ERS-523

COSTS AND RETURNS, MIGRATORY-SHEEP RANCHES, UTAH, NEVADA, 1972

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ABSTRACT

Net ranch incomes in 1972 on migratory-sheep ranches were about 10 percent below a year earlier, but nearly double the 1960-64 average. Lambs born per 100 ewes, lamb market weights, and wool clip per animal were record high. Lamb prices were the highest since 1951 and wool prices, though still low, were above a year earlier. Death loss of sheep in 1972 was about average but death loss of lambs was a record high, having trended upwards since 1967. The higher than normal loss of lambs reduced 1972 operator returns by about 12 percent. Operators of migratory-sheep ranches have relatively high fixed costs. These continued upward in 1972.

KEY WORDS: Ranch, costs, returns, wool, sheep, lamb, wool incentive payments.

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By

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INTRODUCTION

Sheep thrive under a wide range and variety of physical and biological conditions. They graze well on terrain too rough, high, and arid to be habitable by other domesticated animals. They do well on plant species unacceptable and too sparse to sustain other types of livestock. They are far more efficient than cattle as converters of feed and are among the most efficient domesticated ruminant animals in the conversion of roughages. They blend well in a wide size range either as a supplementary farm enterprise or a highly specialized enterprise. As such, they are common throughout the width and breadth of the land.

Nevertheless, this once thriving industry has been beset with economic and institutional problems. Its physical and economic importance has diminished greatly. The decline in sheep numbers for more than 30 years, the almost constant decline in per capita consumption of lamb and wool in the face of increased consumption of beef and poultry and use of man-made fibers, and the general decline in wool prices to depression levels in 1971 and 1972 are evidence of the sheep industry's plight.

Sheep ranching expanded and moved West with the rest of the Nation. Sheep numbers reached their maximum in the early 1940's, but since then have continued to decline. Sheep numbers in 1973 were only 30 percent of 1942. About half the Nation's sheep are in the 11 Western States, as are most sheep ranches, units with sheep as the principal enterprise.

Sheep-producing units may be classed into farm flocks, stock or sheep farms, and sheep ranches. *Farm flocks* vary widely in size, but generally average about 40 head per unit. They make up nearly 95 percent of all U.S. producing units, but produce less than a third of the lambs and wool. *Stock* or *sheep* farms generally average around 500 head per unit. Few exceed 1,000 head. This group produces about a fifth of U.S. sheep. *Sheep ranches* vary greatly in size, depending on the kind and amount of resources available. In practical operations they range from 1,500 to 10,000 head per ranch and produce more than half the lambs and wool.

Sheep ranches produce 60 to 75 percent of the lambs and wool in the study area, an important and unique sheep producing area (fig. 1 and table 1). Although moderate in terms of size, this area produces nearly a fifth of the lambs and wool in the Intermountain States—Utah, Nevada, Idaho, Montana, Wyoming, and Colorado. It produces more sheep and wool than the State of Utah, the Nation's fifth largest producer. Sheep ranching in the area is unique in that the sheep are constantly under the vigil of a herder and migrate throughout the entire year from range to range, mostly on public land.

The typical viable sheep ranch in the study area has around 2,400 head of stock sheep.[1] Herd size changes little from year to year, limited chiefly by the number of sheep a shepherd can handle, the number of permits the operator has to graze sheep on public land, and other "built-in" operating restrictions.

Sheep operators in the study area generally are efficient ranchers with long experience in the business. Most grew up with the family sheep operation. Their average age is around 55 years, slightly older than farmers in most areas; very few are under 40. This may reflect the nature of the business and the fact that in recent years it has been

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[1]For data sources, methodology, and information on organization and management, see *Costs and Returns, Migratory-Sheep Operations, Utah-Nevada, 1960-69*, AER-195, Econ. Res. Serv., U.S. Dept., Agr., 1971.

Table 1.—Number and percentage of farms producing sheep and lambs, by numbers produced and size of units, selected areas, 1964

Item	Study area[1]	Utah	Intermountain States[2]	Western States	United States
			Number		
Total farms	13,787	15,759	113,432	300,298	3,157,857
Farms producing sheep and lambs	2,747	3,420	17,400	35,149	234,789
			Percent		
Percentage of total	20	22	15	12	7
Percentage producing:					
Under 300 head	80.8	83.8	78.5	82.6	94.4
300 to 999 head	8.8	7.3	10.3	8.2	3.7
1,000 to 2,499 head	7.1	5.6	6.8	5.1	1.3
2,500 to 4,999 head	2.7	2.4	2.6	2.2	.4
5,000 head or more	.6	.9	1.8	1.9	.2
Percentage of total sheep and lambs produced from units with—					
Under 300 head	10.7	11.0	10.5	14.8	34.6
300 to 999 head	15.0	12.4	12.8	12.5	17.6
1,000 to 2,499 head	32.8	26.9	23.9	19.4	17.9
2,500 to 4,999 head	28.4	26.2	21.1	16.6	12.1
5,000 head or more	13.1	23.5	31.7	36.7	17.8

[1]Study area consists of 19 counties in western Utah and 6 counties in eastern Nevada. [2]Consists of Idaho, Montana, Wyoming, Colorado, Utah, and Nevada.

Source: 1964 Census of Agriculture, Vol. II, Ch. II.

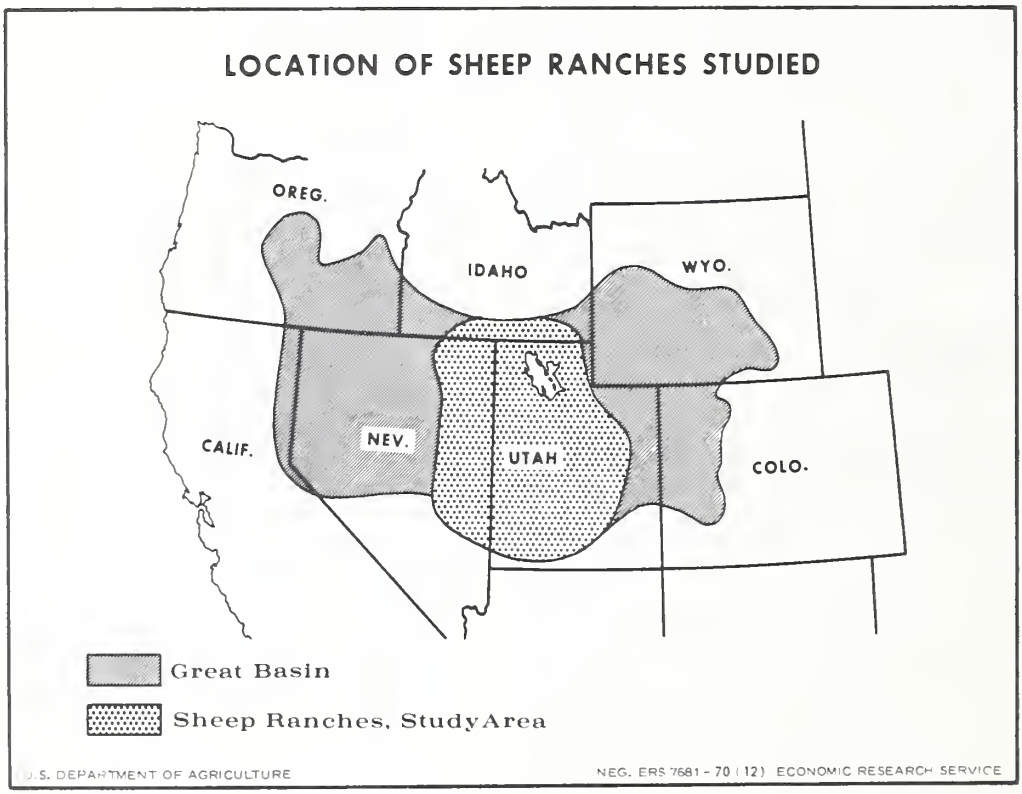

Figure 1

difficult to sell a sheep ranch at a suitable price.

The ranches are owner-operated. When a rancher obtains permits to graze public lands, he must give satisfactory evidence that he owns both land and sheep, and that he has sufficient land to maintain his livestock when they are not on public land. Sheep graze under permit about two-thirds of the year.

The sheep are under the vigilance of herders year-around. The animals are moved from range to range, mostly by truck, under close surveillance and on a generally fixed pattern and timetable. Even if range feed in a given area is significantly advanced or retarded, the date of moving the sheep seldom changes by more than a few days.

"Bucking up" usually begins in late November or early December on a predetermined schedule. The ewes are generally good quality wool-type breeds such as Rambouillet, Columbia, and Targhee. Part of the ewe flock is bred to rams of the same breed to obtain replacement ewes. The balance are generally crossed with mutton-type bucks such as the Suffolk and Hampshire to obtain good market lambs. Breeding dates are closely tied to shearing dates. The rancher aims to shear before lambing; ewes that are lambing or have just lambed at shearing time pose a problem. Shearing usually takes place in mid- to late April, sometimes on the range and sometimes near lambing grounds close to the ranch quarters. Much of the shearing is now done by custom shearers with large portable outfits which they move from herd to herd, shearing 2,000-3,000 head per day. Most of the wool is sold or consigned at the shearing corrals.

Range, not shed, lambing is the rule, and takes place very shortly after shearing. Early lambing is preferable, weather permitting, because it yields a heavier market lamb. Most of the lambs are marketed direct from the range in late September and early October. Around one-third to two-thirds, depending on range conditions, are sold as fat lambs. Some of the lightweight animals may be taken to spring-fall range or harvested fields for a brief period to condition them and add weight before marketing.

Sheep are under the vigilance of herders year around. The animals are moved from range to range, mostly by truck these days, under close surveillance and on a generally fixed pattern and timetable. Even if range feed in a given area is significantly advanced or retarded, the date of moving the sheep seldom changes by more than a few days.

1972 OPERATIONS

Last year was a very mixed one for operators of migratory-sheep ranches. On the positive side: Winter grazing was good, early spring range and lambing weather were almost ideal, lambing rate, and lamb market weights were record high, lamb prices were the highest since 1951, and death loss of mature animals was below a year earlier and lower than normal. Wool clip per animal was a record high, and wool prices, though very low and disappointing, were well above a year earlier.

On the negative side: Summer and fall grazing at the lower elevations, particularly in the southern portion of the area, were unusually poor; death losses of lambs were the highest in more than a decade; and grazing fee rates, wage rates, and prices paid for most other input items were up, resulting in record high average prices paid for production items. Prices received for products sold, including wool incentive payments, averaged slightly below a year earlier.

Range Conditions

Winter range conditions were among the best of the last 5 years and ewes came off the range in good condition for lambing. Weather during lambing time was favorable and the lambing rate (lambs docked, marked, or branded per 100 ewes of breeding age) was record high.

Early spring range conditions were about the best on record, but drought soon set in and prevailed throughout the summer in the southern portion of the area, and to some extent in the lower elevations throughout the entire area. Thus, range conditons deteriorated rapidly at these locations. Several counties were declared disaster areas. Ranges held up reasonably well at the higher elevations where most of the sheep summer-graze.

Despite the late drought and a record low range condition index lambs came off the range at record weights. Such a phenomonon is not totally unexpected in livestock grazing operations. Early spring rains on the heels of a good snow-pack produce abandant late spring foliage. Then, with warm dry weather the foliage matures well, reducing the moisture content and giving forage added nutrition and strength. Under these conditions, livestock develop well, even though they might appear to have less bloom than when the forage has higher moisture content and is more succulent.

Lamb Crop

The number of lambs saved, docked, marked or branded per 100 ewes of breeding age was record high in 1972, 10 percent above the 1960-64 average. Only part of this high rate was due to better-than-average winter range and condition of ewes.

The number of lambs saved has moved up consistently since 1965 (fig. 2). Due to better management practices, among which are: better selection of bucks and ewes, use of more bucks per 100 ewes, better grouping of ewes at breeding time, crossbreeding, "drop-lambing", careful supervision of ewes during the lambing season, improved range conditions with better condition of ewes and better water and salt supplies.

An increased number of ranchers are purchasing better quality rams and potency testing them, or at least carefully inspecting them for breeding ability. They also are selecting rams that are twins. Many are marking ewe lambs that are twins and saving them for herd replacements. Twins tend to beget twins.

In addition to using improved breeds and better breeding stock most ranchers are crossbreeding. The breeding ewes are nearly all white-faced animals such as crossbred Rambouillet, Columbia, and Targhee. Part of these crossbred-ewes are mated to bucks of these breeds to furnish herd replacement females. The remainder are bred to Suffolk X Hampshire, or to Suffolks or Hampshires for producing market lambs. Crossbreeding tends to produce more multiple births, increase livability of lambs, and increase market weights (tables, 2, 3, and 4).

Sheep operators report better conception rates among ewes when the band is subdivided into

Table 2.—Lambs born per ewe, by type of birth and breed, 1965-72[1]

Breed of ewe	Breed of ram	Type of birth			
		Single	Twin	Triplet	Ewes failed to lamb
		Percent			
Targhee	Targhee	58	37	1	4
Targhee	Suffolk	60	33	1	6
Targhee X Suffolk	Suffolk	38	57	3	2

[1] Utah State University Range Sheep Experiment Station, Cedar City, Utah.

Table 3.—Average weaned weight per lamb, by type of birth and breed, 1965-72[1]

Breed of ewe	Breed of ram	Type of birth		
		Single	Twin	Triplet
		Pounds		
Targhee	Targhee	73	66	41
Targhee	Suffolk	84	68	53
Targhee X Suffolk	Suffolk	88	75	66

[1] Utah State University Range Sheep Experiment Station, Cedar City, Utah.

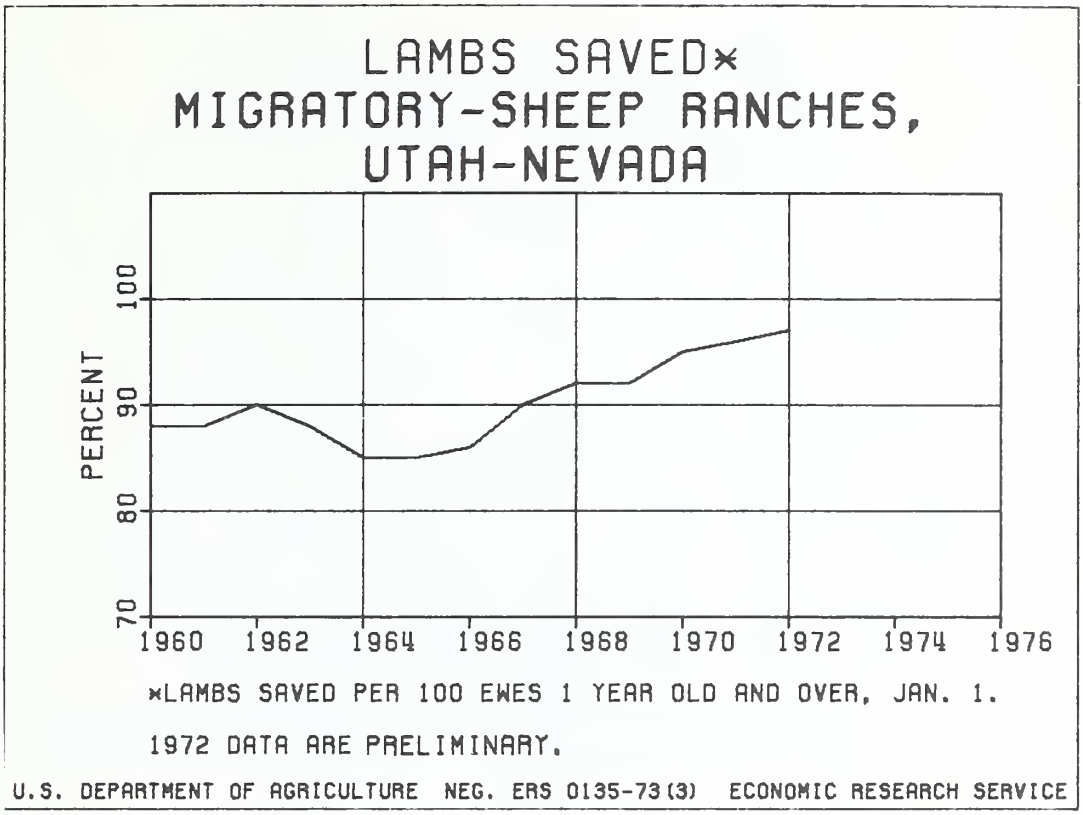

Figure 2

Table 4.—Total pounds of lamb weaned per ewe bred, by type of birth and breed, 1965-72[1]

Breed of ewe	Breed of ram	Type of birth		
		Single	Twin	Triplet
		Total lamb weaned per ewe bred		
		Pounds		
Targhee	Targhee	73	131	124
Targhee	Suffolk	84	135	159
Targhee X Suffolk	Suffolk	88	150	198

[1]Utah State University Range Sheep Experiment Station, Cedar City, Utah.

smaller groups for "bucking up". Fewer ewes are passed by and fewer rams are needed when the females are divided into smaller groups. Not all operators can conveniently follow this type of program because they have neither the type of range nor the labor to manage several small herd-units.

"Drop-lambing" is not universal in the area, but those who follow the practice invariably report good success in saving lambs. In this practice ewes that lamb on a given day are permitted to remain in that location while the balance of the herd is advanced in the grazing route. After a day or two when the ewes and lambs have adjusted, a few units are combined to make up a summer band.

Data for 1971 and 1972 on ewe and lamb counts for a few ranchers who "drop lamb" showed around 20 percent more lambs saved than for ranchers who follow the conventional "bull ring" method. They also report that ewes and lambs do better and have far less adjustment when trucked or taken to another range.

A migratory-sheep operator must save as many lambs as he can. There is virtually no cost in growing out a few additional lambs on these ranches. No fee is charged to graze a lamb under 6 months on public land and there is no cost for herding a few additional lambs. A 5 percent increase in lambs saved in 1972 would have increased operators' returns to labor and capital by 17 percent.

Market Weights

Market weights of lambs have trended upward over the years on these ranches (fig. 3). They reached a record high of 88 pounds per head in 1972, nearly 15 percent above the 1960-64 average. Some of this is due to imporved practices mentioned earlier, but some of it is due to improved range management. Nowadays, one seldom finds ranges over-grazed. Sheep operators

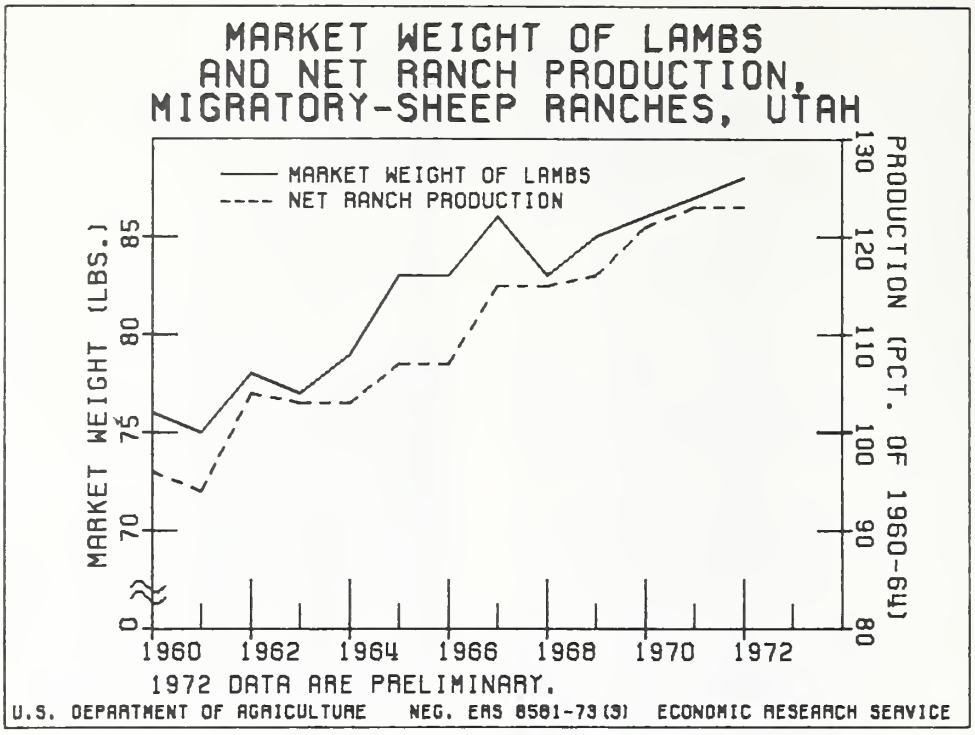

Figure 3

know that it is to their advantage as well as the public is to avoid over-grazing. Timely use of ranges, careful herding of sheep and optimum stocking are important considerations.

For years, there has been a concerted effort to reduce the number of animals grazed on public ranges. As a result, the number of animals permitted on public lands has been reduced year by year. From 1960 to 1972, the average number of sheep permitted to graze on five of the important forests in the study area was reduced by 17 percent. In addition, the period of grazing was reduced by 5 percent. Similar reductions were made on grazing districts under the supervision of the Bureau of Land Management.

Wool Clip

Wool clip per animal sheared has trended higher generally. The average clip per head for the United States has moved up from slightly less than 8 pounds in the mid-1930's to a little over 8.5 pounds in the early 1970's (fig. 4). In Utah, it has advanced from around 8.6 pounds to nearly 10 pounds during the same period. From 1960 to 1972, the clip per head on migratory-sheep ranches advanced from 10.3 pounds to 11.0 pounds (fig. 5), reflecting improved breeding and management. The average ewe today is a larger animal and a better producer than a decade or so ago. In 1972, ewes on migratory-sheep ranches averaged a tenth larger than in the early 1960's. Total wool produced per ranch was a record high in 1972, nearly 12 percent above the early 1960's.

Death Losses of Sheep and Lambs

Since 1960 death losses of sheep ranged between 5.7 percent and 7.9 percent, and averaged slightly under 6.5 percent. Until 1967, lamb losses followed a similar pattern to that of sheep. But lambs as would be expected had a wider range and higher average. After 1967, sheep losses ranged lower and in 1972 were near record low. Lamb losses, however, trended higher to an all-time high of 10 percent in 1972, a year when sheep losses dropped (fig. 6).

It appears that sheep losses followed a pattern that would be expected from natural causes. Lamb losses, likewise, followed such a pattern until 1967. However, the continued upward climb in lamb losses since then, and particularly the big increase in 1972, supports ranchers statements that predators are an increasing problem.

This information is based on survey data comparing current year data with year-earlier data for the same ranch. In a comparison of ranch-to-ranch data in 1971 and 1972, 77 percent of the ranchers reported a higher death loss in 1972, 19 percent reported a lower loss, and 4 percent reported no change. There was no difference in percentage loss by size of herd. Data for 1970-71 indicated 52 percent of the ranchers had lower losses in 1971 than a year

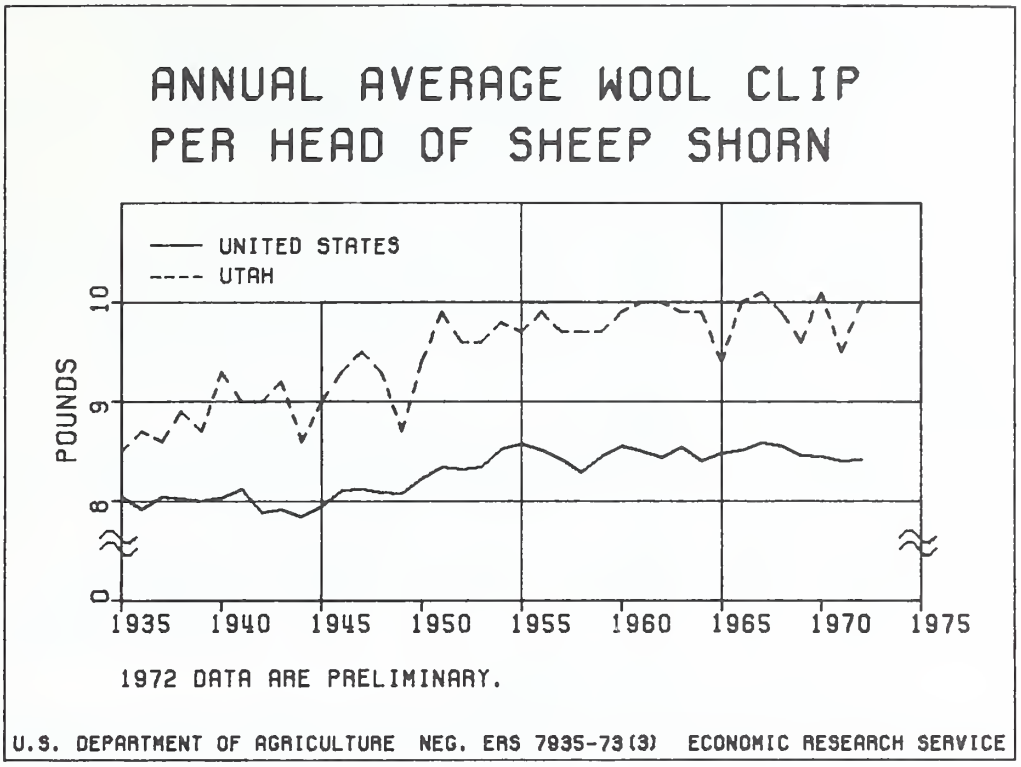

Figure 4

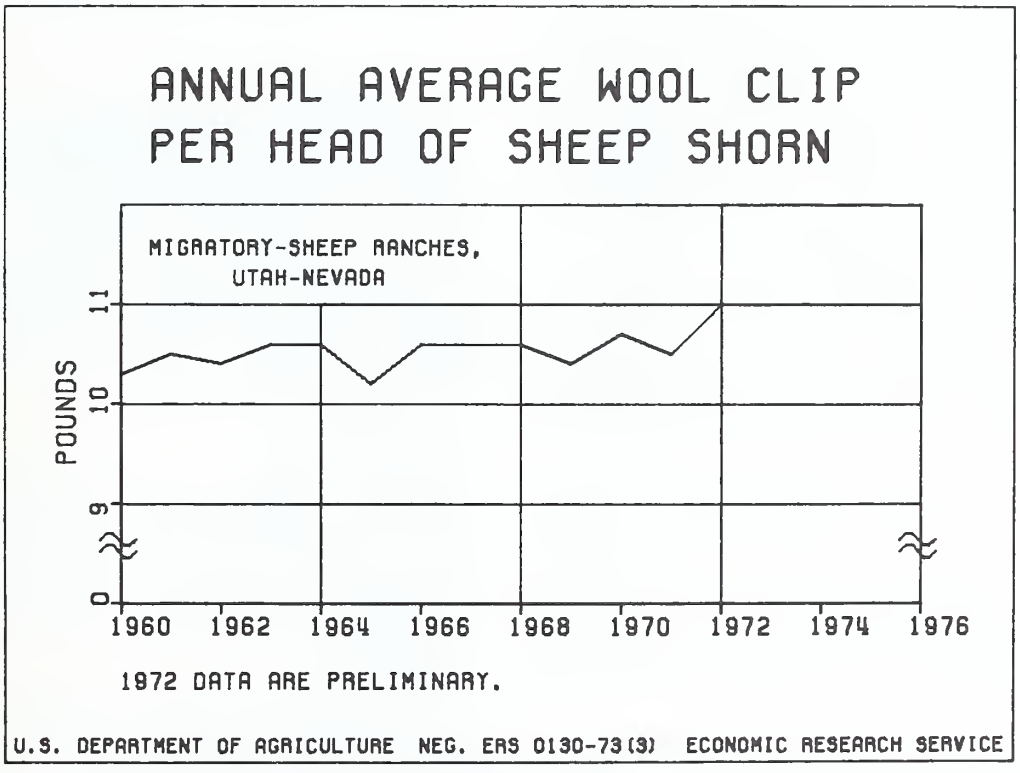

Figure 5

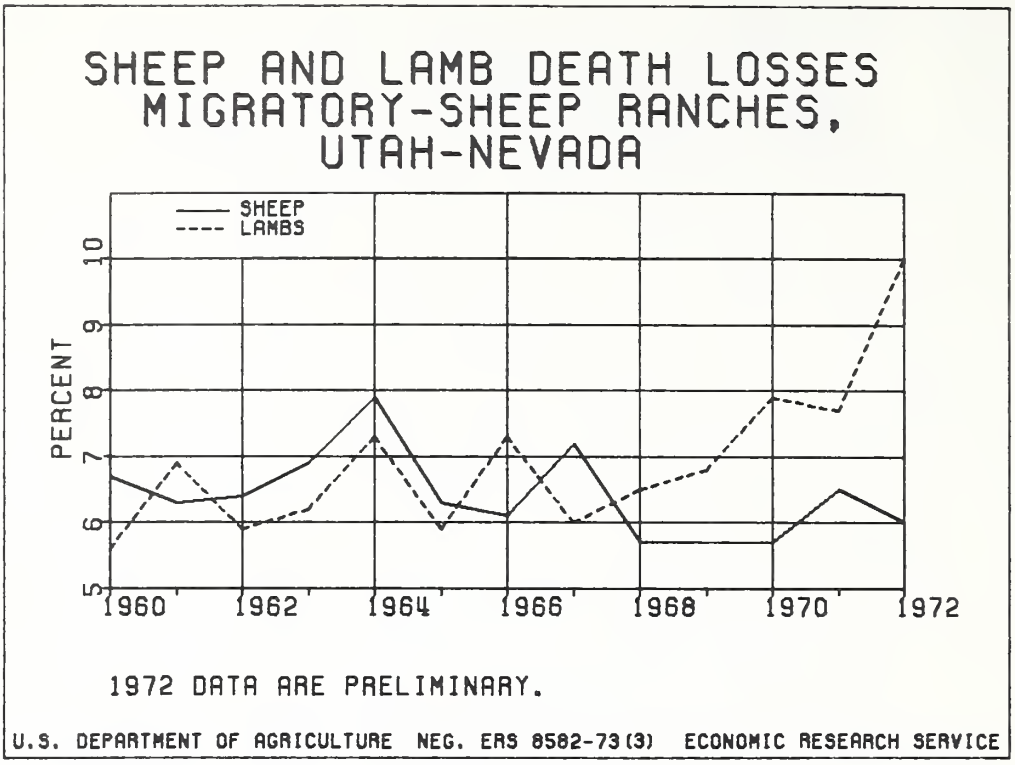

Figure 6

earlier, 46 percent had greater losses and 2 percent reported no change.[2]

Lamb death losses in 1972 ranged from 3.5 percent to 28.4 percent per ranch. One-fourth of the ranchers had losses of less than 7 percent and a-fourth had losses exceeding 12 percent. One-tenth had losses exceeding 20 percent. Operators of migratory sheep ranches expect some losses but these higher losses could be catastrophic to a given rancher. It is a known fact that once a predator obtains his meal he is likely to return for further sustenance.

A change in death loss of lambs has a heavy impact on operator returns. As stated earlier, each additional lamb marketed represents added profit, as there is practically no additional cost involved during the summer season. If death loss in 1972 had been normal, operator returns would have been increased by 12 percent.

•Sheep death losses on migratory-sheep ranches average nearly 6 times that for brood cows on Northwest cattle ranches. Migratory-sheep graze under more rigorous conditions than range cattle, have a shorter productive life, and are more subject to predators. However, this explains only part of the relatively higher death loss of sheep. There is little doubt that because of the low price received for ewes sheep ranchers tend to keep ewes in the herd too long.

Net Ranch Production

As a consequence of better range management and improved breeding and livestock practices, net ranch production has moved up smartly on migartory-sheep ranches. Even though size of breeding herd changed little, net ranch production was almost a fourth higher in 1971-72 than in 1960-64 (table 6 and fig. 3). Despite a higher lambing rate, heavier market lambs, and a larger wool clip in 1972, net ranch production remained at the 1971 level, primarily because of higher lamb losses.

Costs and Returns

Net ranch income averaged $14,780 per ranch in 1972, about 10 percent below a year earlier and the lowest since 1966, but nearly double the 1960-64 average (table 5). Return to investment from this income was nearly $9,700, 4.2 percent of total capital after deducting $5,100 for operator's labor and management.

Cash receipts in 1972 were up nearly 3 percent from a year earlier. This was due mostly to higher lamb and wool prices and a greater volume of wool sold because of a higher clip per animal in 1972. Volume of liveweight lamb and mutton sales was up slightly in

[2]Ranchers were asked for a count of lambs which were lost from all causes, after docking and before the end of the year. The percentage was calculated by dividing the number which died by the number docked, marked, or branded in the same year.

Table 5.—Costs and returns, migratory-sheep operations, Utah-Nevada, 1971 and 1972

Item	Unit	Average 1960-64	1971	1972[1]
Total land operated[2]	Acre	12,300	12,300	12,300
Land owned	do.	7,180	7,180	7,180
Land rented	do.	5,120	5,120	5,120
Livestock on ranch:				
Total stock sheep	Number	2,358	2,454	2,454
Ewes 1 year and older	do.	1,966	2,025	2,045
Ewes lambs	do.	327	363	341
Lamb crop	Percent	88	96	97
Fleece weight	Pound	10.5	10.5	11.0
Total ranch capital, Jan. 1[3]	Dollar	178,160	230,720	232,170
Land and buildings	do.	119,270	135,440	139,340
Livestock	do.	47,070	78,230	74,670
Machinery and equipment	do.	11,020	15,620	16,480
Crops	do.	800	1,430	1,680
Total cash receipts	do.	33,722	52,911	54,316
Sheep	do.	876	1,452	2,119
Lambs	do.	17,500	31,013	35,133
Wool	do.	10,799	4,540	6,812
Wool payments	do.	3,766	14,445	8,576
Crops and miscellaneous	do.	781	1,461	1,676
Value of perquisites	do.	733	940	971
Inventory change:				
Livestock	do.	369	185	-1,597
Crops	do.	25	-122	-98
Gross ranch income	do.	34,849	53,914	53,592
Total operating expense	do.	27,365	37,451	38,810
Grazing costs	do.	2,187	3,873	3,929
Other feed	do.	2,781	2,444	3,035
Livestock purchase and miscellaneous expense	do.	1,361	2,307	2,773
Shearing and clipping	do.	1,948	2,637	2,638
Contract trucking	do.	2,490	3,478	3,485
Machinery purchased	do.	1,678	2,405	2,500
Machinery operating cost	do.	1,696	2,326	2,376
Ranch buildings and fences	do.	397	520	550
Labor hired	do.	9,056	12,340	12,395
Taxes	do.	2,667	3,445	3,398
Other	do.	1,104	1,676	1,731
Net ranch income	do.	7,484	16,463	14,782
Interest paid on mortgage	do.	---	4,092	3,933
Return to operator labor and capital	do.	---	12,371	10,849

[1] Preliminary. [2] Land rented is grazing land. Charges for use of it are included in expenditures for feed and grazing fees. The value of the rented land is not included in ranch capital, and no real estate tax or related costs are included in ranch expenditures. [3] Excludes estimated value of grazing permits.

Table 6.—Production, costs, and prices, migratory-sheep ranches, Utah-Nevada, 1971 and 1972

Item	1971	1972[1]
	(1960-64=100)	
Net farm production	123	123
Range condition	101	79
Production per unit of input	118	118
Operating expense per unit of production	116	119
Total cost per unit of production	118	121
Prices received for products sold[2]	132	131
Prices paid, including wages to hired labor	136	140

[1] Preliminary. [2] Including wool incentive payment.

1972 from a year earlier, but only because of a slight (2 percent) reduction at year-end in size of breeding herd. Net physical sales were about the same in 1971 and 1972, and gross income remained unchanged.

Lamb and Sheep Prices

In recent years lamb prices have been very erratic, and 1972 was no exception. Early in the year, a few ranchers contracted for 32 cents per pound, but about midyear, prices began to sag and for the year averaged around 28 cents. However, this was 3 cents above a year earlier and the highest since 1951.

Although ewe prices averaged $6.25 per hundredweight in 1972, up about 75 cents per hundredweight from a year earlier, they still remained relatively low. They have been low for about 2 decades, averaging slightly more than half their late 1940 and early 1950 prices.

In 1972, ewe prices averaged about a third higher than in 1960-64. Lamb prices, in contrast, advanced nearly 60 percent, and cow and calf prices almost doubled. Also during the last decade, cow prices have averaged nearly 60 percent of calf prices, and culled bulls have been bringing handsome prices. In contrast, ewe prices averaged less than a fourth of lambs and there is no price for culled rams (fig. 7).

Costs and returns data indicate that, in 1971 and 1972, migratory-sheep operators would have increased their labor and capital returns by approximately a fifth and a third, respectively, if culled ewes commanded the same percentage of lamb prices that culled cows do relative to calf prices. Further, with the incentive to do a better culling job, culled animals going to market would be younger and in better condition, and thus would command a better price. In addition, the animals kept would be more viable and would respond better to grazing and death loss would be reduced. A small (2 percent) increase in operator returns would have accrued in 1971 and 1972 if culled rams had brought a price relative to lambs that culled bulls brought relative to calves.

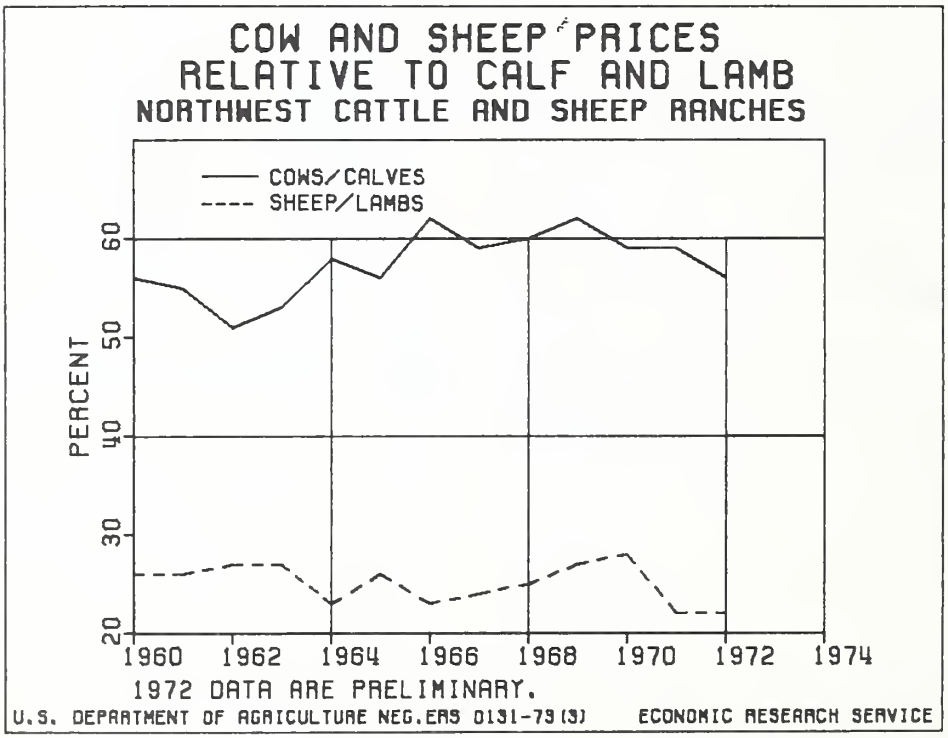

Figure 7

Considerable progress, though on a small scale at present, is being made in marketing of frozen lamb products and some progress with processed lamb and mutton. But much more needs to be done to increase consumers' acceptance of these products. Bologna, salami, weiners, and similar processed meats are now consumed in great quantities and command good prices, whereas, once they received little attention. In time, processed mutton and lamb could gain consumer acceptance in such processed items.

Wool Prices

Because of the record low wool prices in 1971 and particularly the exceptionally low prices late in the year, ranchers were apprehensive about 1972 prices (see fig. 8). Wool prices were so low in November and December 1971 that they hardly covered shearing costs. In some markets, clipped lambs brought more than unshorn lambs. Because of this situation and the general apprehension about the 1972 market, ranchers were reluctant to hold wool despite a continuing price rise. In January 1972, Utah wool prices averaged 17 cents per pound. They continued to rise throughout the year and in December averaged 41 cents per pound. However by June, three-fourths of the year's clip was out of ranchers' hands and for the year averaged slightly over 25½ cents, 40 percent above 1971, but the second lowest on record.

Receipts from wool sales in 1972 were up 50 percent from a year earlier, but wool payments under the incentive program were down a little more than 40 percent. Total receipts in 1972 from wool including wool incentive payments were down nearly a fifth from a year earlier.

Operating Expense

Total operating expenses in 1972 were a record high, and nearly 4 percent above a year earlier (table 5). Although there were substantial increases in most major expense categories, three-fourths of the increase was due to increased input costs. Prices increased most for farm produced items, but small price increases were manifest in most items.

Prices paid for replacement rams increased by more than a fifth. Prices paid for Suffolks advanced the most (28 percent), followed closely by Columbias and Rambouillets. Suffolk-Hampshire crosses were up only slightly and Columbia-Rambouillet crosses, wool breeds, were down slightly. In recent years, the outlay for replacement rams averaged about $2,000 per ranch.

Because of the widespread summer drought in 1972 in the lower elevations of the study area and the generally heavy demand for feed grains and roughages, prices paid for feed advanced substantially. Prices paid for machinery, repair parts, and fencing materials increased slightly.

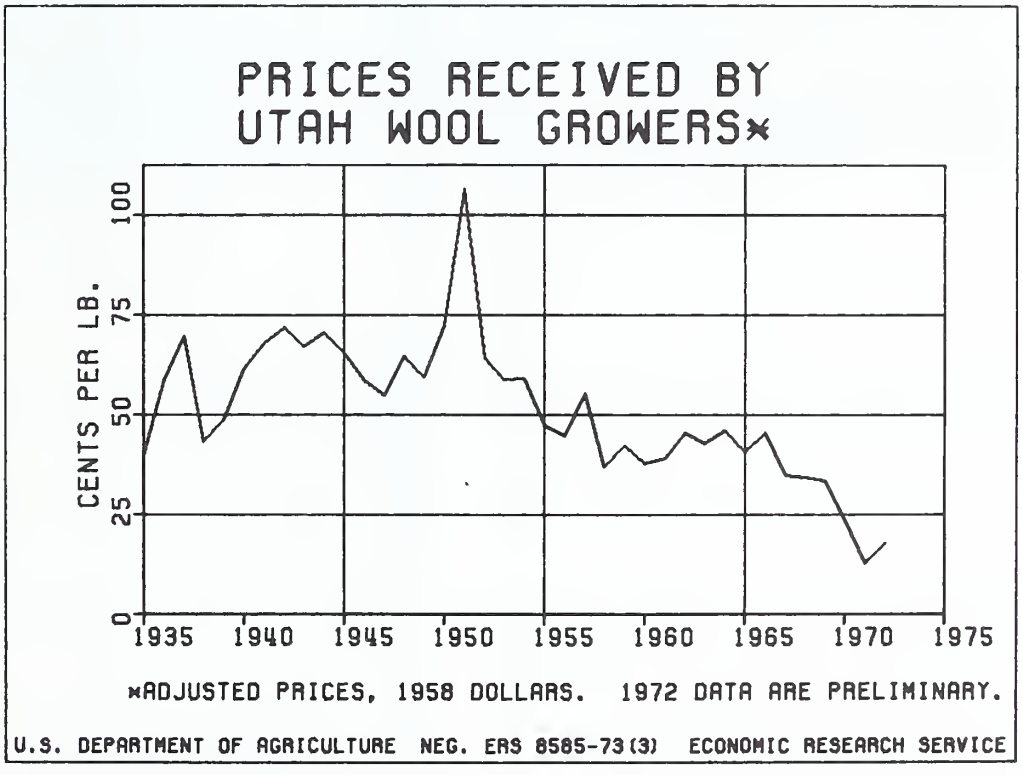

Figure 8

Trucking costs in 1972 advanced only slightly from a year earlier, but were up by almost half from a decade ago and now make up almost a tenth of total operating costs. They will continue to increase because trail lanes are gone and trucking rates are trending upward (fig. 9 and 10). Both operating and total cost per unit of production advanced about 3 percentage points from 1971 and 1972, and averaged about a fifth above their 1960-64 averages (table 6).

Migratory-sheep ranches are relatively high cost enterprises. Nearly 75 cents of each dollar received goes to pay operating expenses, exclusive of interest paid on ranch obligations. On Northwest cattle ranches, in comparison, a little more than half of gross income goes to pay operating expenses. Furthermore, incomes vary much more on migratory-sheep ranches than on cow-calf operations. Many expenses on migratory-sheep ranches are fixed, and when lamb and wool prices drop, ranchers sometimes have difficulty in meeting expenses.

Figure 9.—Lambs are trailed through town because open trail lanes have been taken up in private property.

Ranch Capital

Total ranch capital, January 1, 1972, rose slightly to record-high, $232,200 per ranch. The 1971 increase was also minor, following sharper rises in the late 1960's. Inventory value of sheep declined for the second year. Herd size was unchanged but sheep values were down. Land values increased by less than 3 percent.

The economic outlook for cattle ranching is relatively brighter than for sheep ranching, and for several years land values have moved up smartly on Western cattle ranches. From 1960 to 1972, per-acre values of grazing land increased 21 percent on migratory-sheep ranches but 76 percent and 86 percent, respectively, on cattle ranches in the Rocky Mountain and Northern Plains areas (fig. 11). During the same period, the value of a breeding ewe increased 36 percent and the value of a brood cow increased 56 percent.

Capital investment in a typical commercial livestock ranch is not a small matter these days, ranging from a $\frac{1}{4}$-million to more than a $\frac{1}{2}$-million. On Western livestock ranches, land investment depends largely on such institutional factors as access to public grazing land. Ranchers who make wide use of public land naturally have relatively less investment in private land. Capital investment in land per animal unit on a migratory-sheep ranch, where public lands are grazed two-thirds of the year, are much lower than on a Rocky Mountain cattle ranch, where livestock graze public lands from a third to a fourth of the year (table 7). The investment likewise, is much higher on Northern Plains and Southwest cattle ranches where little or no public land is used. In these areas, total investment per cow

Figure 10.—Sheep are being trailed in the autumn from a high-forest range. Some will go to market; others to be used as replacement will go to spring-fall range and later to desert winter range. Open trail lanes are gone.

or animal unit ranges from $1,000 to $1,500. Land investment alone ranges from nearly $800 to $1,300 per animal unit.

Investment per animal unit on migratory-sheep ranches has increased significantly in the last decade, but the increase in returns per animal unit has been greater. In 1972, total investment per animal unit was one-fourth higher than in 1960-64, but gross income was up more than a half and net ranch income almost doubled. On Northern Plains cattle ranches, investment per animal unit in 1972 was 52 percent higher, and net income 58 percent higher than in 1960-64. On Rocky Mountain cattle ranches, the 1972 investment and net return were 32 percent and 56 percent greater, respectively, than in 1960-64. This would indicate that although investment per animal unit appears high, it is not high relative to returns.

Table 7.—Investment per animal unit, selected western livestock ranches, 1960, 1965, and 1972

Item	Cattle ranches									Migratory-sheep ranches[4]		
	Northern Plains[1]			Rocky Mountain[2]			Southwest[3]					
	1960	1965[5]	1972[5]	1960	1965	1972[5]	1960	1965	1972[5]	1960	1965	1972[5]
	Animal units[6]											
Number	403	430	454	344	361	411	NA	348	341	470	484	491
	Dollars											
Investment in—												
Land and buildings	484	581	796	400	526	563	NA	908	1,327	247	255	284
Livestock	162	133	245	161	141	247	NA	124	268	111	121	152
Machinery and equipment	35	37	49	40	43	51	NA	30	38	23	24	34
Crops	7	10	15	24	30	32	NA	0	0	2	2	3
Total	688	761	1,105	625	740	893	NA	1,062	1,633	383	402	473

[1] Consists of 15 counties in Montana, 8 counties in Wyoming, and 9 counties in South Dakota. [2] Consists of 12 counties in Montana and 7 counties in Idaho. [3] Consists of 20 counties in Texas, 11 counties in New Mexico, and 3 counties in Arizona. [4] Consists of 19 counties in western Utah and 6 counties in eastern Nevada. [5] Preliminary. [6] An animal unit consist of 1.0 cow or heifer 2 years old and over, 1.33 steers or heifers 1 year old, 0.83 bull of breeding age, and 5.0 head of stock sheep.

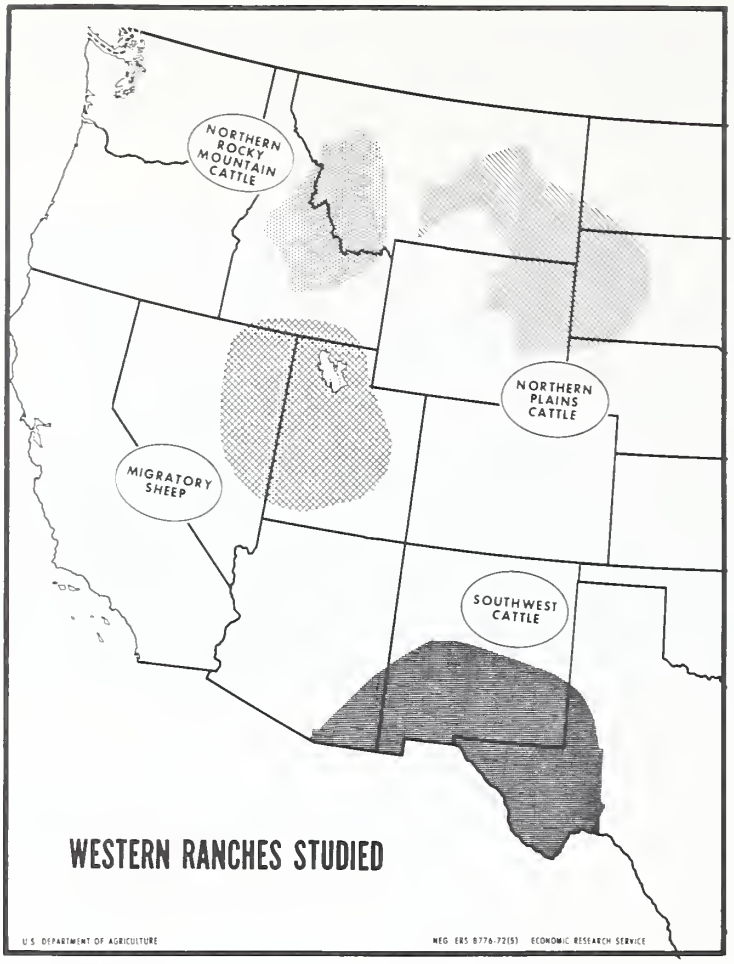

Figure 11

Returns to Capital

Net ranch income is the return to operator labor and management and to total capital. In 1972 it was about $14,800 per ranch. Two questions are often asked: "What return on investment does a ranch provide?" "Would an operator or an investor make a higher return on his capital investment in some other venture?" A glance at tables 8 and 9 provides a partial answer to these questions.

Assuming a nominal charge of $5,100 for operator labor and management including living quarters and farm-produced perquisites, the returns on total ranch capital on migratory-sheep ranches was 4.2 percent in 1972, the same as the 1960-71 average. This average rate is lower than the long-term rate of 5.0 percent on Rocky Mountain cattle ranches, but higher than the rate of 3.5 percent on Northern Plains cattle ranches. However, as stated above, land values, particularly in recent years, have been relatively higher on cattle ranches.

Returns to the rancher's equity (termed operator's capital) are lower than returns to total ranch capital, because rates charged on borrowed money are higher than rates earned in ranching operations. In 1972, migratory-sheep ranchers carried real estate mortgages and production loans of approximately

Table 8.—Net ranch income and returns to resources, migratory-sheep ranches, Utah-Nevada, 1972

Item	Unit	1972[1]
Net ranch income	Dollar	14,782
Interest paid on mortgages[2]	do.	3,933
Income available for family living	do.	10,849
Charge for operator's labor[3]	do.	5,100
Return to operators capital	do.	5,749
Total ranch capital	do.	232,170
Operators capital	do.	173,170
Return to total ranch capital	Percent	[4]4.2
Return on operators capital	do.	[4]3.3

[1] Preliminary. [2] Real estate mortgage of $29,000 at 5.7 percent and operating loans of $30,000 at 7.6 percent. [3] Annual wage to year-round hands x 1.25. [4] Excludes estimated value of grazing permits.

Table 9.—Returns to ranch capital, selected western livestock ranches, 1960-72[1]

Year	Sheep ranches, Utah-Nevada	Cattle ranches		
		Southwest	Northern Plains	Rocky Mountain
	Percent			
1960	0.9	NA	2.8	3.1
1961	.2	do.	2.3	4.1
1962	3.9	do.	4.5	5.7
1963	2.3	do.	3.7	5.0
1964	3.2	do.	2.0	2.5
1965	4.7	1.6	2.1	3.5
1966	4.3	1.9	3.3	4.8
1967	6.2	1.2	3.2	4.9
1968	6.4	1.4	3.5	5.5
1969	7.6	1.6	4.1	7.0
1970	6.1	1.1	4.7	6.5
1971	4.9	1.0	5.4	7.4
1972	4.2	3.6	7.6	10.8

[1] Net ranch income less a nominal charge (annual wage to year-round hands x 1.25) for operator's labor and management, divided by total ranch investment.

$59,000 per ranch, leaving operator's equity capital at about $173,000.

The average rates charged by institutions servicing ranchers' loans were 5.7 percent for real estate mortgages and 7.6 percent for production loans. These rates were slightly higher than a year earlier for real estate loans but about the same for production loans. Total interest paid was slightly lower than in 1971.

Since the interest rates were well above the 4.2 percent return to total ranch capital, after deducting interest paid in 1972, operator's capital returns averaged about 3.3 percent. The composite return on common stocks in 1972 was 2.84 percent.