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Sheep and Lamb Death Loss in the United States, 1999



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Introduction

Each January, USDA's National Agricultural Statistics Service (NASS) collects sheep data on inventory, lamb crop, and total sheep and lamb death loss. Inventory and lamb crop estimates (number of head) are published in January. Sheep and lamb death loss estimates (number of head) are published in May via the Meat Animals: Production, Disposition and Income report. For NASS's January 1995 and 2000 sheep surveys, USDA's Animal and Plant Health Inspection Service (APHIS) provided funding for a detailed, retrospective breakdown of total sheep and lamb losses by producer-attributed cause of loss occurring during the previous year. Only death losses by predator causes were estimated and published by NASS for losses in 1999.

This report provides a breakdown of sheep and lamb death losses in 1999 for all causes by size group and region, with special emphasis on nonpredator causes of loss. Where possible, the 1994 death losses are provided for comparison.

Terms Used In This Report

Adult sheep inventory: Breeding rams and ewes 1 year and older and market sheep 1 year and older.

Lamb crop: For the Central, Northeast, and Southeast regions (see regions below), all lambs born alive during the calendar year. For the Pacific and West Central regions, all lambs after docking or branding during the calendar year.

Lambs: Animals less than 1 year old.

Lamb losses: For the Central, Northeast, and Southeast regions, lamb losses were tallied for all lambs born alive. In the Pacific and West Central regions, lamb losses were tallied for lambs after docking or branding.

Market sheep: Animals 1 year and older for use as feeders or for slaughter.

N/A: Not available.

Regions:

Pacific: CA, OR, WA

West Central: AZ, CO, ID, MT, NV, NM, TX, UT, WY

Central: IL, IN, IA, KS, MI, MN, MO, NE, ND, OK, SD, WI

Northeast: CT, ME, MA, NH, NY, OH, PA, RI*, VA, VT, WV

Southeast/Other: AL, AK, AR, DE, FL, GA, HI, KY, LA, MD, MS, NJ,

NC, SC, TN

*For the 1994 estimates, RI was included in the Southeast/other region. In 1999, RI was included in the Northeast region.

Size of Operation: Number of total sheep and lambs on the operation January 1 of respective year. Size groups are: 1 to 24; 25 to 99; 100 to 999; and 1,000 head or more.

Section I: Population Estimates—Number of Head

A. U.S. Demographics*

1. Inventory, January 1, 1994–2000

a. Number of sheep and lambs, by class and by year:

Class	1994	1995	1996	1997	1998	1999	2000	2001
All sheep and lambs	9,835.7	8,989.3	8,464.6	8,023.7	7,825.1	7,247.0	7,036.0	6,908.0
Breeding ewes 1 year and older	5,844.4	5,403.6	5,134.3	4,911.6	4,569.5	4,336.0	4,234.0	4,071.0
Breeding rams	294.1	257.0	233.8	220.3	202.8	202.5	208.5	202.0
Market sheep	N/A	96.8	77.4	85.1	90.8	82.5	80.0	79.0
Breeding ewes and rams 1 year and older and market sheep	N/A	5,757.4	5,445.5	5,217.0	4,863.1	4,621.0	4,522.5	4352.0

2. Operations, 1994–2000

a. Number of operations with sheep and lambs, by year:

Number Operations						
Year						
1994	1995	1996	1997	1998	1999	2000
86,060	79,900	76,600	72,680	71,750	70,000	69,200

*Sheep and Goats annual January report, NASS

b. Percentage of operations with breeding sheep, by operation size and by year:

Percent Operations							
Year							
Operation Size (Number of Breeding Sheep)	1994	1995	1996	1997	1998	1999	2000*
1 to 99	89.6	91.2	90.9	91.9	90.8	90.6	91.2
100 to 499	8.2	6.7	7.0	6.2	6.8	7.3	7.2
500 to 4,999	2.1	2.0	2.0	1.8	2.3	2.0	1.6
5,000 or more	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.1

*Does not sum to 100.0 due to rounding

c. Percentage of breeding sheep inventory, by operation size and by year:

Percent Inventory							
Year							
Operation Size (Number of Breeding Sheep)	1994	1995	1996	1997	1998	1999	2000*
1 to 99	22.3	24.1	25.0	25.7	25.5	25.9	27.9
100 to 499	22.9	19.9	20.4	20.3	19.2	20.4	22.0
500 to 4,999	38.4	41.4	40.9	40.0	42.6	39.0	35.2
5,000 or more	16.4	14.6	13.7	14.0	12.7	14.7	14.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	99.9

*Does not sum to 100.0 due to rounding

3. Lamb crop—1994–2000

a. Lamb crop and lamb crop per 100 ewes on hand, by year:

	Year						
	1994	1995	1996	1997	1998	1999	2000
Lamb crop (1,000 Head)	5,968.2	5,643.2	5,361.3	5,356.3	5,001.5	4,754.0	4,645.0
Lamb crop per 100 ewes on hand January 1	102	104	104	109	109	110	110

B. Regional Demographics

For this report, the United States was divided into five regions (see Terms Used in This Report, p. 1) in order to provide data on smaller geographic areas within the country. NASS does not publish inventory and death-loss data for small sheep-producing States individually, but collapses the data into an “Other States” group. For estimates in this report, the “Other States” were combined with the Southeast region. About 4 percent of U.S. sheep and lamb death losses occurred in the “Other States.”

1. Adult sheep inventory—January 1, 1995, and January 1, 2000

a. Number of adult sheep (and number of adult sheep in 2000 as a percentage of adult sheep inventory in 1995) by region:

Region*	January 1 Number (1,000 Head)		Percent
	1995	2000	2000 as a percentage of 1995
Pacific	740.0	506.5	68.4
West Central	3,237.0	2,547.0	78.7
Central	1,258.0	1,032.5	82.1
Northeast	400.0	309.5	77.4
Southeast/Other	122.4	127.0	103.8
Total	5,757.4	4,522.5	78.6

*In 1994, RI was included in the Southeast/other region. In 1999, RI was included in the Northeast region.

2. Lamb crop—1994 and 1999

a. Calendar year lamb crop (and 1999 lamb crop as a percentage of 1994 lamb crop), by region:

Region	Lamb Crop (1,000 Head)		Percent
	1994	1999	1999 as a percentage of 1994
Pacific	695.0	494.0	71.1
West Central	3,124.0	2,495.0	79.9
Central	1,574.0	1,298.0	82.5
Northeast	470.7	367.0	78.0
Southeast/Other	104.5	100.0	95.7
Total	5,968.2	4,754.0	79.3

C. U.S. Annual Death Loss**1. Loss from all causes, 1994–2000**

a. Sheep and lamb death loss due to all causes, by year:*

	Number (1,000 Head)						
	Year						
	1994	1995	1996	1997	1998	1999	2000
Sheep	332.8	314.4	342.6	305.4	297.0	259.8	281.5
Lamb	614.7	580.4	578.8	542.8	507.1	488.6	490.2
Total	947.5	894.8	921.4	848.2	804.1	748.4	771.7

*Meat Animal Production, Disposition, and Income, annual May report, NASS.

b. Sheep death loss as a percentage of January 1 inventory of adult sheep inventory on January 1 of the following year, by year:

Percent Inventory						
Year						
1994	1995	1996	1997	1998	1999	2000
5.8	5.8	6.6	6.3	6.4	5.7	6.5

c. Lamb death loss as a percentage of lamb crop, by year:

Percent Lamb Crop						
Year						
1994	1995	1996	1997	1998	1999	2000
10.3	10.3	10.8	10.1	10.1	10.3	10.6

2. U.S. nonpredator and predator death loss—1994 and 1999*

a. Number of sheep and lamb death losses by cause, and percentage of loss by cause—by year:

Number and Percent Loss				
Cause	Year			
	1994		1999	
	Number	Percent	Number	Percent
Nonpredator	577,950	61.1	472,700	63.2
Predator	368,050	38.9	275,700	36.8
Total	946,000	100.0	748,400	100.0

*Total sheep and lamb death losses for 1994 were revised, although the revisions are not shown further in this report since detailed cause of loss estimates were not similarly adjusted and republished. The sheep losses were revised from 336.6 to 332.8 (thousand head), and lamb losses were revised from 609,400 to 614,700 head; as a result, total losses were revised from 946,000 to 947,500 head. Total sheep and lamb death losses from 1999 were revised from 260,900 to 259,800 sheep lost, and from 482,000 to 488,600 lambs lost. Since the predator loss publication was not reissued, adjustments (reflecting the revised total sheep and total lamb losses) were made appropriately to the nonpredator loss category.

b. Number of sheep death losses by cause, and percentage of loss by cause—by year:

Number and Percent Loss				
Year				
1994				
1999				
Cause	Number	Percent	Number	Percent
Nonpredator	230,025	68.3	183,400	70.6
Predator	106,575	31.7	76,400*	29.4
Total	336,600	100.0	259,800	100.0

*Initial NASS publication showed predator sheep losses of 77,000 head. Subsequent publication only revised total sheep loss. Relationship between predator and nonpredator loss was maintained at the State level, therefore deriving 76,400 head lost due to predators in the United States.

c. Number of lamb death losses by cause and percentage of loss by cause—by year:

Number and Percent Loss				
Year				
1994				
1999				
Cause	Number	Percent	Number	Percent
Nonpredator	347,925	57.1	289,300	59.2
Predator	261,475	42.9	199,300*	40.8
Total	609,400	100.0	488,600	100.0

*Initial NASS publication showed predator lamb losses of 196,000 head. Subsequent publication only revised total lamb loss. Relationship between predator and nonpredator loss was maintained at the State level, therefore deriving 199,300 head lost due to predators in the United States.

3. Regional predator and nonpredator death loss—1994 and 1999

a. Number of sheep death losses by cause and percentage of loss by cause—by region and by year:

Number and Percent Loss (Sheep)					
Year					
1994					
1999					
Region	Cause	Number	Percent	Number	Percent
Pacific	Nonpredator	25,625	64.1	17,700	61.0
	Predator	14,375	35.9	11,300	39.0
	Total	40,000	100.0	29,000	100.0
West Central	Nonpredator	116,325	62.2	87,500	66.8
	Predator	70,675	37.8	43,500	33.2
	Total	187,000	100.0	131,000	100.0
Central	Nonpredator	59,800	83.2	54,900	81.9
	Predator	12,100	16.8	12,100	18.1
	Total	71,900	100.0	67,000	100.0
Northeast	Nonpredator	21,875	76.1	15,900	80.3
	Predator	6,875	23.9	3,900	19.7
	Total	28,750	100.0	19,800	100.0
Southeast/ Other	Nonpredator	6,400	71.5	7,400	56.9
	Predator	2,550	28.5	5,600	43.1
	Total	8,950	100.0	13,000	100.0

b. Number of lamb death losses by cause and percentage of loss by cause—by region and by year:

Number and Percent Loss (Lambs)					
Year					
1994					
1999					
Region	Cause	Number	Percent	Number	Percent
Pacific	Nonpredator	18,825	39.2	11,200	37.3
	Predator	29,175	60.8	18,800	62.7
	Total	48,000	100.0	30,000	100.0
West Central	Nonpredator	108,525	36.9	97,300	42.1
	Predator	185,475	63.1	133,700	57.9
	Total	294,000	100.0	231,000	100.0
Central	Nonpredator	156,175	83.7	132,700	81.2
	Predator	30,525	16.3	30,800	18.8
	Total	186,700	100.0	163,500	100.0
Northeast	Nonpredator	50,000	81.9	35,700	81.0
	Predator	11,050	18.1	8,400	19.0
	Total	61,050	100.0	44,100	100.0
Southeast/ Other	Nonpredator	14,400	73.3	12,400	62.0
	Predator	5,250	26.7	7,600	38.0
	Total	19,650	100.0	20,000	100.0

Section II: Population Estimates—Nonpredator Losses

A. Nonpredator Sheep Death Loss

1. Losses—1999

a. Sheep death loss as a percentage of adult sheep inventory on January 1, 2000, by operation size and by region:

Region	Percent Inventory									
	Size of Operation (Number of Sheep and Lambs)									
	1–24		25–99		100–999		1,000 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Pacific	4.88	(0.97)	4.74	(1.31)	3.44	(0.18)	3.88	(0.29)	4.02	(0.28)
West Central	5.58	(1.03)	4.77	(0.52)	3.17	(0.12)	2.37	(0.08)	2.84	(0.08)
Central	5.75	(0.77)	5.28	(0.37)	4.66	(0.29)	3.99	(0.22)	4.98	(0.21)
Northeast	4.84	(0.84)	4.13	(0.32)	3.93	(0.19)	3.81	(0.23)	4.26	(0.26)
Southeast/ Other	5.63	(1.32)	7.87	(1.41)	4.25	(0.55)	3.40	(0.00)	5.73	(0.65)
All operations	5.41	(0.43)	5.01	(0.25)	3.80	(0.11)	2.67	(0.08)	3.70	(0.08)

2. Cause of loss—1994 and 1999

a. Percentage of sheep death loss, by cause and by year:

Nonpredator Cause	Percent Nonpredator Loss		
	1994¹	1999	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	9.3	11.6	(0.7)
Respiratory problems (pneumonia, shipping fever, etc.)	6.9	8.5	(0.6)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	3.6	3.2	(0.3)
Weather-related causes (chilling, drowning, lightning, etc.)	8.4	6.7	(0.7)
Theft (stolen)	2.0	0.8	(0.1)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	5.3	4.0	(0.3)
Lambing problems	9.9	11.3	(0.6)
Other diseases (mastitis, foot rot, boils, etc.)	N/A	5.6	(0.5)
Other nonpredator causes ²	34.7	34.0	(0.9)
Unknown nonpredator causes	19.9	14.3	(0.8)
Total	100.0	100.0	

¹ Standard error not available for 1994 estimates.² Other nonpredator causes: old age, being on back, lameness, etc.

b. Sheep death loss as a percentage of adult sheep inventory on January 1 of

the following year, by cause and by year:

Nonpredator Cause	Percent Inventory		Std. Error
	1994 ¹	1999	
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	0.37	0.43	(0.03)
Respiratory problems (pneumonia, shipping fever, etc.)	0.27	0.31	(0.02)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.14	0.12	(0.01)
Weather-related causes (chilling, drowning, lightning, etc.)	0.34	0.25	(0.03)
Theft (stolen)	0.08	0.03	(0.00)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.21	0.15	(0.01)
Lambing problems	0.39	0.42	(0.03)
Other diseases (mastitis, foot rot, boils, etc.)	N/A	0.21	(0.02)
Other nonpredator causes ²	1.39	1.26	(0.04)
Unknown nonpredator causes	0.79	0.53	(0.03)
All nonpredator causes	3.99	3.70	(0.08)

¹ Standard error not available for 1994 estimates.

² Other nonpredator causes: old age, being on back, other nonpredator causes, including lameness, etc.

3. Cause of loss by operation size—1999

a. Percentage of sheep death loss, by cause and by operation size:

Percent Nonpredator Loss										
Size of Operation (Number Sheep of and Lambs)										
Nonpredator Cause	1–24		25–99		100–999		1,000 or More		All Operations	
	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	14.7	(2.6)	11.9	(1.3)	11.9	(1.3)	9.7	(0.7)	11.6	(0.7)
Respiratory problems (pneumonia, shipping fever, etc.)	8.0	(2.2)	11.1	(1.7)	8.3	(0.6)	6.8	(0.7)	8.5	(0.6)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	2.3	(0.8)	4.2	(0.9)	3.3	(0.3)	2.7	(0.2)	3.2	(0.3)
Weather-related causes (chilling, drowning, lightning, etc.)	9.1	(2.7)	3.4	(0.8)	5.0	(0.9)	10.1	(1.3)	6.7	(0.7)
Theft (stolen)	0.4	(0.3)	0.3	(0.2)	1.1	(0.2)	1.0	(0.2)	0.8	(0.1)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	1.0	(0.4)	1.8	(0.4)	3.1	(0.4)	8.2	(0.7)	4.0	(0.3)
Lambing problems	11.1	(1.8)	15.0	(1.9)	8.9	(0.6)	10.7	(0.8)	11.3	(0.6)
Other diseases (mastitis, foot rot, boils, etc.)	4.0	(0.9)	4.4	(0.8)	4.2	(0.4)	8.9	(1.4)	5.6	(0.5)
Other nonpredator causes*	33.2	(3.3)	35.4	(2.1)	40.3	(1.3)	26.6	(1.1)	34.0	(0.9)
Unknown nonpredator causes	16.2	(2.9)	12.5	(1.7)	13.9	(1.4)	15.3	(0.8)	14.3	(0.8)
Total	100.0		100.0		100.0		100.0		100.0	

*Other nonpredator causes: old age, being on back, lameness, etc.

b. Sheep death loss as a percentage of adult sheep inventory on January 1, 2000, by cause and by operation size:

Nonpredator Cause	Percent Inventory									
	Size of Operation (Number of Sheep and Lambs)									
	1-24		25-99		100-999		1,000 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	0.80	(0.15)	0.59	(0.07)	0.45	(0.05)	0.26	(0.02)	0.43	(0.03)
Respiratory problems (pneumonia, shipping fever, etc.)	0.43	(0.13)	0.56	(0.09)	0.32	(0.02)	0.18	(0.02)	0.31	(0.02)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.13	(0.04)	0.21	(0.04)	0.12	(0.01)	0.07	(0.01)	0.12	(0.01)
Weather-related causes (chilling, drowning, lightning, etc.)	0.49	(0.16)	0.17	(0.04)	0.19	(0.03)	0.27	(0.04)	0.25	(0.03)
Theft (stolen)	0.02	(0.02)	0.02	(0.01)	0.04	(0.01)	0.03	(0.00)	0.03	(0.00)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.05	(0.02)	0.09	(0.02)	0.12	(0.01)	0.22	(0.02)	0.15	(0.01)
Lambing problems	0.60	(0.10)	0.75	(0.11)	0.34	(0.02)	0.28	(0.02)	0.41	(0.03)
Other diseases (mastitis, foot rot, boils, etc.)	0.21	(0.05)	0.22	(0.04)	0.16	(0.01)	0.24	(0.04)	0.21	(0.02)
Other nonpredator causes*	1.80	(0.23)	1.77	(0.13)	1.53	(0.06)	0.71	(0.03)	1.26	(0.04)
Unknown nonpredator causes	0.88	(0.17)	0.63	(0.09)	0.53	(0.06)	0.41	(0.02)	0.53	(0.03)
All nonpredator causes	5.41	(0.43)	5.01	(0.25)	3.80	(0.11)	2.67	(0.08)	3.70	(0.08)

*Other nonpredator causes: old age, being on back, lameness, etc.

4. Cause of loss by region—1999

a. Percentage of sheep death loss, by cause and by region:

Nonpredator Cause	Percent Nonpredator Loss											
	Region											
	Pacific		West Central		Central		Northeast		Southeast/ Other		All Operations	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	11.3	(1.6)	10.3	(0.8)	12.1	(1.4)	12.0	(2.0)	21.4	(5.6)	11.6	(0.7)
Respiratory problems (pneumonia, shipping fever, etc.)	10.8	(1.8)	4.1	(0.4)	12.2	(1.4)	11.1	(1.7)	9.5	(3.2)	8.5	(0.6)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	2.1	(0.5)	2.0	(0.1)	4.8	(0.7)	4.0	(0.7)	3.9	(2.0)	3.2	(0.3)
Weather-related causes (chilling, drowning, lightning, etc.)	4.8	(1.8)	9.5	(1.1)	3.8	(0.6)	4.0	(2.0)	13.5	(5.8)	6.7	(0.7)
Theft (stolen)	0.1	(0.1)	1.1	(0.2)	0.8	(0.2)	0.0	(0.0)	0.2	(0.1)	0.8	(0.1)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	4.5	(1.7)	6.3	(0.4)	1.7	(0.3)	2.0	(0.6)	3.2	(1.5)	4.0	(0.3)
Lambing problems	10.9	(2.3)	9.5	(0.7)	13.5	(1.3)	12.1	(1.6)	10.1	(3.7)	11.3	(0.6)
Other diseases (mastitis, foot rot, boils, etc.)	12.9	(3.5)	5.1	(0.4)	3.6	(0.4)	5.5	(1.4)	5.8	(1.8)	5.6	(0.5)
Other nonpredator causes*	32.9	(2.6)	34.1	(1.3)	35.8	(1.6)	36.4	(2.6)	17.4	(3.0)	34.0	(0.9)
Unknown nonpredator causes	9.7	(1.6)	18.0	(1.2)	11.7	(1.4)	12.9	(2.8)	15.0	(4.0)	14.3	(0.8)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Other nonpredator causes: old age, being on back, lameness, etc.

b. Sheep death loss as a percentage of adult sheep inventory on January 1, 2000, by cause and by region:

Nonpredator Cause	Percent Inventory											
	Region											
	Pacific		West Central		Central		Northeast		Southeast/ Other		All Operations	
	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	0.45	(0.06)	0.29	(0.02)	0.61	(0.08)	0.51	(0.09)	1.23	(0.36)	0.43	(0.03)
Respiratory problems (pneumonia, shipping fever, etc.)	0.44	(0.07)	0.11	(0.01)	0.61	(0.08)	0.47	(0.08)	0.54	(0.20)	0.31	(0.02)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.09	(0.02)	0.06	(0.00)	0.24	(0.03)	0.17	(0.03)	0.22	(0.12)	0.12	(0.01)
Weather-related causes (chilling, drowning, lightning, etc.)	0.19	(0.08)	0.27	(0.04)	0.19	(0.03)	0.17	(0.09)	0.78	(0.37)	0.25	(0.03)
Theft (stolen)	0.00	(0.00)	0.03	(0.01)	0.04	(0.01)	0.00	(0.00)	0.01	(0.00)	0.03	(0.00)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.18	(0.07)	0.18	(0.01)	0.08	(0.01)	0.09	(0.03)	0.19	(0.09)	0.15	(0.01)
Lambing problems	0.44	(0.11)	0.27	(0.02)	0.67	(0.07)	0.52	(0.07)	0.58	(0.23)	0.41	(0.08)
Other diseases (mastitis, foot rot, boils, etc.)	0.52	(0.15)	0.15	(0.01)	0.18	(0.02)	0.23	(0.07)	0.33	(0.11)	0.21	(0.02)
Other nonpredator causes*	1.32	(0.14)	0.97	(0.05)	1.78	(0.10)	1.55	(0.12)	0.99	(0.17)	1.26	(0.04)
Unknown nonpredator causes	0.39	(0.06)	0.51	(0.04)	0.58	(0.08)	0.55	(0.13)	0.86	(0.21)	0.53	(0.03)
All nonpredator causes	4.02	(0.28)	2.84	(0.08)	4.98	(0.21)	4.26	(0.26)	5.73	(0.65)	3.70	(0.08)

*Other nonpredator causes: old age, being on back, lameness, etc.

5. Cause of loss by region and by operation size—1999

a. For the *Pacific Region*, percentage of sheep death loss by cause and by operation size:

Nonpredator Cause	Percent Nonpredator Loss									
	Size of Operation (Number of Sheep and Lambs)									
	1–24		25–99		100–999		1,000 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	16.2	(6.4)	5.5	(4.1)	9.2	(1.4)	13.1	(2.0)	11.3	(1.6)
Respiratory problems (pneumonia, shipping fever, etc.)	8.5	(5.2)	2.1	(1.1)	11.4	(2.5)	14.2	(2.7)	10.8	(1.8)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.0	(0.0)	0.4	(0.2)	1.3	(0.5)	3.4	(0.8)	2.1	(0.5)
Weather-related causes (chilling, drowning, lightning, etc.)	18.3	(12.9)	0.5	(0.3)	5.0	(1.3)	3.4	(1.5)	4.8	(1.8)
Theft (stolen)	0.0	(0.0)	0.4	(0.4)	0.2	(0.1)	0.0	(0.0)	0.1	(0.1)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.0	(0.0)	0.0	(0.0)	1.1	(0.2)	8.3	(3.1)	4.5	(1.7)
Lambing problems	12.7	(5.8)	16.7	(9.0)	7.5	(0.9)	9.5	(1.6)	10.9	(2.3)
Other diseases (mastitis, foot rot, boils, etc.)	3.9	(1.8)	1.2	(0.6)	4.8	(0.7)	21.9	(6.1)	12.9	(3.5)
Other nonpredator causes*	30.1	(7.7)	54.4	(5.5)	48.5	(2.8)	20.3	(2.5)	32.9	(2.6)
Unknown nonpredator causes	10.3	(3.9)	18.8	(8.6)	11.0	(1.4)	5.9	(1.0)	9.7	(1.6)
Total	100.0		100.0		100.0		100.0		100.0	

*Other nonpredator causes: old age, being on back, lameness, etc.

b. For the **West Central Region**, percentage of sheep death loss by cause and by operation size:

Percent Nonpredator Loss											
Size of Operation (Number of Sheep and Lambs)											
Nonpredator Cause	1–24		25–99		100–999		1,000 or More		All Operations		
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	
Digestive problems, bloat, scours, parasites, enterotoxemia, acidosis, etc.)	14.1	(5.7)	17.5	(4.3)	10.0	(1.0)	8.5	(0.8)	10.3	(0.8)	
Respiratory problems (pneumonia, shipping fever, etc.)	2.9	(1.8)	6.3	(3.0)	3.6	(0.5)	3.9	(0.3)	4.1	(0.4)	
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.7	(0.6)	1.8	(0.7)	1.8	(0.3)	2.3	(0.2)	2.0	(0.1)	
Weather-related causes (chilling, drowning, lightning, etc.)	0.8	(0.3)	4.1	(1.7)	7.8	(2.0)	12.7	(1.7)	9.5	(1.1)	
Theft (stolen)	0.0	(0.0)	1.4	(1.2)	1.2	(0.4)	1.1	(0.2)	1.1	(0.2)	
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.4	(0.3)	1.7	(0.7)	5.3	(0.8)	8.6	(0.5)	6.3	(0.4)	
Lambing problems	11.0	(5.2)	4.8	(1.3)	8.0	(1.1)	11.1	(1.0)	9.5	(0.7)	
Other diseases (mastitis, foot rot, boils, etc.)	3.6	(1.9)	5.7	(2.3)	4.5	(0.7)	5.5	(0.4)	5.1	(0.4)	
Other nonpredator causes*	46.1	(8.8)	45.2	(5.8)	37.2	(2.1)	28.6	(1.3)	34.1	(1.3)	
Unknown nonpredator causes	20.4	(6.2)	11.5	(3.2)	20.6	(2.9)	17.7	(1.1)	18.0	(1.2)	
Total	100.0		100.0		100.0		100.0		100.0		

*Other nonpredator causes: old age, being on back, lameness, etc.

c. For the **Central Region**, percentage of sheep death loss by cause and by operation size:

Nonpredator Cause	Percent Nonpredator Loss									
	Size of Operation (Number of Sheep and Lambs)									
	1–24		25–99		100–999		1,000 or More		All Operations	
	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	10.4	(3.0)	11.0	(1.6)	14.1	(2.6)	9.7	(1.2)	12.1	(1.4)
Respiratory problems (pneumonia, shipping fever, etc.)	11.6	(4.6)	13.6	(2.8)	11.3	(1.2)	12.4	(1.2)	12.2	(1.4)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	3.5	(1.6)	5.4	(1.5)	4.5	(0.6)	6.0	(1.0)	4.8	(0.7)
Weather-related causes (chilling, drowning, lightning, etc.)	6.2	(1.8)	3.5	(1.5)	3.2	(0.5)	3.6	(0.5)	3.8	(0.6)
Theft (stolen)	0.8	(0.8)	0.0	(0.0)	1.3	(0.3)	2.3	(1.1)	0.8	(0.2)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.9	(0.5)	2.0	(0.7)	1.3	(0.3)	4.6	(0.8)	1.7	(0.3)
Lambing problems	13.0	(3.0)	18.7	(3.1)	9.5	(1.1)	11.8	(1.3)	13.5	(1.3)
Other diseases	3.1	(0.9)	4.0	(0.8)	3.6	(0.5)	2.4	(0.5)	3.6	(0.4)
Other nonpredator causes*	34.9	(5.4)	28.8	(2.4)	43.4	(2.1)	26.6	(2.4)	35.8	(1.6)
Unknown nonpredator causes	15.6	(4.9)	13.0	(2.5)	7.8	(1.3)	20.6	(3.8)	11.7	(1.4)
Total	100.0		100.0		100.0		100.0		100.0	

*Other nonpredator causes: old age, being on back, lameness, etc.

d. For the **Northeast Region**, percentage of sheep death loss by cause and by flock size:

Nonpredator Cause	Percent Nonpredator Loss									
	Size of Operation (Number of Sheep and Lambs)									
	1–24		25–99		100–999		1,000 or More		All Operations	
	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	16.2	(5.6)	9.9	(2.4)	10.8	(1.4)	1.6	(0.2)	12.0	(2.0)
Respiratory problems (pneumonia, shipping fever, etc.)	8.5	(3.2)	12.5	(3.2)	11.7	(1.7)	12.6	(1.3)	11.1	(1.7)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	3.2	(1.4)	4.2	(1.2)	4.8	(1.0)	3.2	(0.3)	4.0	(0.7)
Weather-related causes (chilling, drowning, lightning, etc.)	6.6	(6.3)	4.1	(1.4)	0.9	(0.4)	0.0	(0.0)	4.0	(2.0)
Theft (stolen)	0.0	(0.0)	0.0	(0.0)	0.1	(0.0)	0.0	(0.0)	0.0	(0.0)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	1.5	(1.0)	0.6	(0.3)	4.9	(1.9)	1.6	(0.2)	2.0	(0.6)
Lambing problems	10.8	(3.7)	13.9	(2.4)	10.8	(1.4)	10.0	(1.0)	12.1	(1.6)
Other diseases (mastitis, foot rot, boils, etc.)	6.2	(3.3)	4.7	(2.3)	5.6	(1.2)	14.2	(1.4)	5.5	(1.4)
Other nonpredator causes*	29.2	(5.6)	42.9	(4.0)	35.4	(2.8)	13.7	(1.4)	36.4	(2.6)
Unknown nonpredator causes	17.8	(7.8)	7.2	(1.9)	15.0	(3.7)	43.1	(5.7)	12.9	(2.8)
Total	100.0		100.0		100.0		100.0		100.0	

*Other nonpredator causes: old age, being on back, lameness, etc.

e. For the ***Southeast/Other Region***, percentage of sheep death loss by cause and by operation size:

Percent Nonpredator Loss										
Size of Operation (Number of Sheep and Lambs)										
Nonpredator Cause	1–24		25–99		100–999		1,000 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	27.1	(12.3)	15.7	(4.4)	17.1	(1.9)	31.7	(0.0)	21.4	(5.6)
Respiratory problems (pneumonia, shipping fever, etc.)	1.0	(0.8)	15.4	(7.3)	11.7	(3.2)	17.3	(0.0)	9.5	(3.2)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	1.1	(0.9)	7.4	(4.8)	3.7	(1.2)	0.0	(0.0)	3.9	(2.0)
Weather-related causes (chilling, drowning, lightning, etc.)	28.1	(13.2)	3.6	(2.5)	4.4	(2.3)	9.5	(0.0)	13.5	(5.8)
Theft (stolen)	0.6	(0.3)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.2	(0.1)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	2.4	(1.8)	5.7	(3.3)	0.2	(0.0)	0.0	(0.0)	3.2	(1.5)
Lambing problems	3.8	(1.8)	17.1	(8.5)	12.9	(2.6)	0.0	(0.0)	10.1	(3.7)
Other diseases (mastitis, foot rot, boils, etc.)	3.1	(2.0)	7.4	(4.0)	3.9	(1.1)	14.8	(0.0)	5.8	(1.8)
Other nonpredator causes*	18.4	(7.0)	11.5	(3.2)	25.5	(3.3)	26.7	(0.0)	17.4	(3.0)
Unknown nonpredator causes	14.4	(5.5)	16.2	(6.9)	20.6	(4.4)	0.0	(0.0)	15.0	(4.0)
Total	100.0		100.0		100.0		100.0		100.0	

*Other nonpredator causes: old age, being on back, lameness, etc.

**B. Nonpredator
Lamb Death
Loss**

1. Losses—1999

a. Percentage of lamb crop lost, by operation size and by region:¹

Region	Percent Lamb Crop									
	Size of Operation (Number of Sheep and Lambs)									
	1–24		25–99		100–999		1,000 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Pacific	1.44	(0.46)	3.23	(0.49)	2.39	(0.21)	1.34	(0.12)	1.86	(0.12)
West Central	7.15	(3.32)	3.67	(0.64)	2.23	(0.15)	3.69	(0.23)	3.36	(0.17)
Central	12.33	(1.20)	9.08	(0.38)	7.95	(0.24)	10.86	(0.55)	9.10	(0.24)
Northeast	8.79	(1.32)	9.70	(0.59)	7.30	(0.43)	4.45	(0.03)	8.60	(0.40)
Southeast/ Other	9.66	(2.78)	11.04	(1.62)	7.63	(0.75)	3.10	(0.00)	9.37	(1.36)
All operations	9.49	(0.81)	7.83	(0.27)	5.13	(0.13)	3.66	(0.19)	5.53	(0.13)

¹1999 nonpredator lamb death loss divided by lamb crop. Includes postdocking lamb losses only in the Pacific and West Central regions.

2. Cause of loss—1994 and 1999

a. Percentage of lamb death loss, by cause and by year:

Nonpredator Cause	Percent Nonpredator Loss		Std. Error
	1994 ¹	1999	
	Percent	Percent	
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	19.3	17.4	(0.7)
Respiratory problems (pneumonia, shipping fever, etc.)	19.4	21.9	(0.8)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	3.9	3.2	(0.3)
Weather-related causes (chilling, drowning, lightning, etc.)	16.9	12.8	(0.8)
Theft (stolen)	1.8	0.9	(0.2)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	2.5	1.8	(0.1)
Lambing problems ²	10.5	10.4	(0.9)
Other diseases (mastitis, footrot, boils, etc.)	N/A	3.8	(0.7)
Other nonpredator causes ³	8.2	13.1	(1.0)
Unknown nonpredator causes	17.5	14.7	(0.7)
Total	100.0	100.0	

¹Standard errors not available for 1994.²Does not include Pacific and West Central regions.³Other nonpredator causes: being on back, lameness, etc.

b. Percentage of lamb crop lost, by cause and by year:

	Percent Lamb Crop		Std. Error
	1994 ¹	1999	
Nonpredator Cause	Percent	Percent	
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	1.12	0.97	(0.04)
Respiratory problems (pneumonia, shipping fever, etc.)	1.13	1.21	(0.05)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.23	0.18	(0.02)
Weather-related causes (chilling, drowning, lightning, etc.)	0.98	0.71	(0.05)
Theft (stolen)	0.11	0.05	(0.01)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.15	0.10	(0.01)
Lambing problems ²	0.61	0.57	(0.06)
Other diseases (mastitis, footrot, boils, etc.)	N/A	0.21	(0.04)
Other nonpredator causes ³	0.48	0.73	(0.06)
Unknown nonpredator causes	1.02	0.82	(0.04)
All nonpredator causes	5.83	5.55	(0.13)

¹Standard errors not available for 1994.

²Does not include Pacific and West Central regions.

³Other nonpredator causes: being on back, lameness, etc.

3. Cause of loss by operation size—1999

a. Percentage of lamb death loss, by cause and by operation size:

Nonpredator Cause	Percent Nonpredator Loss									
	Size of Operation (Number of Sheep and Lambs)									
	1–24		25–99		100–999		1,000 or More		All Operations	
	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	17.2	(2.5)	16.9	(1.4)	18.6	(1.1)	16.7	(0.9)	17.4	(0.7)
Respiratory problems (pneumonia, shipping fever, etc.)	13.7	(2.3)	21.4	(1.5)	27.7	(1.5)	20.7	(1.3)	21.9	(0.8)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	5.1	(1.5)	4.3	(0.8)	2.6	(0.2)	1.5	(0.1)	3.2	(0.3)
Weather-related causes	12.7	(2.6)	14.5	(2.1)	12.7	(1.1)	11.0	(0.8)	12.8	(0.8)
Theft	0.1	(0.0)	0.1	(0.1)	1.8	(0.5)	1.2	(0.1)	0.9	(0.2)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.9	(0.4)	1.0	(0.3)	1.3	(0.2)	3.7	(0.3)	1.8	(0.1)
Lambing problems ¹	19.8	(4.2)	15.0	(1.6)	9.1	(1.1)	0.7	(0.1)	10.4	(0.9)
Other diseases (mastitis, footrot, boils, etc.)	7.1	(4.1)	3.8	(0.9)	3.1	(0.3)	2.4	(0.3)	3.8	(0.7)
Other nonpredator causes ²	7.9	(1.4)	7.3	(1.1)	9.3	(1.6)	27.8	(2.4)	13.1	(1.0)
Unknown nonpredator causes	15.5	(2.4)	15.7	(1.7)	13.8	(0.9)	14.3	(0.9)	14.7	(0.7)
Total	100.0		100.0		100.0		100.0		100.0	

¹Does not include Pacific and West Central Regions.²Other nonpredator causes: being on back, lameness, etc.

b. Percentage of lamb crop lost, by cause and by operation size:

Nonpredator Cause	Percent Lamb Crop									
	Size of Operation (Number of Sheep and Lambs)									
	1–24		25–99		100–999		1,000 or More		All Operations	
	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	1.63	(0.24)	1.32	(0.11)	0.96	(0.05)	0.61	(0.04)	0.96	(0.04)
Respiratory problems (pneumonia, shipping fever, etc.)	1.30	(0.21)	1.68	(0.13)	1.42	(0.09)	0.76	(0.06)	1.21	(0.05)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.48	(0.14)	0.34	(0.06)	0.13	(0.01)	0.05	(0.00)	0.18	(0.02)
Weather-related causes	1.20	(0.27)	1.13	(0.18)	0.65	(0.06)	0.40	(0.03)	0.71	(0.05)
Theft	0.01	(0.00)	0.01	(0.01)	0.09	(0.03)	0.04	(0.00)	0.05	(0.01)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.09	(0.03)	0.08	(0.02)	0.06	(0.01)	0.14	(0.01)	0.10	(0.01)
Lambing problems ¹	1.89	(0.47)	1.17	(0.13)	0.47	(0.06)	0.03	(0.00)	0.57	(0.06)
Other diseases (mastitis, footrot, boils, etc.)	0.67	(0.43)	0.30	(0.07)	0.16	(0.01)	0.09	(0.01)	0.21	(0.04)
Other nonpredator causes ²	0.75	(0.13)	0.57	(0.09)	0.48	(0.09)	1.02	(0.12)	0.73	(0.06)
Unknown nonpredator causes	1.47	(0.23)	1.23	(0.14)	0.71	(0.04)	0.52	(0.03)	0.81	(0.04)
All nonpredator causes	9.49	(0.83)	7.83	(0.27)	5.13	(0.13)	3.66	(0.19)	5.53	(0.13)

¹Does not include Pacific and West Central Regions.²Other nonpredator causes: being on back, lameness, etc.

4. Cause of loss by region—1999

a. Percentage of lamb death loss, by cause and by region:

Nonpredator Cause	Percent Nonpredator Loss											
	Region											
	Pacific		West Central		Central		Northeast		Southeast/Other		All Operations	
	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	22.5	(2.4)	15.4	(1.0)	18.8	(1.1)	15.6	(1.7)	17.3	(4.5)	17.4	(0.7)
Respiratory problems (pneumonia, shipping fever, etc.)	21.8	(2.2)	16.0	(1.2)	26.8	(1.3)	22.2	(1.9)	7.7	(2.0)	21.9	(0.8)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	3.3	(1.4)	2.7	(0.8)	3.5	(0.4)	2.9	(0.6)	4.5	(1.9)	3.2	(0.3)
Weather-related causes	13.3	(2.0)	11.3	(1.5)	12.4	(1.1)	14.8	(2.9)	19.0	(4.8)	12.8	(0.8)
Theft	0.1	(0.1)	2.1	(0.5)	0.5	(0.1)	0.0	(0.0)	0.3	(0.1)	0.9	(0.2)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.6	(0.2)	3.8	(0.3)	0.8	(0.2)	1.0	(0.3)	2.1	(1.1)	1.8	(0.1)
Lambing problems	N/A	N/A	N/A	N/A	15.3	(1.5)	14.7	(1.9)	20.1	(9.8)	10.4	(0.9)
Other diseases (mastitis, footrot, boils, etc.)	3.1	(1.4)	5.3	(2.2)	2.0	(0.2)	3.8	(1.0)	13.2	(5.4)	3.8	(0.7)
Other nonpredator causes*	6.3	(1.2)	26.3	(2.2)	7.4	(1.2)	9.1	(1.2)	7.2	(3.1)	13.1	(1.0)
Unknown nonpredator causes	29.0	(3.5)	17.1	(1.1)	12.5	(1.1)	15.9	(1.7)	8.6	(2.6)	14.7	(0.7)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Other nonpredator causes: being on back, lameness, etc.

b. Percentage of lamb crop lost, by cause and by region:

Nonpredator Cause	Percent Nonpredator Loss											
	Region											
	Pacific		West Central		Central		Northeast		Southeast/ Other		All Operations	
	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	0.42	(0.05)	0.52	(0.04)	1.71	(0.11)	1.35	(0.16)	1.62	(0.36)	0.97	(0.04)
Respiratory problems (pneumonia, shipping fever, etc.)	0.40	(0.04)	0.54	(0.05)	2.44	(0.13)	1.91	(0.18)	0.72	(0.16)	1.21	(0.05)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.06	(0.03)	0.09	(0.03)	0.32	(0.09)	0.25	(0.05)	0.42	(0.17)	0.18	(0.02)
Weather-related causes	0.25	(0.04)	0.38	(0.05)	1.13	(0.10)	1.27	(0.27)	1.78	(0.50)	0.71	(0.05)
Theft	0.00	(0.00)	0.07	(0.02)	0.04	(0.01)	0.00	(0.00)	0.03	(0.00)	0.05	(0.01)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.01	(0.00)	0.13	(0.01)	0.07	(0.02)	0.08	(0.03)	0.19	(0.10)	0.10	(0.01)
Lambing problems	N/A	(--)	N/A	(--)	1.40	(0.14)	1.26	(0.18)	1.88	(1.07)	0.57	(0.06)
Other diseases (mastitis, footrot, boils, etc.)	0.06	(0.03)	0.18	(0.08)	0.18	(0.02)	0.33	(0.09)	1.24	(0.58)	0.21	(0.04)
Other nonpredator causes*	0.12	(0.02)	0.88	(0.09)	0.67	(0.11)	0.78	(0.10)	0.68	(0.30)	0.73	(0.06)
Unknown nonpredator causes	0.54	(0.08)	0.57	(0.04)	1.14	(0.11)	1.37	(0.15)	0.81	(0.24)	0.82	(0.04)
All nonpredator causes	1.86	(0.12)	3.36	(0.17)	9.10	(0.24)	8.60	(0.40)	9.37	(1.36)	5.53	(0.13)

*Other nonpredator causes: being on back, lameness, etc.

5. Cause of loss by region and by operation size—1999

a. For the *Pacific Region*, percentage of lamb death loss by cause and by operation size:

Nonpredator Cause	Percent Nonpredator Loss									
	Size of Operation (Number of Sheep and Lambs)									
	1–24		25–99		100–999		1,000 or More		All Operations	
	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	21.2	(8.6)	14.4	(5.3)	18.7	(2.6)	31.1	(3.8)	22.5	(2.4)
Respiratory problems (pneumonia, shipping fever, etc.)	29.0	(15.9)	10.4	(3.6)	22.5	(2.7)	27.7	(3.1)	21.8	(2.2)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.0	(0.0)	6.6	(5.0)	2.2	(0.7)	2.5	(0.8)	3.3	(1.4)
Weather-related causes (chilling, drowning, lightning, etc.)	16.0	(8.2)	9.9	(6.0)	18.5	(3.0)	11.0	(1.7)	13.3	(2.0)
Theft (stolen)	0.0	(0.0)	0.0	(0.0)	0.1	(0.1)	0.2	(0.1)	0.1	(0.1)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.0	(0.0)	0.0	(0.0)	0.4	(0.1)	1.2	(0.4)	0.6	(0.2)
Lambing problems	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other diseases (mastitis, foot rot, boils, etc.)	0.0	(0.0)	7.5	(5.0)	2.6	(0.6)	1.2	(0.4)	3.1	(1.3)
Other nonpredator causes*	8.0	(7.6)	4.1	(2.5)	9.9	(2.6)	4.6	(1.1)	6.3	(1.2)
Unknown nonpredator causes	25.8	(10.5)	47.1	(10.6)	25.1	(4.4)	20.5	(3.3)	29.0	(3.5)
Total	100.0		100.0		100.0		100.0		100.0	

*Other nonpredator causes: being on back, lameness, etc.

b. For the **West Central Region**, percentage of lamb death loss by cause and by operation size:

Percent Nonpredator Loss										
Size of Operation (Number of Sheep and Lambs)										
Nonpredator Cause	1–24		25–99		100–999		1,000 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	9.1	(5.4)	20.7	(6.3)	16.0	(1.5)	15.1	(1.1)	15.4	(1.0)
Respiratory problems (pneumonia, shipping fever, etc.)	0.8	(0.6)	14.0	(4.1)	11.8	(1.4)	18.6	(1.5)	16.0	(1.2)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	14.6	(11.1)	10.1	(7.2)	1.5	(0.3)	1.2	(0.1)	2.7	(0.8)
Weather-related causes (chilling, drowning, lightning, etc.)	6.6	(4.6)	18.2	(12.3)	18.8	(4.5)	8.9	(0.8)	11.3	(1.5)
Theft (stolen)	0.1	(0.1)	0.8	(0.8)	5.6	(2.6)	1.4	(0.1)	2.1	(0.5)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	1.3	(1.0)	0.4	(0.2)	3.6	(0.7)	4.5	(0.4)	3.8	(0.3)
Lambing problems	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other diseases (mastitis, foot rot, boils, etc.)	43.3	(25.2)	4.0	(1.8)	5.5	(0.9)	2.5	(0.3)	5.3	(2.2)
Other nonpredator causes*	6.1	(4.6)	8.4	(2.6)	13.0	(1.7)	33.4	(2.8)	26.3	(2.2)
Unknown nonpredator causes	18.1	(10.5)	23.4	(6.3)	24.2	(2.3)	14.4	(1.1)	17.1	(1.1)
Total	100.0		100.0		100.0		100.0		100.0	

*Other nonpredator causes: being on back, lameness, etc.

c. For the **Central Region**, percentage of lamb death loss by cause and by operation size:

Nonpredator Cause	Percent Nonpredator Loss									
	Size of Operation (Number of Sheep and Lambs)									
	1–24		25–99		100–999		1,000 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	19.1	(3.3)	17.7	(1.8)	19.4	(1.6)	20.5	(1.7)	18.8	(1.1)
Respiratory problems (pneumonia, shipping fever, etc.)	18.0	(3.6)	23.5	(2.0)	33.3	(2.1)	29.8	(1.9)	26.8	(1.3)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	4.5	(1.7)	3.6	(0.6)	3.0	(0.3)	2.6	(0.4)	3.5	(0.4)
Weather-related causes (chilling, drowning, lightning, etc.)	12.2	(3.6)	12.8	(2.0)	10.2	(0.9)	23.9	(3.1)	12.4	(1.1)
Theft (stolen)	0.1	(0.1)	0.0	(0.0)	1.2	(0.3)	0.0	(0.0)	0.5	(0.1)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.9	(0.5)	1.2	(0.4)	0.5	(0.1)	0.3	(0.1)	0.8	(0.2)
Lambing problems	23.1	(5.0)	17.2	(2.2)	11.8	(1.7)	4.9	(0.8)	15.3	(1.5)
Other diseases (mastitis, foot rot, boils, etc.)	0.5	(0.2)	2.3	(0.5)	2.3	(0.3)	2.5	(0.4)	2.0	(0.2)
Other nonpredator causes*	6.6	(1.7)	7.0	(1.7)	8.6	(2.5)	4.6	(1.3)	7.4	(1.2)
Unknown nonpredator causes	15.0	(3.2)	14.7	(2.5)	9.7	(1.0)	10.9	(1.6)	12.5	(1.1)
Total	100.0		100.0		100.0		100.0		100.0	

*Other nonpredator causes: being on back, lameness, etc.

d. For the **Northeast Region**, percentage of lamb death loss by cause and by operation size:

Percent Nonpredator Loss										
Size of Operation (Number of Sheep and Lambs)										
Nonpredator Cause	1–24		25–99		100–999		1,000 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	19.9	(5.4)	13.4	(2.2)	16.4	(1.9)	12.6	(0.7)	15.6	(1.8)
Respiratory problems (pneumonia, shipping fever, etc.)	12.9	(3.0)	23.9	(3.4)	25.4	(2.4)	51.1	(2.7)	22.2	(1.9)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.4	(0.4)	4.1	(1.0)	2.8	(0.7)	0.6	(0.0)	2.9	(0.6)
Weather-related causes (chilling, drowning, lightning, etc.)	8.9	(3.0)	18.4	(5.4)	13.4	(1.6)	1.6	(0.1)	14.8	(2.9)
Theft (stolen)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	1.0	(0.6)	0.3	(0.2)	2.2	(1.0)	0.0	(0.0)	1.0	(0.3)
Lambing problems	13.4	(3.3)	17.3	(3.4)	11.1	(2.0)	9.6	(0.5)	14.7	(1.9)
Other diseases (mastitis, foot rot, boils, etc.)	6.5	(4.1)	2.9	(1.0)	3.5	(1.1)	1.1	(0.1)	3.8	(1.1)
Other nonpredator causes*	16.2	(4.0)	6.7	(1.3)	8.1	(1.4)	0.0	(0.0)	9.1	(1.2)
Unknown nonpredator causes	20.8	(4.2)	13.0	(2.2)	17.1	(3.1)	23.4	(4.0)	15.9	(1.7)
Total	100.0		100.0		100.0		100.0		100.0	

*Other nonpredator causes: being on back, lameness, etc.

e. For the **Southeast/Other Region**, percentage of lamb death loss by cause and by operation size:

Nonpredator Cause	Percent Nonpredator Loss									
	Size of Operation (Number of Sheep and Lambs)									
	1–24		25–99		100–999		1,000 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	10.9	(5.5)	18.8	(7.3)	28.5	(6.2)	62.0	(0.0)	17.3	(4.5)
Respiratory problems (pneumonia, shipping fever, etc.)	4.3	(3.1)	6.7	(2.8)	19.5	(2.5)	0.0	(0.0)	7.7	(2.0)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	7.7	(4.2)	2.6	(1.9)	0.4	(0.3)	0.0	(0.0)	4.5	(1.9)
Weather-related causes (chilling, drowning, lightning, etc.)	23.8	(9.7)	12.9	(4.6)	18.5	(5.7)	30.6	(0.0)	19.0	(4.8)
Theft (stolen)	0.1	(0.0)	0.1	(0.1)	1.5	(0.3)	0.0	(0.0)	0.3	(0.1)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.8	(0.8)	3.9	(2.8)	1.7	(0.9)	0.0	(0.0)	2.1	(1.1)
Lambing problems	31.1	(19.2)	12.0	(3.4)	8.6	(2.1)	7.4	(0.0)	20.1	(9.8)
Other diseases (mastitis, foot rot, boils, etc.)	10.8	(8.0)	20.7	(10.5)	4.1	(2.2)	0.0	(0.0)	13.2	(5.4)
Other nonpredator causes*	3.5	(2.2)	12.1	(6.9)	7.2	(1.8)	0.0	(0.0)	7.2	(3.1)
Unknown nonpredator causes	7.0	(4.1)	10.2	(3.8)	10.0	(3.2)	0.0	(0.0)	8.6	(2.6)
Total	100.0		100.0		100.0		100.0		100.0	

*Other nonpredator causes: being on back, lameness, etc.

Section III: Methodology

A. 1994 Death Loss Study

1. Survey procedures

A random sample of U.S. producers was surveyed by NASS to provide data for these estimates. Survey procedures ensured that all producers (except those in Alaska) had an opportunity to be included in the survey, regardless of operation size. Data were collected from approximately 75,000 cattle and sheep producers during the first half of January by mail, telephone, and face-to-face personal interviews. Large operations were sampled more heavily than small operations. An additional nonprobability survey was also conducted in a few western States. Regardless of when producers responded, they were asked to report death losses for sheep and lambs for the 1994 calendar year. Based on the original data collected during January, a report entitled *Sheep and Goat Predator Loss* was issued April 27, 1995. This report contained data for death loss by cause for predators only and was on a State and regional level. Value of the losses was also included.

2. Estimation procedures

Total sheep and lamb death losses from all causes were published in the Meat Animals: Production, Disposition, and Income 1994 Summary report by NASS released April 13, 1995. In setting the estimates for the report, total predator and nonpredator losses were estimated as a percentage of total losses set previously, and specific predator and nonpredator losses were estimated as a percentage of total predator and nonpredator losses, respectively.

3. Reliability

Since all sheep producers were not included in the sample, survey estimates are subject to sampling variability. Survey results are also subject to nonsampling errors, such as omissions, duplications, and mistakes in reporting, recording, and data processing. The effects of these nonsampling errors cannot be measured directly. They are minimized through rigid quality controls in the data collection process and through a careful review of all reported data for consistency and reasonableness.

B. 1999 Death Loss Study

1. Survey procedures

A random sample of U.S. producers was surveyed by NASS to provide data for these estimates. Survey procedures ensured that all sheep producers, regardless of operation size, had an opportunity to be included in the survey. Large operations were sampled more heavily than small operations. About 13,800 producers were contacted during the first half of January by mail, telephone, and face-to-face personal interviews.

This report contains additional loss data by size of operation (total numbers of sheep and lambs on January 1, 1999). Size groups included 1 to 24 head, 25 to 99 head, 100 to 999 head, and 1,000 or more head.

2. Estimation procedures

Total death losses from all causes for sheep and lambs were as reported in Meat Animals: Production, Disposition, and Income 2000 (released April 27, 2000).

In setting the predator loss estimates, total predator losses were estimated as a percentage of total losses, and specific predator losses were estimated as a percentage of total predator losses. *Sheep and Goats Predator Loss* was published May 5, 2000 by NASS. Nonpredator loss percentages by cause of loss were generated by APHIS based upon analysis of the data collected in January 1999.

3. Revision policy

Revisions to previous estimates of total death losses are made to improve the current estimate. Previous-year estimates are subject to revision when current estimates are made. Estimates for losses from all causes are subject to revision in the following year's Meat Animals: Production, Disposition, and Income.