



*Predation and Disease . . .*

# Idaho Range Sheep Death Losses

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Idaho range sheep producers have long felt that predators are inflicting a costly drain on the profitability of their enterprises. Surveys conducted by the University of Idaho substantiated this belief. However, the surveys also revealed that losses to disease were even more costly. Projecting survey data to the entire state range sheep population provided these estimates of Idaho range sheep losses:

Deaths reduce Idaho sheep producer gross income more than \$3 million each year.

Divide this total among the number of operators who are running sheep and you find that the "average" sheep operation loses more than \$21,000 in gross receipts annually due to ewe and lamb deaths.

About one-quarter of the deaths are caused by coyotes and other predators. More than 40 of the deaths result from disease and the remainder are from unspecified or undetermined causes.

For the "average" range sheep operation in Idaho, deaths from predators represent a \$16-a-day loss. Deaths from disease cut gross receipts an additional \$25 each day.

These figures are estimates, based on a study of two production years—1970-71 and 1972-73. Reductions in gross receipts to producers were set at a conservative level, since the calculations were made using the 1970-71 market prices of \$30 per ewe and \$23 per lamb. Actual market prices in 1972-73 were substantially higher than these prices.

The two study periods had some significant differences. The production year of 1972-73 differed from the year of 1970-71 in these ways:

1. **Production increased.** The number of Idaho range sheep increased from 435,000 ewes and 479,280 lambs in 1970-71 to 437,600 ewes and 567,000 lambs in 1972-73.

2. **Toxicants were banned.** In 1970-71, producers were still allowed to use predator control toxicants—including "1080" for coyotes. These were banned in February 1972. Consequently, one crop of coyote pups was raised without exposure to toxicants before the 1972-73 study.

3. **Disease deaths declined.** The number of lamb and ewe deaths attributed to disease declined slightly in 1972-73. However, disease continued to be the major cause of range sheep deaths. Of every 100 deaths, 43 were due to disease—and this proportion was the same in both years.

4. **Predator kills increased.** There was a greater number of predator kills during 1972-73. However, since the total population of ewes and lambs was higher than in 1970-71, the predation death rate per 1,000 animals was nearly the same for the two study years.

### **Losses to Predators**

In the 1970-71 survey, predators were estimated to have caused 26 deaths per 1,000 ewes and 40 deaths per 1,000 lambs. The 1972-73 study indicated 28 predator kills per 1,000 ewes and 38 kills per 1,000 lambs. The density of predation did not change, although the total economic loss did increase. Predation reduced gross receipts by \$784,500 in 1970-71 and \$874,500 in 1972-73.

Coyotes were the most devastating predator in both years. Bears ranked second. Coyotes caused 67 of ewe and 78 of lamb deaths attributed to predators in 1970-71, 80 of ewe and 84 of lamb deaths in 1972-73.

Results of banning control toxicants could not be determined from one year's data. Use of other control techniques increased after the toxicants were banned.

### **Losses to Disease**

More lambs and ewes died from disease than from predation (Tables 1 and 2). In both study years, 36% of all ewe deaths and 46% of lamb deaths were attributed to disease. Predators caused 25% of ewe deaths and 21% of lamb deaths in 1970-71, 33% and 25% in 1972-73. Deaths from unknown causes amounted to 35% of the total deaths the first study year and 30% the second year. There is no way

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**About This Report** — This publication is based on information obtained through surveys of Idaho range sheep producers over two production years. Those interested in additional information and details of the survey may write the authors at the College of Agriculture, University of Idaho, Moscow, Idaho 83843.

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Table 1. Estimated EWE deaths attributed to predation, disease and unspecified causes and resulting loss in gross income to the Idaho range sheep industry, 1970-71 and 1972-73.

Cause	1970-71			1972-73		
	Number	Percent	Cost*	Number	Percent	Cost*
Coyotes	7,612	16.7	\$ 228,360	10,007	26.5	\$ 300,210
Bears	1,690	3.7	50,700	1,200	3.2	36,000
Other	2,087	4.6	62,610	1,260	3.3	37,800
<b>Total</b>						
Predators	11,389	25.0	341,670	12,467	33.0	374,010
Disease	16,456	36.1	493,680	13,952	36.9	418,560
Unspecified	17,758	38.9	532,740	11,370	30.1	341,100
<b>TOTAL</b>	<b>45,603</b>	<b>100.0</b>	<b>\$1,368,090</b>	<b>37,789</b>	<b>100.0</b>	<b>\$1,133,670</b>

\* Cost measured at 1970-71 prices (\$30 per ewe).

Table 2. Estimated LAMB deaths attributed to predation, disease and unspecified causes and resulting loss in gross income to the Idaho range sheep industry, 1970-71 and 1972-73.

Cause	1970-71			1972-73		
	Number	Percent	Cost*	Number	Percent	Cost*
Coyotes	15,049	16.7	\$ 346,127	18,374	20.9	\$ 422,602
Bears	1,796	2.0	41,308	1,600	1.8	36,800
Other	2,407	2.7	55,361	1,789	2.0	41,147
<b>Total</b>						
Predation	19,252	21.4	442,796	21,763	24.7	500,549
Disease	42,181	46.9	970,163	40,179	45.6	924,117
Unspecified	28,520	31.7	655,960	26,139	29.7	601,197
<b>TOTAL</b>	<b>89,953</b>	<b>100.0</b>	<b>\$2,068,919</b>	<b>88,081</b>	<b>100.0</b>	<b>\$2,025,863</b>

\* Cost measured at 1970-71 prices (\$23 per lamb).

of knowing the extent to which disease or predation may have been involved in these deaths.

When disease deaths were calculated on the basis of 1,000 head, a slight decline in the rate occurred during the second study year. Disease losses were 38 deaths per 1,000 ewes and 88 per 1,000 lambs in 1970-71, 32 per 1,000 ewes and 71 per 1,000 lambs in 1972-73.

Over 80 of the ewe deaths attributed to disease were from blue bag, bloat, poisonous plants, pregnancy disease and infections. For lambs, 67 of the deaths in this category were due to abortions, starvation, scours and pneumonia. The greatest number of disease-caused ewe and lamb deaths occurred during the lambing period.

### Average Loss per Operation

The "average" range sheep operation in Idaho increased in size by nearly 100 ewes and 650 lambs between 1970-71 and 1972-73 (Table 3). Death losses for the average operation declined slightly during this period—but from an average flock of 6,697 head in 1972-73, a total of 837 ewes and lambs were casualties. This represented a 12% loss in flock value.

Nonproducers often have little appreciation of the magnitude of such losses. With the loss from deaths valued

Table 3. Estimated number of ewe and lamb deaths and resulting reduction in gross income for "average" Idaho range sheep operation, 1970-71 and 1972-73 production years.

Item	Ewes		Lambs		Total Dollars
	No.	Value	No.	Value	
<b>1970-1971</b>					
Size of operation	2,825	\$84,750	3,112	\$71,576	\$156,326
Predation deaths	74	2,220	125	2,875	5,095
Disease deaths	107	3,210	274	6,302	9,512
Unspecified deaths	115	3,450	185	4,255	7,705
<b>Total deaths</b>	<b>296</b>	<b>8,880</b>	<b>584</b>	<b>13,452</b>	<b>22,312</b>
<b>1972-1973</b>					
Size of operation	2,917	\$87,510	3,780	\$86,940	\$174,450
Predation deaths	82	2,460	144	3,312	5,772
Disease deaths	93	2,790	268	6,164	8,954
Unspecified deaths	76	2,280	174	4,002	6,282
<b>Total deaths</b>	<b>251</b>	<b>7,530</b>	<b>586</b>	<b>13,478</b>	<b>21,008</b>

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at \$21,000 during 1970-71, the average operation's gross income was reduced \$58 per day due to deaths—\$25 from disease, nearly \$16 from predators, more than \$17 from unspecified causes.

### Preventing Death Losses

Predator control techniques are needed—especially for coyotes. The greatest need for control measures is apparent during the summer range period. In some instances, the elimination of a single predator will reduce losses significantly.

Disease control measures such as improved management practices, closer observation of the animals, better sanitation, careful feed formulation and good vaccination programs are urgently needed. Bloat losses can be reduced by avoiding sudden changes from low energy to high energy feeds. Pregnancy disease losses can be reduced by feeding high energy rations which contain grain or molasses during the last third of gestation. Lamb starvation can be reduced by closer observation and individual feeding. The incidence of scours can be reduced by keeping the lambing facilities clean—especially nursing jugs. Sulfas can be used for treating lambs with coccidiosis. Closer working relationships between the producer and their local veterinarians should be helpful.

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