38,000	11,660	49,660

1/ Ewes are valued at \$65 per head and rams at \$300 per head as a replacement cost.

2/ Facility investment is valued at replacement cost.

Area and herd size	Management system
Western Colorado-2,400 head:	Range lamb Shed lamb Shed lamb, creep feed, fatten lambs in pens
Western Colorado- 500 head:	Shed lamb, winter range Shed lamb, no winter range Shed lamb, no winter range, creep feed, fatten lambs on alfalfa pasture.
Eastern Colorado-2,000 head:	Shed lamb, creep feed, fatten lambs in pens
Eastern Colorado- 500 head:	Shed lamb, creep feed, fatten lambs in pens
All areas 500 head:	Ewes in confinement, creep feed, fatten lambs in pens

Individual budgets, discussed below, are accompanied by tables showing an annual calendar of activities, production, physical inputs, costs and returns.

Western Colorado 2,400 Head Sheep Enterprise

Range lambing

This is a typical range lambing operation in western Colorado. Lambing generally takes place in April and May after most hazards of winter storms have passed. Ewes are on range the entire year with hay and grain fed only when forage is in short supply or covered by snow and just prior to lambing. Both ewes and lambs are on forest range in summer. Lambs are marketed the last of August and into September as they come off mountain ranges. BLM (Bureau of Land Management) range and deeded range are used in fall, winter and spring. Detailed activities, labor use, and feed inputs are shown in Table 15.

There are 1.04 lambs born alive per ewe with .65 marketed after deductions are made for death loss and herd replacement (Table 16). Cull ewes and wool are also marketed.

The details of costs and returns can be seen in Table 17. Return above cash costs is \$16.96 per ewe, while return above all costs is 92 cents per ewe.

Shed lambing

Much of the management program for shed lambing is similar to that described above. Exceptions are the earlier lambing season which begins in March and earlier marketing of lambs beginning the first of August. More supplementary feeds are used and labor inputs are higher (Table 18).

Also, more lambs are born per ewe than with range lambing--1.24 head. The more intensive management causes fewer deaths which, along with the higher birth rate, results in increased lambs marketed--.88 head per ewe (Table 19). The increased marketings more than offset added investment, feed, and labor costs per ewe which are \$28.76 and \$10.31, respectively, a significant increase over range lambing (Table 20).

Shed lambing, early weaning, and pen fattening

With this program lambs are born in January and February, weaned at 60 days, creep fed and marketed in June. Weaning lambs early and pen fattening avoid some of the hazards which lambs experience on summer ranges, particularly from predators. Such a program results in more lambs marketed and all lambs sold as fatts for slaughter (Tables 21-22). Marketings occur when seasonal lamb prices are near their maximum. However, there are added costs. Large quantities of the more expensive supplementary hay and grain must be used; labor requirements increase; and additional facilities must be purchased. There is usually no reduction in range forage costs since a ewe is charged at the same rate as a ewe and lamb on federal ranges. There is also no reduction in deeded range requirements since this feed is not grazed by lambs in the normal use patterns budgeted.

Return above cash costs is improved slightly over shed lambing through creep feeding, pen fattening and earlier marketing (Table 23). Probably the greatest benefits from the management system would accrue to producers with unusually high lamb losses on summer range.

Western Colorado 500 Head Sheep Enterprise

Shed lambing

Two initial 500-ewe budgets are constructed to represent smaller sheep enterprises in western Colorado. Both management systems use shed lambing and similar feed sources. A difference is in the availability of winter range (Tables 24 and 27). One enterprise has no winter range, which means that ewes must be fed hay and supplementary feed in winter. Feed costs, facilities and labor inputs are higher in this program, but there is little change in production (Tables 25-29).

The added costs are reflected in returns. Returns above cash costs and total costs per ewe are \$48.42 and \$32.08, respectively, where winter range is available. With no winter range the respective returns are \$44.56 and \$26.51 per ewe. Having winter range gives a definite cost advantage.

Shed lambing, early weaning, and pen fattening vs. alfalfa pasture

A 500-head sheep enterprise with no winter range does not benefit from an early weaning program and pen fattening of lambs. The added labor, feed and facility costs outweigh the increased returns from lamb sales (Tables 31-33).

A system to reduce these costs and still retain the higher lamb production might be to fatten lambs on alfalfa pasture instead of in pens (Tables 34-36). The feed is much cheaper, investment lower and there is less labor required. Returns with this system are greatly improved but still do not equal those from a program that uses inexpensive public range. The real benefits from this program may be for producers who have high lamb losses on summer range, just as with the larger enterprises.

Eastern Colorado 2,000 Head Sheep Enterprise

The main differences between sheep enterprises in eastern and western Colorado are feed sources. Eastern producers generally do not have access to federal range. However, they are in areas where large quantities of crop residue occur. Access to this feed can be a real asset to producers.

A management system is budgeted involving shed lambing in February and March, early weaning, creep feeding and fattening lambs in pens (Table 37). Production is similar to western Colorado with all lambs marketed at slaughter weights (Table 38).

Returns above cash costs are \$24.62 and above all costs \$2.69 per breeding ewe. This is lower than returns in western Colorado for a similar herd size which reflects higher feed costs (Table 39).

Eastern Colorado 500 Head Sheep Enterprise

A budget for 500 ewes in eastern Colorado reflects expected returns for smaller enterprises. The management system and feed sources are the same as for the larger herd described above (Table 40). Production is somewhat higher reflecting more intensive management for smaller herds (Table 41). Returns are also significantly better although not as good as in the West where cheaper feed is available (Table 41). Although a budget using alfalfa pasture for lambs is not included, such a program would give higher returns than feeding lambs in pens.

Confinement Sheep Enterprise

High land prices have led to the question of confinement sheep production. Ewes are fed in pens except for the latter part of the year when crop residue is available. Lambs are also fattened in pens (Table 42). Production could probably be maintained at about the same level as with other management systems (Table 43).

Feed costs and total costs are higher than in other budgets due to the use of much harvested feed, higher labor costs and greater investment requirements (Table 44). Returns above cash costs are \$22.73 per ewe. When all costs are considered, the enterprise suffers a loss of \$3.13 per ewe. Only with superior management reflected in more lambs marketed can a confinement sheep enterprise be made profitable.

Table 15--Annual operations and labor and feed required for a 2,400 head sheep enterprise, range lambing, Federal range, Western Colorado.

Item	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Flush ewes										xxxx		
Breed ewes											xxxxxxxxxxxx	
Shearing			xxx									
Lambing				xxxxxxxxxxx								
Mark lambs				xxxxxxxxxxx								
Wean lambs								xxxxxxxx				
Creep Feed lambs				None								
Feedlot lambs				None								
Pasture lambs					-----	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx			
Market lambs								xxxxxxxx				
Feed ewes	-----		xxxxxx									---xxx
Pasture ewes												
BLM range	xxxxxxxxxxxx										xxxxxxxx	
FS range							xxxxxxx	xxxxxxx	xxx			
Deeded range			-----	xxxxxxxxxxxx					xxxxxxxxxxxx			
Crop residue					None							
Labor hours/ewe	Hired 1.6 hrs.			Family .6 hrs.				Total 2.2 hrs.				

Supplementary Feed required:

Alfalfa hay	439.1 Ton
Corn	28.2 Ton
Salt and mineral	10.1 Ton

Forage required:

BLM range	9,600 AM	1,920 AUM
FS range	6,000 AM	1,200 AUM
Deeded range	8,566 AM	1,713 AUM

Table 16-- Production and sales from a 2,400 head sheep enterprise, range lambing, Federal range, Western Colorado, 1978.

Item	Amount		Average Pounds
	Total	Per Breeding Ewe	
	---	Head ---	
Lambs born alive	2,496	1.04	
Lambs lost <u>1/</u>	288	.12	
Lambs docked	2,208	.92	
Lambs died <u>2/</u>	240	.10	
Lambs kept for replacement	408	.17	
Lambs marketed			
Slaughter	1,032	.43	93
Feeder	528	.22	82
Cull ewes marketed	216	.09	
Wool marketed, pounds	25,728	10.72	

1/ Lamb loss before docking is 11.5 percent of lambs born alive.

2/ Lamb loss after docking is 9.6 percent of lambs born alive.

Table 17-- Costs and returns for a 2,400 head sheep enterprise, range lambing, 25
Federal range, Western Colorado.

Item	Unit	Quantity	Price/ Unit	Total Value	Value per Ewe
<u>Sales:</u>					
Slaughter lambs	Head	1,032	54.87	56,626	23.59
Feeder lambs	Head	528	49.20	25,978	10.82
Cull ewes	Head	216	19.60	4,234	1.76
Wool	Pounds	25,728	.78	20,068	8.36
Shorn wool payment <u>1/</u>	Dollars	20,068	.38	7,626	3.18
Unshorn lamb payment <u>2/</u>	Dollars	1,393	1.20	1,672	.70
Gross revenue	Dollars			116,204	48.42
<u>Cash costs:</u>					
Alfalfa hay	Ton	439.1	51.00	22,394	9.33
Corn	Ton	28.2	70.00	1,974	.82
Oats	Ton				
Wheat bran	Ton				
Molasses	Ton				
Salt and mineral	Ton	10.1	110.00	1,111	.46
BLM range	AUMs	1,920	1.50	2,880	1.20
FS range	AUMs	1,200	1.60	1,920	.80
Deeded range	AUMs	1,713	8.00	11,992	5.00
Crop residue	AUMs				
Alfalfa pasture	AUMs				
Subtotal feed	Dollars			42,271	17.61
Medicine	Dollars			1,032	.43
Marketing	Dollars			319	.13
Trucking	Dollars			2,464	1.03
Car and pick-up	Miles	19,906	.175	3,484	1.45
Utilities	Dollars			461	.19
Shearing	Head	2,480	1.35	3,348	1.39
Feed processing	Ton				
Repairs on facilities <u>3/</u>	Dollars			505	.21
Miscellaneous <u>4/</u>	Dollars			1,413	.59
Interest, operating cap.	Dollars	36,042	.095	3,424	1.43
Taxes <u>5/</u>	Dollars			636	.26
Insurance <u>6/</u>	Dollars			111	.05
Ram death loss <u>7/</u>	Dollars			2,600	1.08
Subtotal nonfeed costs	Dollars			19,797	8.25
Hired labor	Hours	3,840	3.50	13,440	5.60
Total cash costs	Dollars			75,508	31.46
<u>Noncash costs:</u>					
Depreciation on facilities and equipment	Dollars			3,672	1.53
Depreciation on ram	Dollars			3,912	1.63
Family labor	Hours	1,440	3.50	5,040	2.10
Management	Dollars			5,286	2.20
Interest on investment	Dollars			20,588	8.58
Total noncash cost	Dollars			38,498	16.04
Total all costs	Dollars			114,006	47.50
<u>Returns:</u>					
Above cash costs	Dollars			40,696	16.96
Above all costs	Dollars			2,198	.92

For footnotes see table

Table 18--Annual operations and labor and feed required for a 2,400 head sheep enterprise, shed lambing, Federal range, western Colorado.

Item	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Flush ewes										xx		
Breed ewes										xxxxxxxxxx		
Shearing		xxxxx										
Lambing			xxxxxxxxxxx									
Mark lambs			xxxxxxxxxxx									
Wean lambs								xxxxxxx				
Creep Feed lambs					None							
Feedlot lambs					None							
Pasture lambs					---xxxxxxx	xxxxxxxxxxxx	xxxxxxxxxx					
Market lambs								xxxxxxx				
Feed ewes	-----	xxxxxxxxxxx										
Pasture ewes												
BLM range	xxxxxxx	xxxxxxx										xxxxxxxxx
FS range							xxxxxxx	xxxxxxx				
Deeded range			---	xxxxxxx	xxxxxxx	xxxxxx			xxxxxxxxxxx			
Crop residue					None							
Labor hours/ewe	Hired 1.9 hrs.			Family .7 hrs.			Total 2.6 hrs.					

Supplementary feed required:

Alfalfa hay 518.3 Ton
 Corn 28.2 Ton
 Salt and mineral 10.1 Ton

Forage required:

BLM range 9,600 AM 1,920 AUM
 FS range 6,000 AM 1,200 AUM
 Deeded range 7,246 AM 1,449 AUM

Table 19-- Production and sales from a 2,400 head sheep enterprise, shed lambing, Federal range, Western Colorado.

Item	Amount		Average Pounds
	Total	Per Breeding Ewe Head	
Lambs born alive	2,976	1.24	
Lambs lost <u>1/</u>	216	.09	
Lambs docked	2,760	1.15	
Lambs died <u>2/</u>	240	.10	
Lambs kept for replacement	408	.17	
Lambs marketed			
Slaughter	1,320	.55	98
Feeder	792	.33	87
Cull ewes marketed	240	.10	
Wool marketed, pounds	30,144	12.56	

1/ Lamb loss before docking is 7.3 percent of lambs born alive.

2/ Lamb loss after docking is 8.1 percent of lambs born alive.

Table 20-- Costs and returns for a 2,400 head sheep enterprise shed lambing, Federal range, Western Colorado, 1978. 28

Item	Unit	Quantity	Price/ Unit	Total Value	Value per Ewe
<u>Sales:</u>					
Slaughter lambs	Head	1,320	55.80	73,656	31.94
Feeder lambs	Head	792	50.84	40,265	16.78
Cull ewes	Head	240	19.60	4,704	1.96
Wool	Pounds	30,144	.78	23,512	9.80
Shorn wool payment <u>1/</u>	Dollars	23,512	.38	8,935	3.72
Unshorn lamb payment <u>2/</u>	CWT	1,983	1.20	2,380	.99
Gross revenue	Dollars			153,452	64.94
<u>Cash costs:</u>					
Alfalfa hay	Ton	518.3	51.00	26,433	11.01
Corn	Ton	28.2	70.00	1,974	.82
Oats	Ton		68.00		
Wheat bran	Ton		144.00		
Molasses	Ton		99.00		
Salt and mineral	Ton	10.1	110.00	1,111	.46
BLM range	AUMs	1,920	1.50	2,880	1.20
FS range	AUMs	1,200	1.60	1,920	.80
Deeded range	AUMs	1,449	8.00	11,992	5.00
Crop residue	AUMs		2.25		
Alfalfa pasture	AUMs		10.00		
Subtotal feed	Dollars			46,310	19.30
Medicine	Dollars			1,032	.43
Marketing	Dollars			432	.18
Trucking	Dollars			3,336	1.39
Car and pick-up	Miles	19,906	.175	3,484	1.45
Utilities	Dollars			789	.33
Shearing	Head	2,480	1.35	3,348	1.39
Feed processing	Ton				
Repairs on facilities <u>3/</u>	Dollars			843	.35
Miscellaneous <u>4/</u>	Dollars			1,581	.66
Interest, operating cap.	Dollars	39,773	.095	3,778	1.57
Taxes <u>5/</u>	Dollars			757	.32
Insurance <u>6/</u>	Dollars			185	.08
Ram death loss <u>7/</u>	Dollars			2,600	1.08
Subtotal nonfeed costs	Dollars			22,165	9.24
Hired labor	Hours	4,560	3.50	15,960	6.65
Total cash costs	Dollars			84,435	35.18
<u>Noncash costs:</u>					
Depreciation on facilities and equipment	Dollars			5,880	2.45
Depreciation on ram	Dollars			3,912	1.63
Family labor	Hours	1,680	3.50	5,880	2.45
Management	Dollars			5,910	2.46
Interest on investment	Dollars			22,694	9.46
Total noncash cost	Dollars			44,276	18.45
Total all costs	Dollars			128,711	53.63
<u>Returns:</u>					
Above cash costs	Dollars			69,017	28.76
Above all costs	Dollars			24,741	10.31

For footnotes see table

Table 21--Annual operations and labor and feed required for a 2,400 head sheep enterprise, shed lambing, lambs weaned at 60 days and fattened in pens, Federal range, Western Colorado.

Item	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Flush ewes						xxx						
Breed ewes						xxxxxxx	xxxxxx					
Shearing												xxxx
Lambing	xxxxx	xxxxxx										
Mark lambs	xxx	xxxxxxx	xxx									
Wean lambs			xxxxx	xxxxxx								
Creep Feed lambs		xxxxxxx	xxxxxx	-----								
Feedlot lambs				-----	xxxxxx	xxxxxx						
Pasture lambs				None								
Market lambs						xxxxxxx						
Feed ewes	-----	xxxxxxx	-----									xx-----
Pasture ewes												
BLM range	xxx								xxxxxxxx	xxxxxxxx	xxxxxxxx	xxxxxx
FS range						xxxxxx	xxxxxx	xxxxxx				
Deeded range			-----	xxxxxx	xxxxxx	xxxxxx						
Crop residue					None							
Labor hours/ewe	Hired 2.1 hrs.			Family .8 hrs.			Total 2.9 hrs.					

Supplementary feed required:

Alfalfa hay	734.5 Ton
Corn	182.5 Ton
Oats	6.6 Ton
Wheat bran	3.3 Ton
Soybean meal	22.5 Ton
Molasses	19.2 Ton
Salt and mineral	10.1 Ton

Forage required:

BLM range	9,600 AM	1,920 AUM
FS range	6,000 AM	1,200 AUM
Deeded range	7,246 AM	1,449 AUM

Table 22 -- Production and sales from a 2,400 head sheep enterprise, shed lambing, lambs weaned at 60 days, and fattened in pens, Federal range, Western Colorado.

Item	Amount		Average Pounds
	Total	Per Breeding Ewe	
	---Head---		
Lambs born alive	2,976	1.24	
Lambs lost <u>2/</u>	216	.09	
Lambs docked	2,760	1.15	
Lambs died <u>3/</u>	96	.04	
Lambs kept for replacement	408	.17	
Lambs marketed			
Slaughter	2,256	.94	108
Feeder			
Cull ewes marketed	240	.10	
Wool marketed, pounds	30,144	12.56	

1/ Lambs are fed in pens from weaning until they are marketed.

2/ Lamb loss before docking is 7.3 percent of lambs born alive.

3/ Lamb loss after docking is 3.5 percent of lambs born alive.

Table 23-- Costs and returns for a 2,400 head sheep enterprise shed lambing, lambs weaned at 60 days and fattened in pens, Federal range, Western Colorado.

Item	Unit	Quantity	Price/ Unit	Total Value	Value per Ewe
<u>Sales:</u>					
Slaughter lambs	Head	2,256	68.04	153,498	63.96
Feeder lambs	Head				
Cull ewes	Head	240	19.60	4,704	1.96
Wool	Pounds	30,144	.78	23,512	9.80
Shorn wool payment <u>1/</u>	Dollars	23,512	.38	8,935	3.72
Unshorn lamb payment <u>2/</u>	Dollars	2,436	1.20	2,924	1.22
Gross revenue	Dollars			193,573	80.66
<u>Cash costs:</u>					
Alfalfa hay	Ton	734.5	51.00	37,460	15.61
Corn	Ton	182.5	70.00	12,985	5.41
Oats	Ton	6.6	68.00	449	.19
Wheat bran	Ton	3.3	144.00	475	.20
Molasses	Ton	19.2	99.00	2,765	1.15
Salt and mineral	Ton	10.1	110.00	1,111	.46
BLM range	AUMs	1,920	1.50	2,880	1.20
FS range	AUMs	1,200	1.60	1,920	.80
Deeded range	AUMs	1,449	8.00	11,992	5.00
Soybean meal	Ton	22.5	220.00	4,950	2.06
Alfalfa pasture	AUMs				
Subtotal feed	Dollars			76,987	32.08
Medicine	Dollars			2,191	.91
Marketing	Dollars			461	.19
Trucking	Dollars			3,548	1.48
Car and pick-up	Miles	21,777	.175	3,811	1.59
Utilities	Dollars			998	.42
Shearing	Head	2,480	1.35	3,348	1.39
Feed processing	Ton	38	8.00	305	.13
Repairs on facilities <u>3/</u>	Dollars			1,090	.45
Miscellaneous <u>4/</u>	Dollars			2,284	.95
Interest, operating cap.	Dollars	58,264	.095	5,535	2.31
Taxes <u>5/</u>	Dollars			975	.41
Insurance <u>6/</u>	Dollars			240	.10
Ram death loss <u>7/</u>	Dollars			2,600	1.08
Subtotal nonfeed costs	Dollars			27,386	11.41
Hired labor	Hours	5,040	3.50	17,640	7.35
Total cash costs	Dollars			122,013	50.84
<u>Noncash costs:</u>					
Depreciation on facilities and equipment	Dollars			7,268	3.03
Depreciation on ram	Dollars			3,912	1.63
Family labor	Hours	1,920	3.50	6,720	2.80
Management	Dollars			8,541	3.56
Interest on investment	Dollars			24,005	10.00
Total noncash cost	Dollars			50,446	21.02
Total all costs	Dollars			172,459	71.86
<u>Returns:</u>					
Above cash costs	Dollars			71,560	29.82
Above all costs	Dollars			21,114	8.80

For footnotes see table

Table 24--Annual operations and labor and feed required for a 500 head sheep enterprise, shed lambing, Federal range, Western Colorado

Item	:Jan	:Feb	:Mar	:Apr	:May	:June	:July	:Aug	:Sept	:Oct	:Nov	:Dec
Flush ewes									xxxxx			
Breed ewes										xxxxxxxxxxxx		
Shearing	xxx											
Lambing		xxxxxxxxxxx										
Mark lambs			xxxxxxxxxxx									
Wean lambs								xxxxx				
Creep Feed lambs					None							
Feedlot lambs					None							
Pasture lambs				-----	xxxxxxxxxxxxxxxxxxxxxxxxxxxx							
Market lambs								xxxxx				
Feed ewes	-----	xxxxxxxxxxxxxxx										-----
Pasture ewes												
BLM range					None							
FS range						xxxxxxxxxxxxxxxxxxx						
Deeded range	-----			xxxxxxxxxxx				xxxxx		xxxxxx	xxxxxx	-----
Crop residue										xxx		
Labor hours/ewe	Hired 1.28 hrs.			Family .60 hrs.				Total 1.88 hrs.				

Supplementary Feed required:

Alfalfa hay	93.9 Ton
Corn	19.0 Ton
Salt and mineral	2.1 Ton

Forage required:

FS range	1,250 AM	250 AUM
Deeded range	2,935 AM	587 AUM
Crop residue	248 AM	50 AUM

Table 25-- Production and sales from a 500 head sheep enterprise, shed lambing, Federal range, Western Colorado

Item	Amount		Average Pounds
	Total	Per Breeding Ewe ---Head---	
Lambs born alive	725	1.45	
Lambs lost <u>1/</u>	40	.08	
Lambs docked	685	1.37	
Lambs died <u>2/</u>	50	.10	
Lambs kept for replacement	85	.17	
Lambs marketed			
Slaughter	415	.83	103
Feeder	135	.27	90
Cull ewes marketed	65	.13	
Wool marketed, pounds	5,610	11.22	

1/ Lamb loss before docking is 5.5 percent of lambs born alive.

2/ Lamb loss after docking is 6.9 percent of lambs born alive.

Table 26-- Costs and returns for a 500 head sheep enterprise, shed lambing, Federal range, Western Colorado.

Item	Unit	Quantity	Price/ Unit	Total Value	Value per Ewe
Sales:					
Slaughter lambs	Head	415	63.83	26,489	52.98
Feeder lambs	Head	135	54.90	7,412	14.82
Cull ewes	Head	65	19.60	1,274	2.55
Wool	Pounds	5,610	.78	4,376	8.75
Shorn wool payment <u>1/</u>	Dollars	4,376	.38	1,663	3.33
Unshorn lamb payment <u>2/</u>	Cwt	651	1.20	781	1.56
Gross revenue	Dollars			41,995	83.99
Cash costs:					
Alfalfa hay	Ton	93.9	51.00	4,789	9.58
Corn	Ton	19.0	70.00	1,330	2.66
Oats	Ton				
Wheat bran	Ton				
Molasses	Ton				
Salt and mineral	Ton	2.1	110.00	231	.46
BLM range	AUMs				
FS range	AUMs	250	1.60	400	.80
Deeded range	AUMs	587	8.00	4,696	9.39
Crop residue	AUMs	50	2.25	113	.23
Alfalfa pasture	AUMs				
Subtotal feed	Dollars			11,559	23.12
Medicine	Dollars			215	.43
Marketing	Dollars			102	.20
Trucking	Dollars			295	.59
Car and pick-up	Miles	2,500	.175	438	.88
Utilities	Dollars			95	.19
Shearing	Head	517	1.35	698	1.40
Feed processing	Ton			-	
Repairs on facilities <u>3/</u>	Dollars			234	.47
Miscellaneous <u>4/</u>	Dollars			333	.67
Interest, operating cap.	Dollars	8,480	.095	806	1.61
Taxes <u>5/</u>	Dollars			161	.32
Insurance <u>6/</u>	Dollars			35	.07
Ram death loss <u>7/</u>	Dollars			552	1.10
Subtotal nonfeed costs	Dollars			3,964	7.93
Hired labor	Hours	641	3.50	2,243	4.49
Total cash costs	Dollars			17,766	35.53
Noncash costs:					
Depreciation on facilities and equipment	Dollars			755	1.51
Depreciation on ram	Dollars			815	1.63
Family labor	Hours	300	3.50	1,050	2.10
Management	Dollars			1,244	2.49
Interest on investment	Dollars			4,327	8.65
Total noncash cost	Dollars			8,191	16.38
Total all costs	Dollars			25,957	51.91
Returns:					
Above cash costs	Dollars			24,229	48.46
Above all costs	Dollars			16,038	32.08

Table 27--Annual operations and labor and feed required for a 500 head sheep enterprise, shed lambing, no winter range, Federal range, Western Colorado.

Item	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Flush ewes									xxxxx			
Breed ewes										xxxx	xxxxx	xxx
Shearing		xxxx										
Lambing		xxxxxxxxxxx										
Mark lambs			xxxxxxx									
Wean lambs								xxxxx				
Creep Feed lambs					None							
Feedlot lambs					None							
Pasture lambs						xxxxxxxxxxxxxxxxxxxx						
Market lambs								xxxxx				
Feed ewes	xxxxxxxxxxxxxxxxxxxx											xxxxxx
Pasture ewes												
BLM range												
FS range						xxxxxxxxxxxxxxxxxx						
Deeded range					xxxxxx			xxxxx				
Crop residue										xxx		
Labor hours/ewe	Hired 1.28 hrs.			Family 1.1 hrs.				Total 2.38 hrs.				

Supplementary feed required:

Alfalfa hay 168.9 Ton
 Corn 19.0 Ton
 Salt and mineral 2.1 Ton

Forage required:

FS range 1,250 AM 250 AUM
 Deeded range 1,684 AM 337 AUM
 Crop residue 248 AM 50 AUM

Table 28-- Production and sales from a 500 head sheep enterprise, shed lambing, no winter range, Federal range, Western Colorado.

Item	Amount		Average
	Total	Per Breeding Ewe	
Lambs born alive	725	1.45	
Lambs lost <u>1/</u>	40	.08	
Lambs docked	685	1.37	
Lambs died <u>2/</u>	50	.09	
Lambs kept for replacement	80	.16	
Lambs marketed			
Slaughter	415	.83	103
Feeder	140	.28	90
Cull ewes marketed	65	.13	
Wool marketed, pounds	5,610	11.22	

1/ Lamb loss before docking is 5.5 percent of lambs born alive.

2/ Lamb loss after docking is 6.9 percent of lambs born alive.

Table 29-- Costs and returns for a 500 head sheep enterprise shed lambing, no winter range, Federal range, Western Colorado 37

Item	Unit	Quantity	Price/ Unit	Total Value	Value per Ewe
<u>Sales:</u>					
Slaughter lambs	Head	415	63.83	26,489	52.98
Feeder lambs	Head	140	54.90	7,412	14.82
Cull ewes	Head	65	19.60	1,274	2.55
Wool	Pounds	5,610	.78	4,376	8.75
Shorn wool payment <u>1/</u>	Dollars	4,376	.38	1,663	3.33
Unshorn lamb payment <u>2/</u>	Dollars	651	1.20	781	1.56
Gross revenue	Dollars			41,995	83.99
<u>Cash costs:</u>					
Alfalfa hay	Ton	168.9	51.00	8,614	17.23
Corn	Ton	19.0	70.00	1,330	2.66
Oats	Ton				
Wheat bran	Ton				
Molasses	Ton				
Salt and mineral	Ton	2.1	110.00	231	.46
BLM range	AUMs				
FS range	AUMs	250	1.60	400	.80
Deeded range	AUMs	337	8.00	2,696	5.39
Crop residue	AUMs	50	2.25	112	.22
Alfalfa pasture	AUMs				
Subtotal feed	Dollars			13,383	26.77
Medicine	Dollars			215	.43
Marketing	Dollars			102	.20
Trucking	Dollars			295	.59
Car and pick-up	Miles	2,500	.175	438	.88
Utilities	Dollars			95	.19
Shearing	Head	517	1.35	698	1.40
Feed processing	Ton				
Repairs on facilities <u>3/</u>	Dollars			234	.47
Miscellaneous <u>4/</u>	Dollars			369	.74
Interest, operating cap.	Dollars	9,410	.095	894	1.79
Taxes <u>5/</u>	Dollars			191	.32
Insurance <u>6/</u>	Dollars			35	.07
Ram death Toss <u>7/</u>	Dollars			552	1.10
Subtotal nonfeed costs	Dollars			4,088	8.18
Hired labor	Hours	641	3.50	2,243	4.49
Total cash costs	Dollars			19,714	39.43
<u>Noncash costs:</u>					
Depreciation on facilities and equipment	Dollars			755	1.51
Depreciation on ram	Dollars			815	1.63
Family labor	Hours	500	3.50	1,750	3.50
Management	Dollars			1,380	2.76
Interest on investment	Dollars			4,327	8.65
Total noncash cost	Dollars			9,027	18.05
Total all costs	Dollars			28,741	57.48
<u>Returns:</u>					
Above cash costs	Dollars			22,281	44.56
Above all costs	Dollars			13,254	26.51

For footnotes see table

Table 30-- Annual operations and labor and feed required for a 500 head sheep enterprise, lambs weaned at 60 days and fattened in pens, no winter range, Federal range, Western Colorado.

Item	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Flush ewes						xxxxx						
Breed ewes							xxxxxx	xxxxxx				
Shearing												xxx
Lambing	xxxxxxxxx											
Mark lambs	xxxxxxxxx											
Wean lambs			xxxxxxxxx									
Creep Feed lambs		xxxxxxxxx										
Feedlot lambs				xxxxxx	xxxxxx	xxxxxx						
Pasture lambs						None						
Market lambs							xxxxx					
Feed ewes	xxxxxxxxxxxxxxxxx											xxxxxx
Pasture ewes												
BLM range						None						
FS range							xxxxxxxxxxxxxxxxx					
Deeded range						xxxxxx			xxxxxx			
Crop residue										xxxxx		
Labor hours/ewe	Hired 1.28 hrs.		Family 1.5 hrs.		Total 2.78 hrs.							

Supplementary feed required:

Alfalfa hay	228.1 Ton
Corn	61.8 Ton
Oats	2.1 Ton
Wheat bran	1.0 Ton
Soybean meal	6.3 Ton
Molasses	5.2 Ton
Salt and mineral	2.1 Ton

Forage required:

FS range	1,250 AM	250 AUM
Deeded range	1,684 AM	337 AUM
Crop residue	248 AM	50 AUM

Table 31 -- Production and sales from a 500 head sheep enterprise, shed lambing, lambs weaned at 60 days and fattened in pens, no winter range, Federal range, Western Colorado.

Item	Amount		Average Pounds
	Total	Per Breeding Ewe -- Head --	
Lambs born alive	735	1.45	
Lambs lost <u>2/</u>	40	.08	
Lambs docked	685	1.37	
Lambs died <u>3/</u>	20	.04	
Lambs kept for replacement	80	.16	
Lambs marketed			
Slaughter	585	1.17	108
Feeder			
Cull ewes marketed	65	.13	
Wool marketed, pounds	5,610	11.22	

1/ Lambs are fed in pens from weaning until they are marketed.

2/ Lamb loss before docking is 5.5 percent of lambs born alive.

3/ Lamb loss after docking is 3.8 percent of lambs born alive.

Table 32-- Costs and returns for a 500 head sheep enterprise, shed lambing, lambs weaned at 60 days and fattened in pens, no winter range, Federal range, Western Colorado.

Item	Unit	Quantity	Price/ Unit	Total Value	Value per Ewe
<u>Sales:</u>					
Slaughter lambs	Head	585	68.04	39,803	79.61
Feeder lambs	Head				
Cull ewes	Head	65	19.60	1,274	2.55
Wool	Pounds	5,610	.78	4,376	8.75
Shorn wool payment <u>1/</u>	Dollars	4,376	.38	1,663	3.33
Unshorn lamb payment <u>2/</u>	Dollars	632	1.20	758	1.53
Gross revenue	Dollars			47,874	95.75
<u>Cash costs:</u>					
Alfalfa hay	Ton	228.1	51.00	11,633	23.27
Corn	Ton	61.8	70.00	4,326	8.65
Oats	Ton	2.1	68.00	143	.29
Wheat bran	Ton	1.0	144.00	144	.29
Molasses	Ton	5.2	99.00	515	1.03
Salt and mineral	Ton	2.1	110.00	231	.46
	AUMs	6.3	220.00	1,386	2.77
FS range	AUMs	250	1.60	400	.80
Deeded range	AUMs	337	8.00	2,696	5.39
Crop residue	AUMs	50	2.25	112	.22
Alfalfa pasture	AUMs				
Subtotal feed	Dollars			21,586	43.17
Medicine	Dollars			456	.91
Marketing	Dollars			130	.26
Trucking	Dollars			338	.68
Car and pick-up	Miles	2,800	.175	490	.98
Utilities	Head			208	.42
Shearing	Head	517	1.35	698	1.40
Feed processing	Ton	115	8.00	920	1.84
Repairs on facilities <u>3/</u>	Dollars			303	.61
Miscellaneous <u>4/</u>	Dollars			563	1.13
Interest, operating cap.	Dollars	14,370	.095	1,365	2.73
Taxes <u>5/</u>	Dollars			207	.41
Insurance <u>6/</u>	Dollars			45	.09
Ram death loss <u>7/</u>	Dollars			552	1.10
Subtotal nonfeed costs	Dollars			6,275	12.55
Hired labor	Hours	641	3.50	2,243	4.49
Total cash costs	Dollars			30,104	60.21
<u>Noncash costs:</u>					
Depreciation on facilities and equipment	Dollars			933	1.87
Depreciation on ram	Dollars			815	1.63
Family labor	Hours	750	3.50	2,625	5.25
Management	Dollars			2,107	4.21
Interest on investment	Dollars			4,496	8.99
Total noncash cost	Dollars			10,976	21.95
Total all costs	Dollars			41,080	82.16
<u>Returns:</u>					
Above cash costs	Dollars			17,770	35.54
Above all costs	Dollars			6,794	13.59

For footnotes see table

Table 33--Annual operations and labor and feed required for a 500 head sheep enterprise, shed lambing, lambs weaned at 60 days and fattened on alfalfa pasture, no winter range, Federal Range, Western Colorado.

Item	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Flush ewes								xxx				
Breed ewes								xxxxxxxxxxxx				
Shearing		xxxx										
Lambing			xxxxxxxxxxxx									
Mark lambs			xxxxxxxxxx									
Wean lambs					xxxxxxx---							
Creep Feed lambs			xxxxxxxxxxxx									
Feedlot lambs				xxxxxxxx---								
Pasture lambs						-----xxxxxxxxxxxx						
Market lambs							xxxxxx					
Feed ewes	xxxxxxxxxxxxxxxxxxxx										-----	xxxxxx
Pasture ewes												
BLM range					None							
FS range							xxxxxxxxxxxxxxx					
Deeded range				-----	xxxxxxx				xxxxxx		-----	
Crop residue										xxxx		
Labor hours/ewe	Hired 1.28 hrs.			Family 1.1 hrs.				Total 2.38 hrs.				

Supplementary feed required:

Alfalfa hay	184.6 Ton
Corn	34.2 Ton
Oats	2.1 Ton
Wheat bran	1.0 Ton
Soybean meal	2.3 Ton
Molasses	1.3 Ton
Salt and mineral	2.1 Ton

Forage required:

FS range	1,250 AM	250 AUM
Deeded range	1,684 AM	337 AUM
Crop residue	248 AM	50 AUM
Alfalfa pasture	1,905 AM	381 AUM

Table 34-- Production and sales from a 500 head sheep enterprise, shed lambing, lambs weaned at 60 days, fattened on alfalfa pasture, private range in summer, no winter range, Federal range, Western Colorado 1/

	Amount		Average Pounds
	Total	Per Breeding Ewe	
	---Head---		
Lambs born alive	725	1.45	
Lambs lost <u>2/</u>	40	.08	
Lambs docked	685	1.37	
Lambs died <u>3/</u>	30	.06	
Lambs kept for replacement	80	.16	
Lambs marketed			
Slaughter	575	1.15	108
Feeder			
Cull ewes marketed	65	.13	
Wool marketed, pounds	5,610	11.22	

1/ Lambs are fed in pens from weaning until alfalfa pasture is ready for grazing.

2/ Lamb loss before docking is 5.5 percent of lambs born alive.

3/ Lamb loss after docking is 4.1 percent of lambs born alive.

Table 35-- Costs and returns for a 500 head sheep enterprise shed lambing, lambs weaned at 60 days and fattened on alfalfa pasture, no winter range, Federal range, Western Colorado. 43

Item	Unit	Quantity	Price/ Unit	Total Value	Value per Ewe
<u>Sales:</u>					
Slaughter lambs	Head	575	66.96	38,502	77.00
Feeder lambs	Head				
Cull ewes	Head	65	19.60	1,274	2.55
Wool	Pounds	5,610	.78	4,376	8.75
Shorn wool payment <u>1/</u>	Dollars	4,376	.38	1,663	3.33
Unshorn lamb payment <u>2/</u>	Dollars	621	1.20	745	1.49
Gross revenue	Dollars			46,560	93.12
<u>Cash costs:</u>					
Alfalfa hay	Tons	184.6	51.00	9,415	18.83
Corn	Tons	34.2	70.00	2,394	4.79
Oats	Tons	2.1	68.00	143	.29
Wheat bran	Tons	1.0	144.00	144	.29
Molasses	Tons	1.3	99.00	129	.26
Salt and mineral	Tons	2.1	110.00	231	.46
	AUMs	2.3	220.00	506	1.01
FS range	AUMs	250	1.60	400	.80
Deeded range	AUMs	337	8.00	2,696	5.39
Crop residue	AUMs	50	2.25	112	.22
Alfalfa pasture	AUMs	381	9.00	3,429	6.86
Subtotal feed	Dollars			19,599	39.20
Medicine	Dollars			412	.82
Marketing	Dollars			130	.26
Trucking	Dollars			338	.68
Car and pick-up	Miles			490	.98
Utilities	Dollars			95	.19
Shearing	Head	517	1.35	698	1.40
Feed processing	Ton	22	8.00	176	.35
Repairs on facilities <u>3/</u>	Dollars			234	.47
Miscellaneous <u>4/</u>	Dollars			503	1.01
Interest, operating cap.	Dollars	12,833	.095	1,219	2.44
Taxes <u>5/</u>	Dollars			161	.32
Insurance <u>6/</u>	Dollars			35	.07
Ram death loss <u>7/</u>	Dollars			552	1.10
Subtotal nonfeed costs	Dollars			5,043	10.09
Hired labor	Hours	641	3.50	2,243	4.49
Total cash costs	Dollars			26,885	53.77
<u>Noncash costs:</u>					
Depreciation on facilities and equipment	Dollars			877	1.75
Depreciation on ram	Dollars			817	1.63
Family labor	Hours	550	3.50	1,925	3.85
Management	Dollars			1,883	3.76
Interest on investment	Dollars			4,443	8.89
Total noncash cost	Dollars			9,944	19.89
Total all costs	Dollars			36,829	73.66
<u>Returns:</u>					
Above cash costs	Dollars			19,675	39.35
Above all costs	Dollars			9,731	19.46

For footnotes see table

Table 36--Annual operations and labor and feed required for a 2,000 head sheep enterprise, shed lambing, lambs weaned at 60 days and fattened in pens, private range, Eastern Colorado.

Item	:Jan	:Feb	:Mar	:Apr	:May	:June	:July	:Aug	:Sept	:Oct	:Nov	:Dec
Flush ewes								xxx				
Breed ewes									xxxxx	xxxxx		
Shearing	xxx											
Lambing		xxxxxxxxxx										
Mark lambs		xxxxxxxxxx										
Wean lambs				xxxxxx	--							
Creep Feed lambs			xxxxxx	xxxxxx								
Feedlot lambs				xxxxxxxxxxxxxxxxxx								
Pasture lambs						None						
Market lambs							xxx	xxx				
Feed ewes	xxxxxxxxxxxxxxxxxx	xxxxxxxxxx										
Pasture ewes												
BLM range						None						
FS range						None						
Deeded range				xxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx		
Crop residue										xxxxxxxxxx	xxxxxx	
Labor hours/ewe	Hired 1.0 hrs.				Family .96 hrs.				Total 1.96 hrs.			

Supplementary feed required:

Alfalfa hay	737.0 Ton
Corn	249.0 Ton
Oats	6.9 Ton
Wheat bran	3.4 Ton
Soybean meal	24.9 Ton
Molasses	21.4 Ton
Salt and mineral	8.4 Ton

Forage required:

Deeded range	10,535 AM	2,107 AUM
Crop residue	5,175 AM	1,035 AUM

Table 37 -- Production and sales from a 2,000 head sheep enterprise, shed lambing, lambs weaned at 60 days, and fattened in pens, private range, Eastern Colorado.

Item	Amount		Average Pounds
	Total	Per Breeding Ewe	
	---	Head	---
Lambs born alive	2,480	1.24	
Lambs lost <u>2/</u>	160	.08	
Lambs docked	2,320	1.16	
Lambs died <u>3/</u>	80	.04	
Lambs kept for replacement	340	.17	
Lambs marketed			
Slaughter	1,900	.95	108
Feeder			
Cull ewes marketed	200	.10	
Wool marketed, pounds	25,120	12.56	

1/ Lambs are fed in pens from weaning until they are marketed.
Ewes are pastured on private or public range and crop residues.

2/ Lamb loss before docking is 6.5 percent of lambs born alive.

3/ Lamb loss after docking is 3.2 percent of lambs born alive.

Table 38-- Costs and returns for a 2,000 head sheep enterprise, shed lambing, lambs weaned at 60 days and fattened in pens, private range, Eastern Colorado. 46

Item	Unit	Quantity	Price/ Unit	Total Value	Value per Ewe
Sales:					
Slaughter lambs	Head	1.900	66.96	127,224	63.61
Feeder lambs	Head				
Cull ewes	Head	200	19.60	3,920	1.96
Wool	Pounds	25,120	.78	19,594	9.80
Shorn wool payment <u>1/</u>	Dollars	19,594	.38	7,446	3.72
Unshorn lamb payment <u>2/</u>	Dollars	2,089	1.20	2,506	1.25
Gross revenue	Dollars			160,690	80.19
Cash costs:					
Alfalfa hay	Tons	737.0	51.00	37,587	18.79
Corn	Tons	249.0	70.00	17,430	8.71
Oats	Tons	6.9	68.00	469	.23
Wheat bran	Tons	3.4	144.00	490	.24
Molasses	Tons	5.2	99.00	515	.26
Salt and mineral	Tons	8.4	110.00	924	.46
Soybean meal	AUMs	24.9	220.00	5,478	2.74
FS range	AUMs				
Deeded range	AUMs	2,107	8.00	16,856	8.43
Crop residue	AUMs	1,035	2.25	2,329	1.16
Alfalfa pasture	AUMs				
Subtotal feed	Dollars			82,078	41.04
Medicine	Dollars			1,820	.91
Marketing	Dollars			380	.19
Trucking	Dollars			2,440	1.22
Car and pick-up	Miles	15,000	.175	2,625	1.31
Utilities	Dollars			840	.42
Shearing	Head	2,067	1.35	2,790	1.39
Feed processing	Ton			260	.13
Repairs on facilities <u>3/</u>	Dollars			900	.45
Miscellaneous <u>4/</u>	Dollars			2,086	1.04
Interest, operating cap.	Dollars	53,200	.095	5,054	2.53
Taxes <u>5/</u>	Dollars			820	.41
Insurance <u>6/</u>	Dollars			200	.10
Ram death Toss <u>7/</u>	Dollars			2,160	1.08
Subtotal nonfeed costs	Dollars			22,375	11.19
Hired labor	Hours	2,000	3.50	7,000	3.50
Total cash costs	Dollars			111,453	55.73
Noncash costs:					
Depreciation on facilities and equipment	Dollars			6,060	3.03
Depreciation on ram	Dollars			3,260	1.63
Family labor	Hours	1,920	3.50	6,720	3.36
Management	Dollars			7,802	3.90
Interest on investment	Dollars			20,016	10.01
Total noncash cost	Dollars			43,858	21.93
Total all costs	Dollars			155,311	77.66
Returns:					
Above cash costs	Dollars			49,237	24.62
Above all costs	Dollars			5,379	2.69

For footnotes see table

Table 39--Annual operations and labor and feed required for a 500 head sheep enterprise, shed lambing, lambs weaned at 60 days and fattened in pens, private range, Eastern Colorado.

Item	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Flush ewes								xxx				
Breed ewes									xxxxxxxxxxx			
Shearing	xxx											
Lambing		xxxxxxxxxxx										
Mark lambs		xxxxxxxxxxx										
Wean lambs				xxxxxxx--								
Creep Feed lambs			xxxxxxxxxxx									
Feedlot lambs				xxxxxxx	xxxxxxx	xxxxxxx	xxxx					
Pasture lambs					None							
Market lambs							xxxxxx					
Feed ewes	xxxxxxx	xxxxxxx	xxxxxxx	xxxx								
Pasture ewes												
BLM range					None							
FS range					None							
Deeded range					xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx			
Crop residue										xxxxxxx	xxxxxx	
Labor hours/ewe		Hired .22 hrs.			Family 1.5 hrs.			Total 1.72 hrs.				

Supplementary feed required:

Alfalfa hay	167.8 Ton
Corn	61.5 Ton
Oats	2.1 Ton
Wheat bran	1.0 Ton
Soybean meal	6.3 Ton
Molasses	5.2 Ton
Salt and mineral	2.1 Ton

Forage required:

Deeded range	2,895 AM	579 AUM
Crop residue	1,292 AM	259 AUM

Table 40-- Production and sales from a 500 head sheep enterprise, shed lambing, lambs weaned at 60 days, and fattened in pens, private range, Eastern Colorado 1/.

Item	Amount		Average Pounds
	Total	Per Breeding Ewe ---Head---	
Lambs born alive	725	1.45	
Lambs lost <u>2/</u>	40	.08	
Lambs docked	685	1.37	
Lambs died <u>3/</u>	30	.06	
Lambs kept for replacement	80	.16	
Lambs marketed			
Slaughter	575	1.15	108
Feeder			
Cull ewes marketed	65	.13	
Wool marketed, pounds	5,610	11.22	

1/ Lambs are fed in pens from weaning until they are marketed.

2/ Lamb loss before docking is 5.5 percent of lambs born alive.

3/ Lamb loss after docking is 4.1 percent of lambs born alive.

Table 41-- Costs and returns for a 500 head sheep enterprise, shed lambing, lambs weaned at 60 days and fattened in pens, private range, eastern Colorado ⁴⁹

Item	Unit	Quantity	Price/ Unit	Total Value	Value per Ewe
<u>Sales:</u>					
Slaughter lambs	Head	575	66.96	38,502	77.00
Feeder lambs	Head				
Cull ewes	Head	65	19.60	1,274	2.55
Wool	Pounds	5,610	.78	4,376	8.75
Shorn wool payment <u>1/</u>	Dollars	4,376	.38	1,663	3.33
Unshorn lamb payment <u>2/</u>	Dollars	692	1.20	831	1.66
Gross revenue	Dollars			46,646	93.29
<u>Cash costs:</u>					
Alfalfa hay	Ton	167.8	51.00	8,558	17.12
Corn	Ton	61.5	70.00	4,305	8.61
Oats	Ton	2.1	68.00	143	.29
Wheat bran	Ton	1.0	144.00	144	.29
Molasses	Ton	5.2	99.00	515	1.03
Salt and mineral	Ton	2.1	110.00	231	.46
Soybean meal	AUMs	6.3	220.00	1,386	2.77
FS range	AUMs				
Deeded range	AUMs	579	8.00	4,632	9.26
Crop residue	AUMs	259	2.25	583	1.17
Alfalfa pasture	AUMs				
Subtotal feed	Dollars			20,497	40.99
Medicine	Dollars			456	.91
Marketing	Dollars			130	.26
Trucking	Dollars			338	.68
Car and pick-up	Miles	2,800	.175	490	.98
Utilities	Dollars			208	.42
Shearing	Head	517	1.35	698	1.40
Feed processing	Ton	115	8.00	920	1.84
Repairs on facilities <u>3/</u>	Dollars			303	.61
Miscellaneous <u>4/</u>	Dollars			505	1.01
Interest, operating cap.	Dollars	12,870	.095	1,223	2.45
Taxes <u>5/</u>	Dollars			207	.41
Insurance <u>6/</u>	Dollars			45	.09
Ram death loss <u>7/</u>	Dollars			552	1.10
Subtotal nonfeed costs	Dollars			6,075	12.14
Hired labor	Hours	112	3.50	392	.78
Total cash costs	Dollars			26,964	53.93
<u>Noncash costs:</u>					
Depreciation on facilities and equipment	Dollars			933	1.87
Depreciation on ram	Dollars			815	1.63
Family labor	Hours	750	3.50	2,625	5.25
Management	Dollars			1,887	3.77
Interest on investment	Dollars			4,496	8.99
Total noncash cost	Dollars			10,756	21.51
Total all costs	Dollars			37,720	75.44
<u>Returns:</u>					
Above cash costs	Dollars			19,682	39.36
Above all costs	Dollars			8,926	17.85

For footnotes see table

Table 42--Annual operations and labor and feed required for a 500 head sheep enterprise, shed lambing, lambs weaned at 60 days, ewes in confinement.

Item	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Flush ewes						xxx						
Breed ewes						xxxxxx	xxxxxx					
Shearing												xxxx
Lambing	xxxxxx	xxxxxx										
Mark lambs	xxxxxx	xxxxxx										
Wean lambs			xxxxxx	xxxxxx								
Creep Feed lambs		xxxxxx	xxxxxx	x----								
Feedlot lambs			----	xxxxxx	xxxxxx	xxxxxx						
Pasture lambs					None							
Market lambs						xxxxx						
Feed ewes	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Pasture ewes												
BLM range												
FS range												
Deeded range												
Crop residue										xxxxxx	xxxxxx	xxxxxx
Labor hours/ewe	Family 2.1 hrs.											

Supplementary feed required

Alfalfa hay	442.0 Ton
Corn	61.8 Ton
Oats	2.1 Ton
Wheat bran	1.0 Ton
Soybean meal	6.3 Ton
Molasses	5.2 Ton
Salt and mineral	2.1 Ton

Forage required:

Crop residue	5,175 AM	1,035 AUM
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Table 43-- Production and sales from a 500 head sheep enterprise, shed lambing, lambs weaned at 60 days, ewes in confinement. 1/

Item	Amount		Average Pounds
	Total	Per Breeding Ewe --Head--	
Lambs born alive	725	1.45	
Lambs lost <u>2/</u>	40	.08	
Lambs docked	685	1.37	
Lambs died <u>3/</u>	20	.04	
Lambs kept for replacement	80	.16	
Lambs marketed			
Slaughter	585	1.17	108
Feeder			
Cull ewes marketed	65	.13	
Wool marketed, pounds	5,610	11.22	

1/ Lambs are fed in pens from weaning until they are marketed.

2/ Lamb loss before docking is 5.5 percent of lambs born alive.

3/ Lamb loss after docking is 1.9 percent of lambs born alive.

Table 44-- Costs and returns for a 500 sheep enterprise, shed lambing, lambs weaned at 60 days, ewes in confinement.

Item	Unit	Quantity	Price/ Unit	Total Value	Value per Ewe
<u>Sales:</u>					
Slaughter lambs	Head	585	68.04	39,803	79.61
Feeder lambs	Head				
Cull ewes	Head	65	19.60	1,274	2.55
Wool	Pounds	5,610	.78	4,376	8.75
Shorn wool payment <u>1/</u>	Dollars	4,376	.38	1,663	3.33
Unshorn lamb payment <u>2/</u>	Dollars	632	1.20	758	1.52
Gross revenue	Dollars			47,874	95.75
<u>Cash costs:</u>					
Alfalfa hay	Ton	442.0	51.00	11,542	45.08
Corn	Ton	61.8	70.00	4,326	8.65
Oats	Ton	2.1	68.00	143	.29
Wheat bran	Ton	1.0	144.00	144	.29
Molasses	Ton	5.2	99.00	515	1.03
Salt and mineral	Ton	2.1	110.00	231	.46
BLM range	AUMs				
FS range	AUMs				
Deeded range	AUMs				
Crop residue	AUMs	1,035	2.25	2,329	4.66
Alfalfa pasture	AUMs				
Subtotal feed	Dollars			30,230	60.46
Medicine	Dollars			526	1.05
Marketing	Dollars			130	.26
Trucking	Dollars			125	.25
Car and pick-up	Miles	500	.175	88	.18
Utilities	Dollars			208	.42
Shearing	Head	517	1.35	698	1.40
Feed processing	Ton	115	8.00	920	1.84
Repairs on facilities <u>3/</u>	Dollars			379	.76
Miscellaneous <u>4/</u>	Dollars			683	1.37
Interest, operating cap.	Dollars	17,427	.095	1,656	3.31
Taxes <u>5/</u>	Dollars			259	.52
Insurance <u>6/</u>	Dollars			56	.11
Ram death loss <u>7/</u>	Dollars			552	1.10
Subtotal nonfeed costs	Dollars			6,280	12.56
Hired labor	Hours				
Total cash costs	Dollars			36,510	73.02
<u>Noncash costs:</u>					
Depreciation on facilities and equipment	Dollars			1,166	2.33
Depreciation on ram	Dollars			815	1.63
Family labor	Hours	1,050	3.50	3,675	7.35
Management	Dollars			2,556	5.11
Interest on investment	Dollars			4,718	9.44
Total noncash cost	Dollars			12,930	25.86
Total all costs	Dollars			49,440	98.88
<u>Returns:</u>					
Above cash costs	Dollars			11,364	22.73
Above all costs	Dollars			- 1,566	-3.13

For footnotes see table

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