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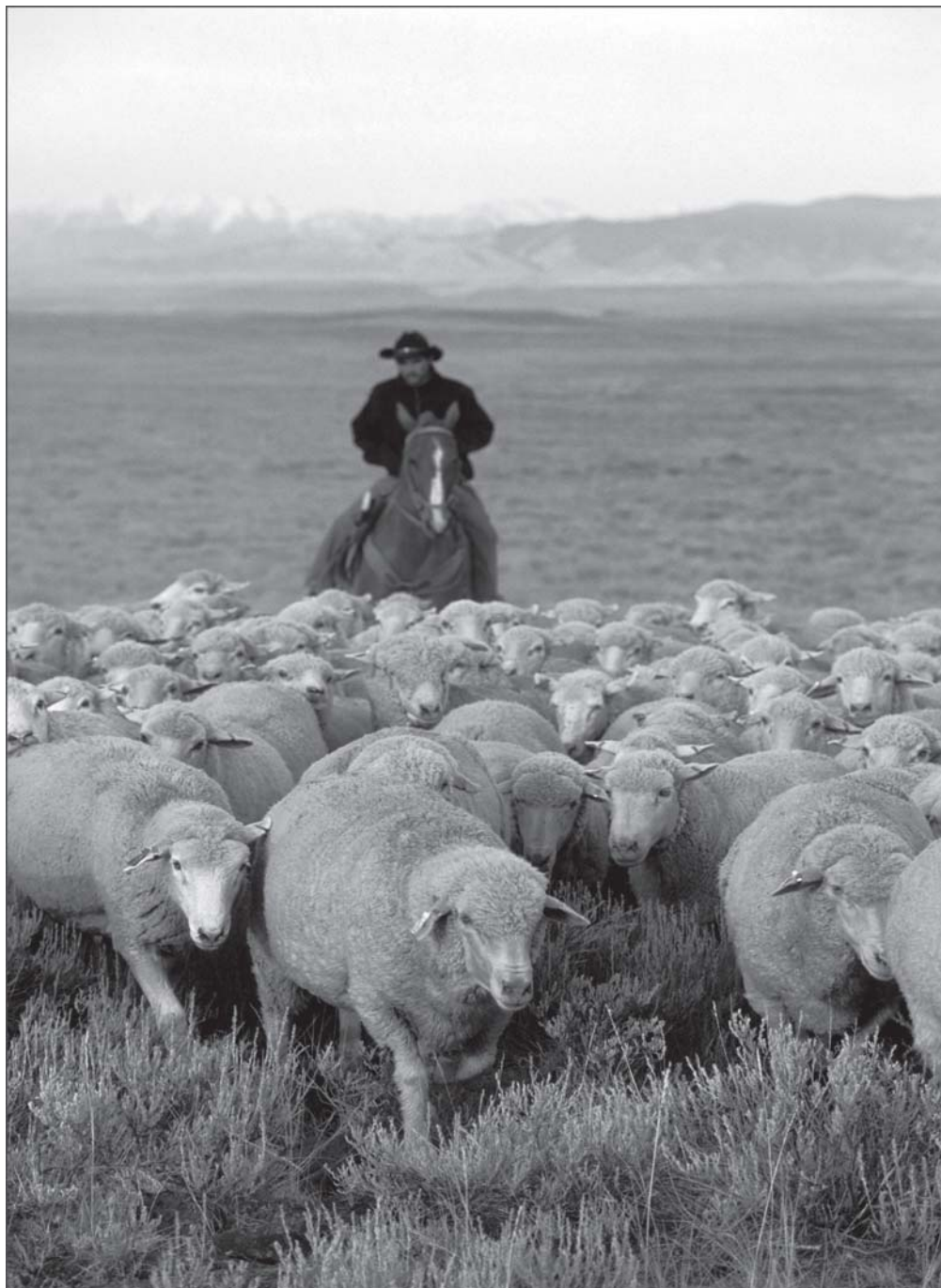
Veterinary
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National
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November 2006



Sheep and Lamb Nonpredator Death Loss in the United States, 2004



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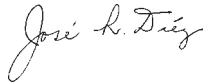
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All participants are to be commended, particularly the producers whose voluntary efforts made this report possible.

A handwritten signature in cursive script that reads "José Díaz".

José Díaz
Acting Director
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Table of Contents

Introduction 1

Terms Used In This Report 2

Section I: Population Estimates—Number of Head 3

A. U.S. Demographics 3

1. Inventory, January 1, 1994 to 2005 3
2. Operations, 1994 to 2004 3
3. Lamb crop—1994 to 2004 5

B. Regional Demographics 6

1. Adult sheep inventory—January 1, 1995, 2000, and 2005 6
2. Lamb crop—1994, 1999, and 2004 7

C. U.S. Annual Death Loss 7

1. Loss from all causes, 1994 to 2004 7
2. U.S. nonpredator and predator death loss—1994, 1999, and 2004 10
3. Regional predator and nonpredator death loss—1994, 1999, and 2004 12

Section II: Population Estimates—Nonpredator Losses 17

A. Nonpredator Sheep Death Loss 17

1. Losses—2004 17
2. Cause of loss—1994, 1999, and 2004 18
3. Cause of loss by size of operation—2004 20
4. Cause of loss by region—2004 22
5. Cause of loss by region and by size of operation—2004 24

B. Nonpredator Lamb Death Loss 29

1. Losses—2004 29
2. Cause of loss—1994, 1999, and 2004 31
3. Cause of loss by size of operation—2004 33
4. Cause of loss by region—2004 35
5. Cause of loss by region and by size of operation—2004 37

Section III: Methodology 42

A. 1994 Death Loss Study 42

1. Survey procedures 42
2. Estimation procedures 42
3. Reliability 42

B. 1999 Death Loss Study 43

1. Survey procedures 43
2. Estimation procedures 43
3. Revision policy 43

C. 2004 Death Loss Study 44

1. Survey procedures 44
2. Estimation procedures 44
3. Revision policy 44

Appendix: Discussion of Pre- and Postdocking Losses 45

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 via the "Sheep and Goats" report. Sheep and lamb death loss (number of head) are published in April via the "Meat Animals Production, Disposition and Income" report. For NASS' January 1995, 2000, and 2005 sheep surveys, USDA's Animal and Plant Health Inspection Service (APHIS) provided funding for a detailed, retrospective breakdown of total sheep and lamb loss by producer-attributed cause of loss occurring during the previous year. Death losses by predator and nonpredator causes were published by NASS for losses in 2004.

This report provides a breakdown of sheep and lamb death loss in 2004 for all causes by size group and region, with special emphasis on nonpredator causes of loss. Where possible, the 1994 and 1999 death losses are provided for comparison. For specific information on predator losses by type, refer to the NASS report "Sheep and Goats Death Loss" released May 6, 2005, <www.nass.usda.gov>.

The methods used in the study can be found at the end of this report.

Further information on NAHMS studies and reports is available online at: <<http://nahms.aphis.usda.gov>>.

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Terms Used In This Report

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

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

Lambs: Animals less than 1 year old.

Lamb losses: For the Central, Northeast, and Southeast/Other 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, marking, or branding. For a discussion of predocking losses, see Appendix.

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

N/A: Not available.

Regions:

Pacific: California, Oregon, Washington

West Central: Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, Texas, Utah, and Wyoming

Central: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, and Wisconsin

Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New York, Ohio, Pennsylvania, Rhode Island*, Virginia, Vermont, and West Virginia

Southeast/Other: Alabama, Alaska, Arkansas, Delaware, Florida, Georgia, Hawaii, Kentucky, Louisiana, Maryland, Mississippi, New Jersey, North Carolina, South Carolina, and Tennessee

*For the 1994 estimates, Rhode Island was included in the Southeast/Other region. In 1999 and 2004, Rhode Island was included in the Northeast region.

Size of Operation: Number of 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 to 2005

a. Number of sheep and lambs by class and by year: *(table revised 3-19-07)*

January 1 Number (1,000 Head)												
Class	Year											
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
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	6,623.0	6,321.0	6,105.0	6,135.0
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	3,939.0	3,773.0	3,609.5	3,572.5
Breeding rams 1 year and older	294.1	257.0	233.8	220.3	202.8	202.5	208.5	202.0	200.5	194.0	188.0	190.0
Market sheep	N/A	96.8	77.4	85.1	90.8	82.5	80.0	79.0	72.6	67.8	65.6	74.1
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	4,352.0	4,212.1	4,034.8	3,863.1	3,836.6

2. Operations, 1994 to 2004

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

Number Operations											
Year											
1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
86,060	79,900	76,600	72,680	71,750	70,000	69,200	68,600	68,150	67,720	67,580	

**"Sheep and Goats" annual January report, NASS

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

Percent Operations											
Year											
Size of Operation (Number of Breeding Sheep)	1994	1995	1996	1997	1998	1999	2000*	2001	2002	2003	2004
1 to 99	89.6	91.2	90.9	91.9	90.8	90.6	91.2	90.8	91.1	91.8	92.2
100 to 499	8.2	6.7	7.0	6.2	6.8	7.3	7.2	7.5	7.3	6.7	6.3
500 to 4,999	2.1	2.0	2.0	1.8	2.3	2.0	1.6	1.6	1.5	1.4	1.4
5,000 or more	0.1	0.1	0.1	0.1	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	100.0	100.0	100.0	100.0

*Does not sum to 100.0 due to rounding

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

Percent Inventory											
Year											
Size of Operation (Number of Breeding Sheep)	1994	1995	1996	1997	1998	1999	2000*	2001	2002	2003	2004
1 to 99	22.3	24.1	25.0	25.7	25.5	25.9	27.9	28.8	30.1	29.9	31.7
100 to 499	22.9	19.9	20.4	20.3	19.2	20.4	22.0	23.8	23.5	23.8	22.0
500 to 4,999	38.4	41.4	40.9	40.0	42.6	39.0	35.2	33.7	32.4	33.1	33.0
5,000 or more	16.4	14.6	13.7	14.0	12.7	14.7	14.8	13.7	14.0	13.2	13.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	99.9	100.0	100.0	100.0	100.0

*Does not sum to 100.0 due to rounding

3. Lamb crop—1994 to 2004

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

	Year										
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
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	4,519.5	4,355.0	4,140.0	4,096.0
Lamb crop per 100 ewes on hand beginning of year (January 1)	102	104	104	109	109	110	110	111	111	110	113



Photo courtesy of ARS

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. 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 loss occurred in the “Other States.”

1. Adult sheep inventory—January 1, 1995, 2000, and 2005

Nationally, the sheep population declined from approximately 5.8 million head on January 1, 1995, to approximately 3.8 million head on January 1, 2005. Regionally, only the Southeast/Other region showed an increase in sheep population from 1995 to 2005. A similar trend occurred in lamb-crop size during the same period (table 2a.)

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	2005	2005 as a percentage of 1995	2005 as a percentage of 2000
Pacific	740.0	506.5	447.2	60.4	88.3
West Central	3,237.0	2,547.0	1,974.0	61.0	77.5
Central	1,258.0	1,032.5	957.8	76.1	92.8
Northeast	400.0	309.5	314.9	78.7	101.7
Southeast/Other	122.4	127.0	142.7	116.6	112.4
Total	5,757.4	4,522.5	3,836.6	66.6	84.8

2. Lamb crop—1994, 1999, and 2004

a. Calendar year lamb crop (and 2004 lamb crop as a percentage of 1999 and 1994 lamb crops), by region: (table revised 3-19-07)

Region	Lamb Crop (1,000 Head)			Percent	
	1994	1999	2004	2004 as a percentage of 1994	2004 as a percentage of 1999
Pacific	695.0	494.0	458.0	65.9	92.7
West Central	3,124.0	2,495.0	1,921.0	61.5	77.0
Central	1,574.0	1,298.0	1,227.0	78.0	94.5
Northeast	470.7	367.0	368.0	78.2	100.3
Southeast/Other	104.5	100.0	122.0	116.7	122.0
Total	5,968.2	4,754.0	4,096.0	68.6	86.2

C. U.S. Annual Death Loss**1. Loss from all causes, 1994 to 2004**

A total of 385,000 lambs and 215,300 sheep were lost due to predator and nonpredator causes in 2004. These totals represent 9.4 and 5.6 percent of lamb crop and sheep inventory, respectively. While the sheep death loss percentage remained relatively stable since 1994, the lamb death loss percentage declined steadily during the same period.

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

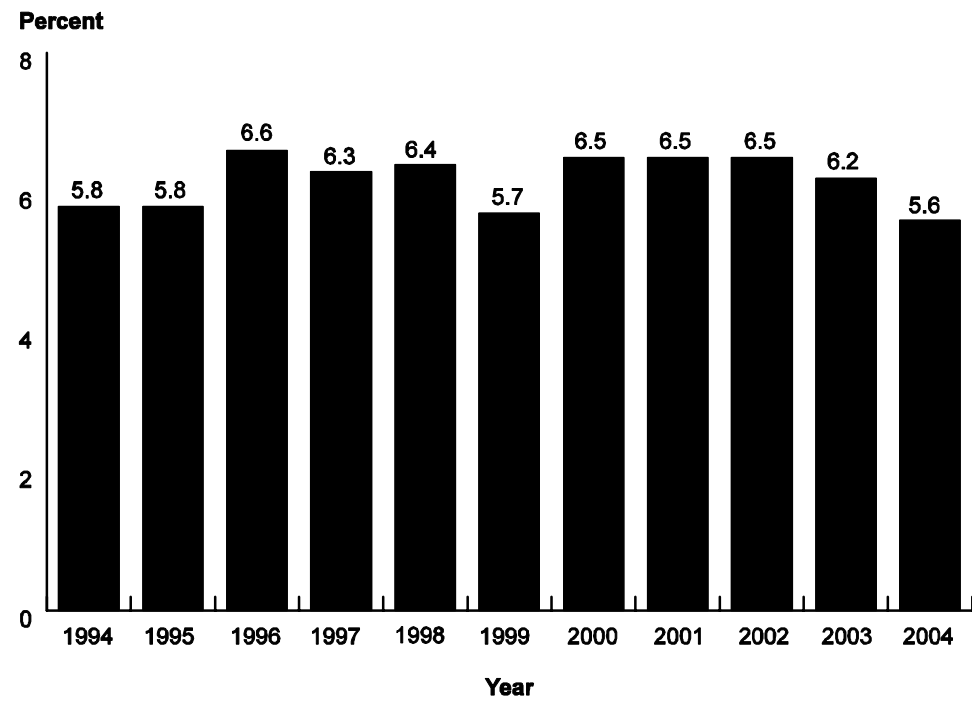
	Number (1,000 Head)										
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Sheep	332.8	314.4	342.6	305.4	297.0	259.8	281.5	274.7	261.7	238.4	215.3
Lamb	614.7	580.4	578.8	542.8	507.1	488.6	490.2	474.8	428.8	393.8	385.0
Total	947.5	894.8	921.4	848.2	804.1	748.4	771.7	749.5	690.5	632.2	600.3

^{*}Meat Animal Production, Disposition, and Income, annual April 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	2001	2002	2003	2004
5.8	5.8	6.6	6.3	6.4	5.7	6.5	6.5	6.5	6.2	5.6

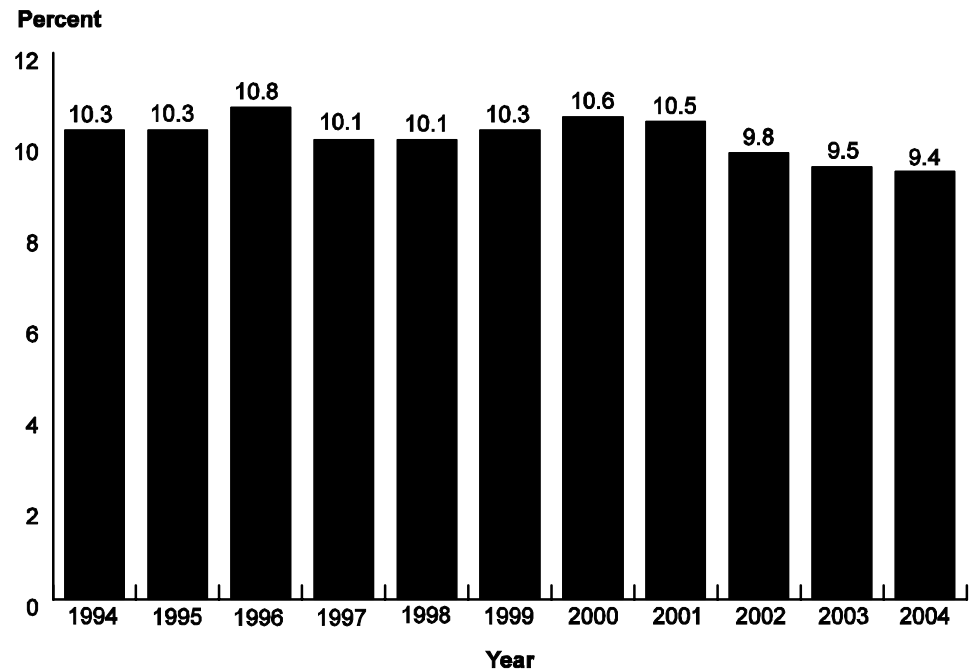
Sheep Death Loss as a Percentage of January 1 Inventory of Adult Sheep Inventory on January 1 of the Following Year, by Year



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

Percent Lamb Crop										
Year										
1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
10.3	10.3	10.8	10.1	10.1	10.3	10.6	10.5	9.8	9.5	9.4

Lamb Death Loss as a Percentage of Lamb Crop, by Year



2. U.S. nonpredator and predator death loss*—1994, 1999, and 2004

Since 1994, nonpredator causes have accounted for the majority of sheep and lamb death loss. In 2004, 62.7 percent of losses were due to nonpredator causes.

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

Cause	Number and Percent Loss					
	Year					
	1994		1999		2004	
	Number	Percent	Number	Percent	Number	Percent
Nonpredator	577,950	61.1	472,700	63.2	376,100	62.7
Predator	368,050	38.9	275,700	36.8	224,200	37.3
Total	946,000	100.0	748,400	100.0	600,300	100.0

*Total sheep and lamb death losses for 1994 have been revised, although the revisions are not shown further in this publication since detailed cause of loss estimates were not similarly adjusted and republished. Sheep losses were revised from 336.6 to 332.8 (thousand head), and lamb losses were revised from 609.4 to 614.7; as a result, total losses were revised from 946.0 to 947.5 thousand head. Total sheep and lamb death losses for 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.

As in 1994 and 1999, a higher percentage of lamb losses (41.0 percent) than sheep losses (30.8 percent) were due to predators in 2004.

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

Cause	Number and Percent Loss					
	Year					
	1994		1999		2004	
	Number	Percent	Number	Percent	Number	Percent
Nonpredator	230,025	68.3	183,400	70.6	148,900	69.2
Predator	106,575	31.7	76,400*	29.4	66,400	30.8
Total	336,600	100.0	259,800	100.0	215,300	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						
Cause	Year					
	1994		1999		2004	
	Number	Percent	Number	Percent	Number	Percent
Nonpredator	347,925	57.1	289,300	59.2	227,200	59.0
Predator	261,475	42.9	199,300*	40.8	157,800	41.0
Total	609,400	100.0	488,600	100.0	385,000	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, 1999, and 2004

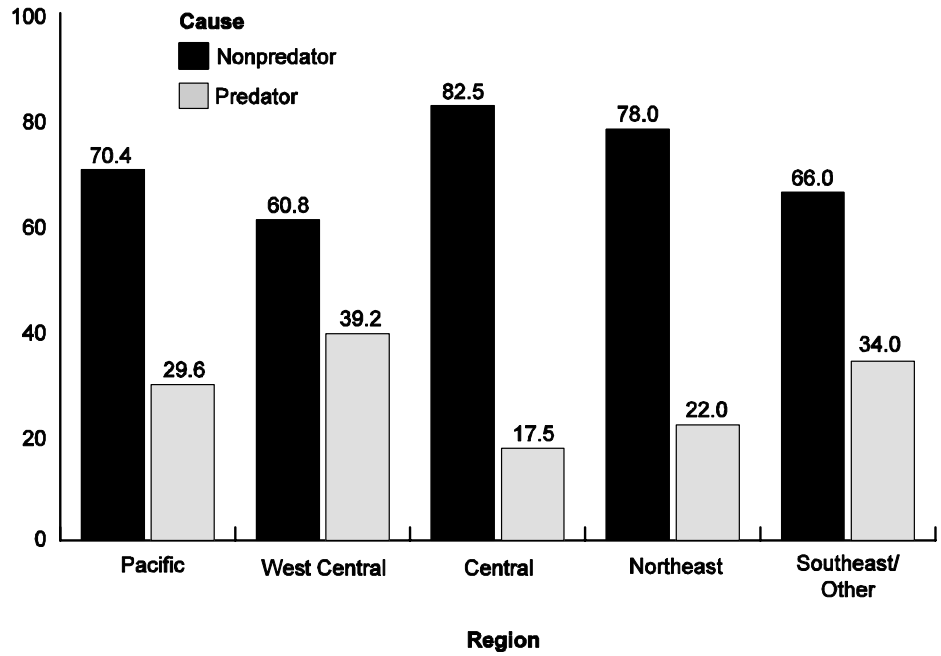
Total sheep losses declined from 1994 to 2004 in every region except the Southeast/Other. This decline probably reflects regional population changes, since the percentage of sheep inventory lost has remained stable (tables B. 1a and C. 1b). In every region, nonpredator losses of sheep were higher than predator losses. For the West Central region in 2004, 41,500 sheep (39.2 percent of all sheep losses) were lost to predators, as compared to the Central region where only 9,300 sheep (17.5 percent of all sheep losses) were lost to predators. Surprisingly, the Southeast/Other region encountered a relatively high percentage of losses due to predators (34.0 percent). Note that for the Pacific and West Central regions, losses that occurred before docking were not included in the estimates; for the other regions, losses before docking were included in the estimates. While difficult to measure accurately, these losses may account for a substantial portion of total losses. For discussion of predocking losses, see Appendix.

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

Number and Percent Loss							
		Year					
		1994		1999		2004	
Region	Cause	Number	Percent	Number	Percent	Number	Percent
Pacific	Nonpredator	25,625	64.1	17,700	61.0	18,300	70.4
	Predator	14,375	35.9	11,300	39.0	7,700	29.6
	Total	40,000	100.0	29,000	100.0	26,000	100.0
West Central	Nonpredator	116,325	62.2	87,500	66.8	64,500	60.8
	Predator	70,675	37.8	43,500	33.2	41,500	39.2
	Total	187,000	100.0	131,000	100.0	106,000	100.0
Central	Nonpredator	59,800	83.2	54,900	81.9	43,700	82.5
	Predator	12,100	16.8	12,100	18.1	9,300	17.5
	Total	71,900	100.0	67,000	100.0	53,000	100.0
Northeast	Nonpredator	21,875	76.1	15,900	80.3	15,600	78.0
	Predator	6,875	23.9	3,900	19.7	4,400	22.0
	Total	28,750	100.0	19,800	100.0	20,000	100.0
Southeast/ Other	Nonpredator	6,400	71.5	7,400	56.9	6,800	66.0
	Predator	2,550	28.5	5,600	43.1	3,500	34.0
	Total	8,950	100.0	13,000	100.0	10,300	100.0

Percentage of 2004 Sheep Death Loss by Cause and by Region

Percent

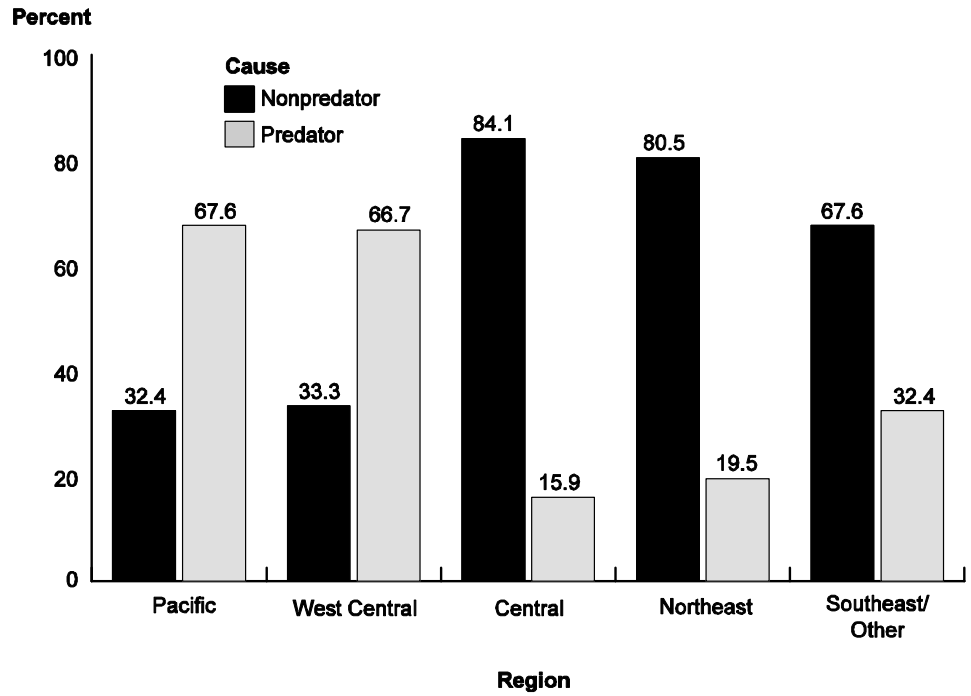


In the Pacific and West Central regions, the percentage of loss due to predators was higher for lambs (67.6 and 66.7 percent, respectively) than for sheep (29.6 and 39.2 percent, respectively) (table 3. a). The percentages of predator and nonpredator sheep losses in these regions (approximately one-third predator and two-thirds nonpredator) are nearly reversed for lamb losses (approximately two-thirds predator and one-third nonpredator). The highest percentage of lamb loss due to nonpredator causes occurred in the Central and Northeast regions (84.1 and 80.5 percent, respectively).

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

Number and Percent Loss							
		Year					
		1994		1999		2004	
Region	Cause	Number	Percent	Number	Percent	Number	Percent
Pacific	Nonpredator	18,825	39.2	11,200	37.3	6,800	32.4
	Predator	29,175	60.8	18,800	62.7	14,200	67.6
	Total	48,000	100.0	30,000	100.0	21,000	100.0
West Central	Nonpredator	108,525	36.9	97,300	42.1	53,000	33.3
	Predator	185,475	63.1	133,700	57.9	106,000	66.7
	Total	294,000	100.0	231,000	100.0	159,000	100.0
Central	Nonpredator	156,175	83.7	132,700	81.2	117,300	84.1
	Predator	30,525	16.3	30,800	18.8	22,200	15.9
	Total	186,700	100.0	163,500	100.0	139,500	100.0
Northeast	Nonpredator	50,000	81.9	35,700	81.0	36,300	80.5
	Predator	11,050	18.1	8,400	19.0	8,800	19.5
	Total	61,050	100.0	44,100	100.0	45,100	100.0
Southeast/ Other	Nonpredator	14,400	73.3	12,400	62.0	13,800	67.6
	Predator	5,250	26.7	7,600	38.0	6,600	32.4
	Total	19,650	100.0	20,000	100.0	20,400	100.0

Percentage of 2004 Lamb Death Loss by Cause and by Region



Section II: Population Estimates—Nonpredator Losses

A. Nonpredator Sheep Death Loss

1. Losses—2004

Nonpredator sheep death loss accounted for 3.9 percent of adult sheep inventory losses. Overall, the percentage of loss was slightly higher on operations with fewer than 100 sheep and lambs compared to operations with 100 or more sheep and lambs.

a. Sheep death loss as a percentage of adult sheep inventory on January 1, 2000, by size of operation 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	5.9	(1.0)	5.0	(1.1)	4.0	(0.4)	3.3	(0.3)	4.0	(0.3)
West Central	5.9	(1.1)	7.1	(1.6)	3.0	(0.1)	2.0	(0.1)	2.8	(0.2)
Central	6.3	(0.8)	4.8	(0.3)	4.1	(0.1)	4.2	(0.3)	4.6	(0.1)
Northeast	4.1	(0.7)	4.2	(0.6)	4.6	(0.3)	1.8	(0.3)	4.2	(0.8)
Southeast/ Other	7.2	(1.7)	3.4	(0.5)	4.2	(0.2)	9.0	(0.0)	5.1	(0.5)
All operations	5.7	(0.4)	5.0	(0.4)	3.6	(0.1)	2.4	(0.1)	3.9**	

*2004 nonpredator death loss divided by the following January 1, 2005, inventory of ewes and rams for breeding 1 year or older, and market sheep.

**No standard error available.

2. Cause of loss—1994, 1999, and 2004*

“Other” nonpredator causes of loss (such as old age, lameness, and being on back) accounted for more losses than any other category in 1994 and 1999 (34.7 percent and 34.0 percent of losses, respectively). In 2004, old age and being on back were removed from the “other” category. In 2004, old age accounted for more sheep losses than any other cause (26.8 percent of losses). Theft and weather-related causes were lower in 2004 than in 1994. The percentage of loss due to unknown causes appears to be decreasing, which is good news for producers and veterinarians alike.

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

Nonpredator Cause	Percent Nonpredator Loss		
	1994	1999	2004
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	9.3	11.6	12.9
Respiratory problems (pneumonia, shipping fever, etc.)	6.9	8.5	9.4
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	3.6	3.2	3.7
Weather-related causes (chilling, drowning, lightning, etc.)	8.4	6.7	3.9
Theft (stolen)	2.0	0.8	0.5
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	5.3	4.0	3.9
Lambing problems	9.9	11.3	13.4
Old age	N/A	N/A	26.8
Being on back	N/A	N/A	2.0
Other diseases (mastitis, footrot, boils, etc.)	N/A	5.6	6.6
Other**	34.7	34.0	4.8
Unknown	19.9	14.3	12.1
Total	100.0	100.0	100.0

*See Section III: Methodology.

**Lameness, etc. (Includes old age and being on back in 1994 and 1999).

The percentage of inventory lost due to all nonpredator causes remained relatively constant from 1994 to 2004, at slightly less than 4 percent. The percentage lost due to digestive, respiratory, and lambing problems increased. Losses due to “other” causes declined in 2004, primarily due to removing “old age” and “being on back” from that category.

b. Percentage of January 1 following-year adult sheep inventory lost, by cause and by year:

Percent Inventory			
Nonpredator Cause	1994	1999	2004
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	0.37	0.43	0.50
Respiratory problems (pneumonia, shipping fever, etc.)	0.27	0.31	0.36
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.14	0.12	0.14
Weather-related causes (chilling, drowning, lightning, etc.)	0.34	0.25	0.15
Theft (stolen)	0.08	0.03	0.02
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.21	0.15	0.15
Lambing problems	0.39	0.42	0.52
Old age	N/A	N/A	1.04
Being on back	N/A	N/A	0.08
Other diseases (mastitis, footrot, boils, etc.)	N/A	0.21	0.26
Other**	1.39	1.26	0.19
Unknown	0.79	0.53	0.47
All nonpredator causes	3.99	3.70	3.88

* See Section III: Methodology.

**Lameness, etc. (Includes old age and being on back in 1994 and 1999).

3. Cause of loss by size of operation—2004

While the percentages of nonpredator losses were similar across all operation sizes for most causes of loss, operations with 1,000 or more sheep and lambs reported a higher percentage of loss due to poisoning (8.0 percent) and a lower percentage of loss due to old age (17.4 percent) compared to the other operation sizes.

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

Percent Nonpredator Loss								
Size of Operation (Number of Sheep and Lambs)								
Nonpredator Cause	1-24		25-99		100-999		1,000 or More	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	10.6	(2.1)	14.7	(3.4)	16.8	(1.9)	9.7	(1.3)
Respiratory problems (pneumonia, shipping fever, etc.)	7.2	(2.3)	7.0	(1.3)	10.0	(0.9)	10.5	(1.2)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	1.9	(0.6)	2.7	(0.8)	3.5	(0.3)	4.7	(1.0)
Weather-related causes (chilling, drowning, lightning, etc.)	2.7	(0.9)	3.0	(0.8)	4.8	(1.3)	3.3	(0.4)
Theft (stolen)	0.0	(0.0)	0.0	(0.0)	0.3	(0.2)	0.8	(0.2)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	2.4	(0.9)	1.1	(0.3)	2.3	(0.3)	8.0	(0.9)
Lambing problems	13.3	(1.9)	15.2	(2.1)	10.9	(0.8)	13.8	(1.3)
Old age	34.0	(3.2)	30.0	(3.3)	29.8	(1.2)	17.4	(1.3)
Being on back	0.7	(0.3)	1.2	(0.4)	1.9	(0.2)	2.8	(0.2)
Other diseases (mastitis, footrot, boils, etc.)	5.9	(1.7)	6.9	(3.3)	5.1	(0.4)	8.1	(1.4)
Other *	4.5	(1.1)	7.3	(2.0)	4.6	(0.7)	4.6	(0.6)
Unknown	16.8	(3.0)	10.9	(1.5)	10.0	(0.7)	16.3	(1.2)
Total	100.0		100.0		100.0		100.0	

*Lameness, etc.

Operations with 1,000 or more sheep and lambs lost a lower percentage of inventory due to digestive causes (0.2 percent) compared to operations with 1 to 24, 25 to 99, and 100 to 999 sheep and lambs (0.60 percent, 0.74 percent, and 0.61 percent, respectively). Old age accounted for the highest percentage of loss on all operations. However, on operations with 1,000 head, the percentage of loss due to old age (0.42 percent of inventory) was similar to the percentage of loss due to unknown causes or lambing problems (0.39 percent and 0.33 percent, respectively).

b. Percentage of January 1 following-year adult sheep inventory lost, by cause and by size of operation:

Nonpredator Cause	Percent Inventory							
	Size of Operation (Number of Sheep and Lambs)							
	1-24		25-99		100-999		1,000 or More	
	Std. Error	Std. Error	Std. Error	Std. Error	Std. Error	Std. Error	Std. Error	
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	0.60	(0.13)	0.74	(0.21)	0.61	(0.08)	0.23	(0.03)
Respiratory problems (pneumonia, shipping fever, etc.)	0.41	(0.14)	0.35	(0.06)	0.36	(0.03)	0.25	(0.03)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.11	(0.03)	0.14	(0.04)	0.13	(0.01)	0.11	(0.03)
Weather-related causes (chilling, drowning, lightning, etc.)	0.15	(0.05)	0.15	(0.04)	0.17	(0.05)	0.08	(0.01)
Theft (stolen)	0.00	(0.00)	0.00	(0.00)	0.01	(0.01)	0.02	(0.00)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.14	(0.05)	0.05	(0.01)	0.08	(0.01)	0.19	(0.02)
Lambing problems	0.75	(0.11)	0.77	(0.09)	0.40	(0.03)	0.33	(0.04)
Old age	1.92	(0.22)	1.51	(0.14)	1.08	(0.05)	0.42	(0.03)
Being on back	0.04	(0.02)	0.06	(0.02)	0.07	(0.01)	0.07	(0.01)
Other diseases (mastitis, footrot, boils, etc.)	0.34	(0.10)	0.35	(0.19)	0.18	(0.02)	0.20	(0.04)
Other *	0.25	(0.06)	0.37	(0.10)	0.17	(0.03)	0.11	(0.02)
Unknown	0.95	(0.19)	0.55	(0.07)	0.36	(0.03)	0.39	(0.02)
All nonpredator causes	5.66	(0.43)	5.04	(0.40)	3.62	(0.10)	2.40	(0.10)

*Lameness, etc.

4. Cause of loss by region—2004

The percentage of losses due to old age ranged from 18.7 percent of losses in the Southeast/Other region to 31.9 percent in the Pacific region. Losses due to unknown causes ranged from 8.6 percent of losses in the Pacific region to 30.3 percent in the Southeast/Other region.

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

Nonpredator Cause	Percent Nonpredator Loss									
	Region									
	Pacific		West Central		Central		Northeast		Southeast/Other	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	9.9	(3.1)	15.6	(2.3)	11.7	(0.9)	10.7	(1.4)	21.2	(9.4)
Respiratory problems (pneumonia, shipping fever, etc.)	11.7	(2.4)	6.4	(1.1)	12.2	(1.1)	6.7	(1.2)	5.1	(2.1)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	2.7	(0.6)	3.7	(0.8)	3.5	(0.6)	3.7	(1.0)	1.4	(0.6)
Weather-related causes (chilling, drowning, lightning, etc.)	2.4	(1.4)	3.4	(0.4)	4.5	(1.3)	3.5	(0.9)	2.0	(0.7)
Theft (stolen)	0.3	(0.1)	0.5	(0.1)	0.2	(0.1)	0.0	(0.0)	0.7	(0.5)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	3.4	(1.4)	6.0	(0.6)	1.5	(0.3)	2.3	(1.0)	0.3	(0.2)
Lambing problems	7.4	(1.4)	12.8	(1.4)	15.2	(1.0)	17.0	(2.1)	11.6	(5.3)
Old age	31.9	(4.0)	22.6	(1.7)	30.8	(1.4)	31.0	(2.9)	18.7	(4.2)
Being on back	1.7	(0.3)	2.5	(0.3)	1.1	(0.1)	2.0	(0.5)	0.3	(0.1)
Other diseases (mastitis, footrot, boils, etc.)	8.3	(2.8)	8.6	(2.2)	4.1	(0.5)	5.7	(2.2)	3.4	(1.0)
Other *	11.7	(3.8)	4.3	(0.6)	4.0	(0.5)	4.6	(1.0)	5.0	(1.2)
Unknown	8.6	(1.7)	13.6	(1.1)	11.2	(1.2)	12.8	(1.6)	30.3	(6.7)
Total	100.0		100.0		100.0		100.0		100.0	

*Lameness, etc.

The percentage of sheep inventory lost to unknown nonpredator causes ranged from 1.54 percent in the Southeast/Other region to 0.34 percent in the Pacific region. A higher percentage of adult sheep inventory was lost to nonpredator causes in the Southeast/Other region than in the West Central region (5.08 percent and 2.77 percent, respectively).

b. Percentage of January 1 following-year adult sheep inventory lost, by cause and by region:

Nonpredator Cause	Percent Inventory									
	Region									
	Pacific		West Central		Central		Northeast		Southeast/Other	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	0.39	(0.12)	0.43	(0.08)	0.54	(0.04)	0.45	(0.07)	1.08	(0.46)
Respiratory problems (pneumonia, shipping fever, etc.)	0.47	(0.10)	0.18	(0.03)	0.56	(0.05)	0.28	(0.06)	0.26	(0.11)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.11	(0.02)	0.10	(0.02)	0.16	(0.03)	0.16	(0.04)	0.07	(0.03)
Weather-related causes (chilling, drowning, lightning, etc.)	0.10	(0.05)	0.09	(0.01)	0.20	(0.06)	0.15	(0.04)	0.10	(0.03)
Theft (stolen)	0.01	(0.00)	0.01	(0.00)	0.01	(0.01)	0.00	(0.00)	0.04	(0.03)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.13	(0.06)	0.17	(0.01)	0.07	(0.01)	0.10	(0.04)	0.02	(0.01)
Lambing problems	0.30	(0.06)	0.36	(0.04)	0.70	(0.05)	0.71	(0.10)	0.59	(0.27)
Old age	1.27	(0.18)	0.63	(0.04)	1.42	(0.07)	1.30	(0.16)	0.95	(0.22)
Being on back	0.07	(0.01)	0.07	(0.01)	0.05	(0.01)	0.08	(0.02)	0.01	(0.01)
Other diseases (mastitis, footrot, boils, etc.)	0.33	(0.12)	0.24	(0.07)	0.19	(0.02)	0.24	(0.10)	0.17	(0.05)
Other*	0.46	(0.16)	0.12	(0.02)	0.19	(0.02)	0.19	(0.04)	0.25	(0.06)
Unknown	0.34	(0.07)	0.38	(0.02)	0.52	(0.06)	0.53	(0.08)	1.54	(0.43)
All nonpredator causes	3.98	(0.26)	2.77	(0.16)	4.61	(0.14)	4.19	(0.32)	5.08	(0.46)

*Lameness, etc.

5. Cause of loss by region and by size of operation—2004

In the Pacific region, old age accounted for a higher percentage of sheep death loss than any other reported cause of loss.

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

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.)	14.0	(9.6)	3.1	(1.4)	7.3	(2.3)	12.1	(5.1)	9.9	(3.1)
Respiratory problems (pneumonia, shipping fever, etc.)	6.7	(3.8)	1.0	(0.5)	9.3	(1.9)	18.5	(4.1)	11.7	(2.3)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.8	(0.7)	3.8	(2.2)	6.3	(1.6)	1.7	(0.5)	2.7	(0.6)
Weather-related causes (chilling, drowning, lightning, etc.)	0.0	(0.0)	7.9	(6.8)	0.9	(0.2)	1.6	(0.7)	2.4	(1.4)
Theft (stolen)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.5	(0.2)	0.3	(0.1)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	1.6	(1.6)	0.5	(0.3)	0.9	(0.4)	5.9	(2.9)	3.4	(1.4)
Lambing problems	8.6	(3.2)	8.0	(3.3)	9.1	(1.3)	6.3	(2.5)	7.4	(1.4)
Old age	30.4	(7.1)	41.0	(14.4)	36.4	(4.3)	27.2	(4.8)	31.9	(4.0)
Being on back	0.1	(0.1)	0.4	(0.2)	2.4	(0.5)	2.5	(0.6)	1.7	(0.3)
Other diseases (mastitis, footrot, boils, etc.)	2.4	(2.4)	2.8	(1.5)	3.2	(0.7)	14.2	(5.6)	8.3	(2.8)
Other*	10.8	(5.2)	23.5	(14.9)	15.1	(7.8)	6.1	(2.3)	11.7	(3.8)
Unknown	24.6	(7.5)	8.0	(3.3)	9.1	(1.6)	3.4	(1.1)	8.6	(1.7)
Total	100.0		100.0		100.0		100.0		100.0	

*Lameness, etc.

In the West Central region, old age accounted for a higher percentage of nonpredator losses on operations with 1 to 24 sheep and lambs than on operations with 1,000 or more sheep and lambs (38.0 percent and 14.2 percent, respectively).

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

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.)	10.2	(4.7)	27.9	(8.3)	18.6	(2.2)	8.9	(0.7)	15.6	(2.3)
Respiratory problems (pneumonia, shipping fever, etc.)	18.0	(10.8)	2.2	(1.0)	6.6	(1.7)	6.3	(0.5)	6.4	(1.1)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	2.7	(1.7)	0.9	(0.5)	2.7	(0.5)	5.8	(1.5)	3.7	(0.8)
Weather-related causes (chilling, drowning, lightning, etc.)	3.8	(2.7)	1.1	(0.5)	4.4	(0.9)	3.8	(0.5)	3.4	(0.4)
Theft (stolen)	0.0	(0.0)	0.1	(0.1)	0.2	(0.1)	0.9	(0.3)	0.5	(0.1)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	3.2	(2.6)	1.6	(0.7)	3.5	(0.4)	10.3	(1.0)	6.0	(0.6)
Lambing problems	11.7	(6.8)	10.7	(4.7)	7.1	(0.6)	17.9	(1.7)	12.8	(1.4)
Old age	38.0	(9.3)	20.7	(6.6)	32.3	(1.8)	14.2	(0.9)	22.6	(1.7)
Being on back	0.9	(0.4)	2.3	(1.4)	2.3	(0.2)	2.9	(0.3)	2.5	(0.3)
Other diseases (mastitis, footrot, boils, etc.)	5.6	(2.5)	16.9	(8.9)	7.3	(0.9)	6.2	(0.5)	8.6	(2.2)
Other*	0.7	(0.4)	6.6	(2.8)	3.7	(0.8)	4.3	(0.5)	4.3	(0.6)
Unknown	5.2	(2.0)	9.0	(3.0)	11.3	(1.4)	18.5	(1.5)	13.6	(1.1)
Total	100.0		100.0		100.0		100.0		100.0	

*Lameness, etc.

In the Central region, the percentage of sheep death losses due to respiratory problems was lower on operations with 1 to 24 sheep and lambs (3.3 percent) than on operations with 25 to 99, 100 to 999, and 1,000 or more sheep and lambs (12.0 percent, 14.5 percent, and 20.5 percent, respectively). Sheep death loss due to old age was higher than any other cause of loss for all operations with fewer than 1,000 head. On operations with 1,000 or more head, respiratory problems and old age accounted for the highest percentages of nonpredator losses (20.5 percent and 19.5 percent, respectively).

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

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. Pct.	Std. Pct.	Std. Pct.	Std. Pct.	Std. Pct.	Std. Pct.	Std. Pct.	Std. Pct.	Std. Pct.
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	12.9	(3.3)	9.4	(1.5)	13.2	(1.1)	11.1	(1.3)	11.7	(0.9)
Respiratory problems (pneumonia, shipping fever, etc.)	3.3	(1.0)	12.0	(2.5)	14.5	(1.3)	20.5	(3.3)	12.2	(1.1)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	1.8	(1.0)	3.2	(1.6)	3.9	(0.6)	6.2	(1.4)	3.5	(0.6)
Weather-related causes (chilling, drowning, lightning, etc.)	4.5	(2.0)	2.3	(0.6)	6.1	(3.0)	4.6	(0.6)	4.5	(1.3)
Theft (stolen)	0.0	(0.0)	0.0	(0.0)	0.3	(0.3)	0.7	(0.3)	0.2	(0.1)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	1.8	(1.1)	1.3	(0.5)	1.5	(0.3)	1.4	(0.4)	1.5	(0.3)
Lambing problems	17.9	(3.1)	16.4	(1.8)	14.0	(1.5)	11.0	(1.1)	15.2	(1.0)
Old age	32.8	(4.5)	33.9	(2.8)	29.9	(1.7)	19.5	(2.0)	30.8	(1.4)
Being on back	0.4	(0.3)	0.9	(0.3)	1.1	(0.2)	3.5	(0.5)	1.1	(0.1)
Other diseases	4.9	(1.8)	3.1	(0.8)	3.7	(0.4)	7.7	(1.0)	4.1	(0.5)
Other*	4.3	(1.4)	5.2	(1.1)	3.1	(0.5)	3.6	(1.1)	4.0	(0.5)
Unknown	15.4	(3.9)	12.3	(2.5)	8.7	(1.0)	10.2	(1.7)	11.2	(1.2)
Total	100.0		100.0		100.0		100.0		100.0	

*Lameness, etc.

In the Northeast region, only 3.1 percent of losses on operations with 1,000 or more sheep and lambs was due to old age, compared to 23.1 percent, 32.0 percent, and 37.9 percent of losses for operations with 100 to 999, 25 to 99, and 1 to 24 sheep and lambs, respectively).

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

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.)	5.7	(2.2)	11.2	(2.6)	14.5	(1.9)	28.4	(5.8)	10.7	(1.4)
Respiratory problems (pneumonia, shipping fever, etc.)	4.6	(2.0)	7.1	(2.3)	8.3	(1.5)	10.9	(4.6)	6.7	(1.2)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	2.2	(1.1)	4.8	(2.0)	3.8	(1.0)	2.6	(0.8)	3.7	(0.9)
Weather-related causes (chilling, drowning, lightning, etc.)	0.5	(0.5)	4.9	(1.7)	4.5	(1.5)	1.8	(1.0)	3.5	(0.9)
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.)	4.8	(2.8)	0.4	(0.3)	2.7	(2.0)	0.0	(0.0)	2.3	(1.0)
Lambing problems	14.0	(3.1)	18.8	(3.6)	17.7	(3.7)	8.1	(2.7)	17.0	(2.1)
Old age	37.9	(7.0)	32.0	(4.2)	23.1	(2.6)	3.1	(0.6)	31.0	(2.9)
Being on back	1.9	(1.4)	0.5	(0.2)	4.0	(1.1)	10.2	(1.6)	2.0	(0.5)
Other diseases (mastitis, footrot, boils, etc.)	12.5	(6.6)	2.4	(1.2)	3.7	(0.8)	2.0	(0.8)	5.7	(2.2)
Other*	3.8	(2.1)	4.2	(1.6)	5.1	(1.4)	29.0	(7.2)	4.6	(1.0)
Unknown	12.1	(3.6)	13.7	(2.6)	12.6	(2.1)	3.9	(0.7)	12.8	(1.6)
Total	100.0		100.0		100.0		100.0		100.0	

*Lameness, etc.

In the Southeast/Other region, the percentage of losses due to digestive causes ranged from 7.8 percent on operations with 1 to 24 sheep and lambs to 52.0 percent on operations with 100 to 999 sheep and lambs. The percentage of losses due to unknown causes tended to decrease as operation size increased, although the differences were not statistically significant.

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

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.)	7.8	(3.3)	17.3	(5.4)	52.0	(19.8)			21.2	(9.4)
Respiratory problems (pneumonia, shipping fever, etc.)	8.2	(5.6)	6.0	(2.4)	3.2	(1.5)			5.1	(2.1)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	2.2	(1.6)	0.9	(0.3)	1.5	(0.7)			1.4	(0.6)
Weather-related causes (chilling, drowning, lightning, etc.)	2.6	(1.6)	2.1	(1.2)	2.5	(1.2)			2.0	(0.7)
Theft (stolen)	0.4	(0.4)	0.0	(0.0)	2.1	(2.0)			0.7	(0.5)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.0	(0.0)	0.0	(0.0)	1.3	(0.8)			0.3	(0.2)
Lambing problems	6.5	(3.0)	35.7	(16.4)	4.9	(2.1)			11.6	(5.3)
Old age	29.4	(9.9)	21.9	(7.5)	12.1	(5.2)			18.7	(4.2)
Being on back	0.0	(--)	0.7	(0.5)	0.4	(0.2)			0.3	(0.1)
Other diseases (mastitis, footrot, boils, etc.)	2.6	(2.3)	3.0	(1.2)	5.2	(2.2)			3.4	(0.9)
Other**	4.0	(2.4)	5.8	(2.0)	8.3	(3.7)			5.0	(1.2)
Unknown	36.3	(14.6)	6.6	(2.2)	6.5	(3.1)			30.3	(6.7)
Total	100.0		100.0		100.0				100.0	

*Too few operations to report.

**Lameness, etc.

B. Nonpredator Lamb Death Loss

1. Losses—2004

This section addresses postdocking losses only in the Pacific and West Central regions. Due to the way sheep are managed in these regions, predocking losses are difficult for producers to quantify accurately. However, a substantial amount of loss likely occurs before docking. For a discussion of predocking losses, see Appendix.

Operations with 1 to 24 sheep and lambs lost the highest percentage of lamb crop (10.9 percent) due to nonpredator causes than any other operation size. Overall, as the size of operation increased the percentage of lamb crop lost decreased. The Pacific and West Central regions lost a significantly lower percentage of lamb crop (1.4 percent and 2.4 percent, respectively) than the Central, Northeast, and Southeast/Other regions (9.5 percent, 9.8 percent, and 10.5 percent, respectively). However, loss estimates for the Pacific and West Central regions were made after tail-docking, while estimates for the Central, Northeast, and Southeast regions were made from birth, which may explain the difference.

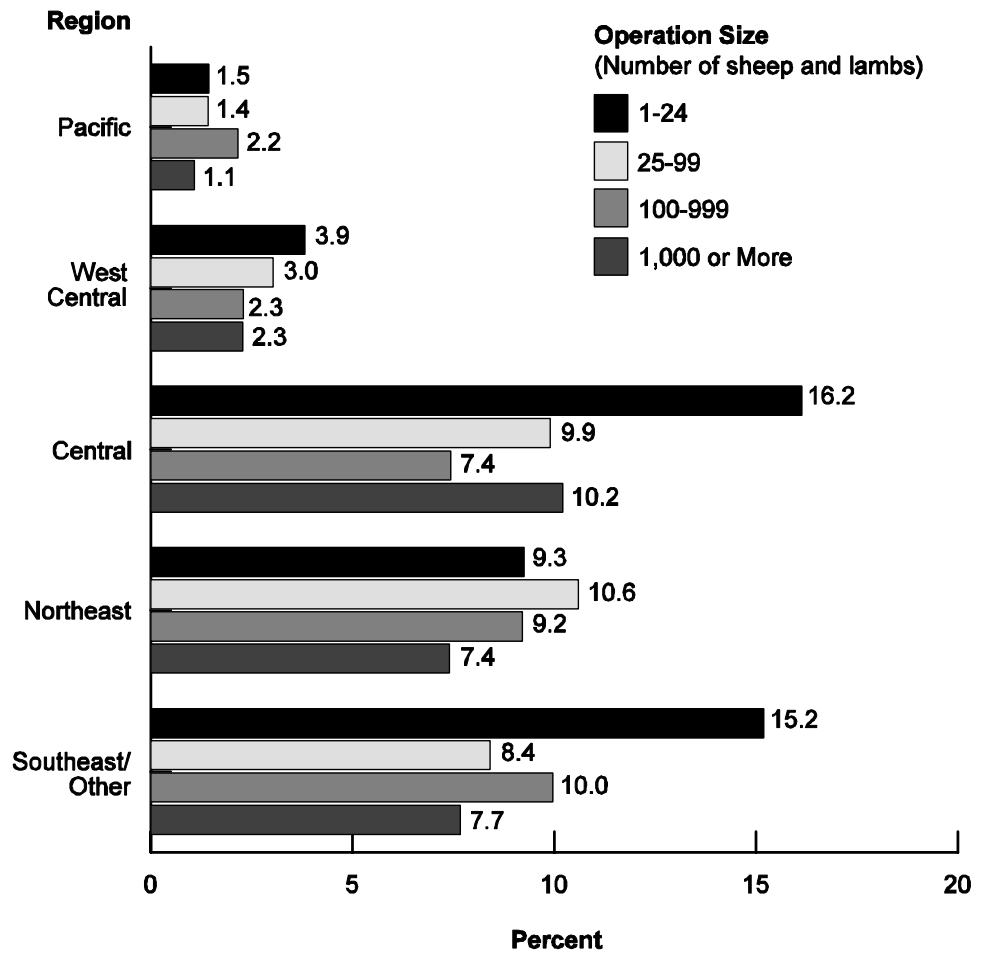
a. Percentage of lamb crop lost*, by size of operation and by region:

Percent Lamb Crop										
Size of Operation (Number of Sheep and Lambs)										
Region	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	1.5	(0.4)	1.4	(0.42)	2.2	(0.1)	1.1	(0.1)	1.4	(0.1)
West Central	3.9	(1.0)	3.0	(0.4)	2.3	(0.1)	2.3	(0.1)	2.4	(0.1)
Central	16.2	(1.6)	9.9	(0.6)	7.4	(0.2)	10.2	(0.1)	9.5	(0.3)
Northeast	9.3	(1.2)	10.6	(1.7)	9.2	(0.8)	7.4	(0.8)	9.8	(0.8)
Southeast/ Other	15.2	(1.6)	8.4	(2.3)	10.0	(1.4)	7.7	(0.0)	10.5	(1.1)
All operations	10.9	(0.8)	8.2	(0.5)	5.4	(0.2)	2.7	(0.1)	5.5**	

*2004 nonpredator lamb death loss divided by 1999 lamb crop x 100. Includes postdocking lamb losses only in the Pacific and West Central regions.

**No standard error available.

Percentage of Lamb Crop Lost by Operation Size and by Region



2. Cause of loss—1994, 1999, and 2004*

From 1994 to 2004, the causes of lamb crop losses remained fairly consistent. Digestive and respiratory losses represented the highest percentages of loss in 1994, 1999, and 2004.

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

	Percent Nonpredator Loss		
	1994	1999	2004
Nonpredator Cause	Percent	Percent	Percent
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	19.3	17.4	19.8
Respiratory problems (pneumonia, shipping fever, etc.)	19.4	21.9	22.8
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	3.9	3.2	2.8
Weather-related causes (chilling, drowning, lightning, etc.)	16.9	12.8	14.8
Theft (stolen)	1.8	0.9	0.7
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	2.5	1.8	2.0
Lambing problems**	10.5	10.4	14.7
Other diseases (mastitis, footrot, boils, etc.)	N/A	3.8	3.3
Other***	8.2	13.1	5.8
Unknown	17.5	14.7	13.3
Total	100.0	100.0	100.0

* See Section III: Methodology

**Does not include Pacific and West Central regions.

***Being on back, lameness, etc.

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

	Percent Lamb Crop		
	1994	1999	2004
Nonpredator Cause	Percent	Percent	Percent
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	1.12	0.97	1.10
Respiratory problems (pneumonia, shipping fever, etc.)	1.13	1.21	1.26
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.23	0.18	0.15
Weather-related causes (chilling, drowning, lightning, etc.)	0.98	0.71	0.82
Theft (stolen)	0.11	0.05	0.04
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.15	0.10	0.11
Lambing problems**	0.61	0.57	0.82
Other diseases (mastitis, footrot, boils, etc.)	N/A	0.21	0.19
Other***	0.48	0.73	0.32
Unknown	1.02	0.82	0.74
All nonpredator causes	5.83	5.55	5.55

* See Section III: Methodology

**Does not include Pacific and West Central regions.

***Being on back, lameness, etc.

3. Cause of loss by size of operation—2004

A higher percentage of lamb losses on operations with 1,000 or more sheep and lambs was due to digestive causes (26.5 percent) compared to operations with fewer than 100 sheep and lambs (less than 15 percent). Lambing problems accounted for a significantly lower percentage of lamb losses (4.2 percent) on operations with 1,000 or more sheep and lambs compared to the other operation sizes (at least 15 percent). The difference may reflect the fact that losses due to lambing problems were not measured in the Pacific and West Central regions where many of the largest operations exist. In addition, losses as a result of lambing may be harder to observe on the largest operations.

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

Nonpredator Cause	Percent Nonpredator Loss							
	Size of Operation (Number of Sheep and Lambs)							
	1-24		25-99		100-999		1,000 or More	
	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error	Std. Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	12.9	(2.2)	14.9	(1.5)	23.8	(3.6)	26.5	(1.1)
Respiratory problems (pneumonia, shipping fever, etc.)	17.6	(3.0)	19.5	(2.8)	23.3	(1.5)	26.7	(0.8)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	3.0	(1.1)	3.4	(0.7)	2.1	(0.3)	1.3	(0.2)
Weather-related causes (chilling, drowning, lightning, etc.)	18.1	(2.3)	17.0	(1.9)	13.1	(1.1)	10.5	(0.8)
Theft	1.0	(1.0)	0.5	(0.2)	0.6	(0.3)	0.7	(0.2)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.6	(0.3)	1.1	(0.5)	1.2	(0.2)	4.6	(0.5)
Lambing problems*	16.0	(2.1)	21.7	(2.0)	15.2	(1.4)	4.2	(0.6)
Other diseases (mastitis, footrot, boils, etc.)	2.6	(0.9)	2.8	(0.6)	2.7	(0.3)	3.5	(0.4)
Other**	8.9	(1.9)	6.7	(1.1)	5.2	(0.4)	3.2	(0.3)
Unknown	19.3	(5.0)	12.4	(1.3)	12.8	(1.0)	18.8	(1.1)
Total	100.0		100.0		100.0		100.0	

*Does not include Pacific and West Central regions.

**Being on back, lameness, etc.

As operation size increased, the percentage of lamb crop lost to digestive, respiratory, metabolic, and lambing problems decreased.

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

Percent Lamb Crop								
Size of Operation (Number of Sheep and Lambs)								
	1-24		25-99		100-999		1,000 or More	
Nonpredator Cause	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	1.41	(0.23)	1.22	(0.13)	1.28	(0.23)	0.72	(0.04)
Respiratory problems (pneumonia, shipping fever, etc.)	1.91	(0.37)	1.60	(0.26)	1.27	(0.07)	0.73	(0.03)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.32	(0.12)	0.28	(0.06)	0.11	(0.02)	0.04	(0.01)
Weather-related causes (chilling, drowning, lightning, etc.)	1.98	(0.28)	1.39	(0.19)	0.71	(0.06)	0.29	(0.02)
Theft	0.11	(0.11)	0.04	(0.02)	0.03	(0.02)	0.02	(0.01)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.06	(0.03)	0.09	(0.04)	0.07	(0.01)	0.13	(0.01)
Lambing problems*	1.75	(0.21)	1.79	(0.20)	0.82	(0.07)	0.12	(0.02)
Other diseases (mastitis, footrot, boils, etc.)	0.28	(0.10)	0.23	(0.05)	0.15	(0.02)	0.10	(0.01)
Other**	0.97	(0.21)	0.55	(0.09)	0.28	(0.02)	0.09	(0.01)
Unknown	2.10	(0.62)	1.02	(0.11)	0.69	(0.05)	0.51	(0.03)
All nonpredator causes	10.89	(0.84)	8.21	(0.47)	5.41	(0.19)	2.75	(0.08)

*Does not include Pacific and West Central regions.

**Being on back, lameness, etc.

4. Cause of loss by region—2004

The percentage of losses due to respiratory causes ranged from 30.8 percent in the Pacific region to 9.5 percent in the Southeast/Other region. The percentage of losses due to digestive problems ranged from 38.0 percent in the Southeast/Other region to 14.4 percent in the Northeast region.

a. Percentage of all losses by cause and by region:

Nonpredator Cause	Percent Nonpredator Loss									
	Region									
	Pacific		West Central		Central		Northeast		Southeast/Other	
	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.)	19.6	(2.9)	27.9	(1.4)	16.0	(1.0)	14.4	(1.9)	38.0	(14.6)
Respiratory problems (pneumonia, shipping fever, etc.)	30.8	(2.7)	20.5	(1.1)	25.1	(1.7)	15.4	(2.1)	9.5	(3.7)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	3.4	(1.1)	2.0	(0.3)	2.1	(0.3)	3.7	(1.0)	3.5	(2.6)
Weather-related causes (chilling, drowning, lightning, etc.)	12.0	(3.7)	13.1	(1.1)	13.1	(0.9)	22.2	(2.8)	15.2	(5.0)
Theft	0.9	(0.5)	2.2	(1.0)	0.2	(0.1)	0.6	(0.3)	0.0	(0.0)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	2.2	(1.1)	5.2	(0.5)	0.8	(0.3)	1.1	(0.4)	0.0	(0.0)
Lambing problems	N/A		N/A		20.9	(1.2)	19.3	(2.6)	12.6	(4.9)
Other diseases (mastitis, footrot, boils, etc.)	3.7	(0.9)	3.4	(0.4)	3.2	(0.4)	1.3	(0.6)	1.8	(0.7)
Other *	7.9	(2.2)	5.2	(0.6)	6.0	(0.8)	6.1	(1.1)	6.9	(2.9)
Unknown	19.5	(3.2)	20.5	(1.2)	12.6	(1.8)	15.9	(2.0)	12.5	(3.5)
Total	100.0		100.0		100.0		100.0		100.0	

*Being on back, lameness, etc.

The percentage of lamb crop lost to weather-related causes was significantly higher in the Central, Northeast, and Southeast/Other regions (1.24 percent, 2.18 percent, and 1.60 percent, respectively) compared to the Pacific and West Central regions (0.16 percent and 0.31 percent, respectively).

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

Nonpredator Cause	Percent Nonpredator Loss									
	Region									
	Pacific		West Central		Central		Northeast		Southeast/Other	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	0.27	(0.04)	0.68	(0.04)	1.52	(0.09)	1.41	(0.20)	3.99	(1.71)
Respiratory problems (pneumonia, shipping fever, etc.)	0.42	(0.05)	0.49	(0.03)	2.41	(0.20)	1.51	(0.23)	0.99	(0.38)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	0.05	(0.02)	0.05	(0.01)	0.20	(0.03)	0.36	(0.10)	0.37	(0.28)
Weather-related causes (chilling, drowning, lightning, etc.)	0.16	(0.06)	0.31	(0.03)	1.24	(0.09)	2.18	(0.38)	1.60	(0.51)
Theft	0.01	(0.01)	0.05	(0.02)	0.02	(0.01)	0.06	(0.03)	0.00	(0.00)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.03	(0.02)	0.12	(0.01)	0.08	(0.03)	0.10	(0.04)	0.00	(0.00)
Lambing problems	N/A		N/A		2.00	(0.10)	1.89	(0.34)	1.32	(0.52)
Other diseases (mastitis, footrot, boils, etc.)	0.05	(0.01)	0.08	(0.01)	0.31	(0.04)	0.13	(0.05)	0.19	(0.07)
Other*	0.11	(0.03)	0.12	(0.01)	0.57	(0.07)	0.60	(0.11)	0.72	(0.29)
Unknown	0.27	(0.06)	0.49	(0.03)	1.20	(0.19)	1.56	(0.19)	1.31	(0.33)
All nonpredator causes	1.37	(0.12)	2.39	(0.07)	9.55	(0.30)	9.80	(0.84)	10.49	(1.05)

*Being on back, lameness, etc.

5. Cause of loss by region and by size of operation—2004

In the Pacific region, as the size of operation increased the percentage of loss due to metabolic and “other” causes of loss decreased.

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

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.)	15.2	(9.4)	13.3	(6.8)	18.4	(2.5)	23.6	(5.3)	19.5	(2.9)
Respiratory problems (pneumonia, shipping fever, etc.)	14.9	(9.2)	24.1	(6.1)	43.7	(3.7)	28.2	(4.0)	30.7	(2.7)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	13.5	(9.4)	7.4	(3.0)	2.2	(0.7)	0.6	(0.3)	3.4	(1.1)
Weather-related causes (chilling, drowning, lightning, etc.)	12.7	(8.9)	4.3	(2.0)	10.4	(1.5)	15.9	(7.8)	12.0	(3.7)
Theft (stolen)	0.0	(0.0)	0.3	(0.2)	0.2	(0.1)	1.8	(1.2)	0.9	(0.5)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	5.0	(2.5)	2.2	(1.1)
Lambing problems	N/A		N/A		N/A		N/A		N/A	
Other diseases (mastitis, footrot, boils, etc.)	4.7	(4.3)	0.6	(0.5)	6.8	(1.7)	2.7	(1.3)	3.7	(0.9)
Other*	33.9	(15.0)	17.8	(7.6)	2.9	(0.9)	1.9	(0.5)	7.9	(2.2)
Unknown	5.1	(4.1)	32.2	(7.7)	15.4	(1.9)	20.3	(5.8)	19.5	(3.2)
Total	100.0		100.0		100.0		100.0		100.0	

*Being on back, lameness, etc.

In the West Central region, the percentage of losses due to theft ranged from 17.1 percent on operations with 1 to 24 sheep and lambs to 0.9 percent on operations with 1,000 or more sheep and lambs.

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

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.)	15.1	(6.0)	31.9	(7.4)	24.9	(2.5)	29.7	(1.5)	27.9	(1.4)
Respiratory problems (pneumonia, shipping fever, etc.)	12.2	(8.3)	4.2	(0.9)	18.7	(3.1)	24.5	(0.8)	20.5	(1.1)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	3.6	(2.7)	2.0	(1.1)	3.4	(1.0)	1.2	(0.2)	2.0	(0.3)
Weather-related causes (chilling, drowning, lightning, etc.)	9.8	(5.9)	21.1	(7.5)	17.3	(2.7)	10.2	(0.6)	13.1	(1.1)
Theft (stolen)	17.1	(14.6)	2.9	(1.6)	2.2	(1.6)	0.9	(0.4)	2.2	(1.0)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.6	(0.3)	3.2	(1.6)	3.6	(0.8)	6.6	(0.7)	5.2	(0.5)
Lambing problems	N/A		N/A		N/A		N/A		N/A	
Other diseases (mastitis, footrot, boils, etc.)	7.3	(5.7)	3.8	(1.8)	5.1	(0.9)	2.3	(0.3)	3.4	(0.4)
Other*	13.0	(8.3)	9.1	(3.2)	4.9	(0.7)	4.1	(0.4)	5.2	(0.6)
Unknown	21.3	(10.0)	21.8	(4.3)	19.9	(2.1)	20.5	(1.4)	20.5	(1.2)
Total	100.0		100.0		100.0		100.0		100.0	

*Being on back, lameness, etc.

In the Central region, operations with 1 to 24 sheep and lambs had a higher percentage of losses due to weather-related causes than operations with 1,000 or more sheep and lambs (18.8 percent and 9.9 percent, respectively).

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

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.)	11.7	(2.8)	13.8	(1.8)	19.2	(1.2)	20.7	(1.8)	16.0	(1.0)
Respiratory problems (pneumonia, shipping fever, etc.)	20.7	(4.3)	23.8	(4.1)	27.1	(1.3)	32.9	(1.7)	25.1	(1.7)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	1.0	(0.4)	3.4	(0.9)	1.5	(0.2)	1.8	(0.4)	2.1	(0.3)
Weather-related causes (chilling, drowning, lightning, etc.)	18.8	(3.2)	12.6	(1.6)	11.3	(0.9)	9.3	(1.6)	13.1	(0.9)
Theft (stolen)	0.1	(0.1)	0.4	(0.3)	0.1	(0.0)	0.1	(0.1)	0.2	(0.1)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.1	(0.1)	1.3	(0.8)	0.8	(0.2)	0.6	(0.2)	0.8	(0.3)
Lambing problems	17.9	(3.3)	22.5	(2.2)	22.6	(1.8)	14.3	(2.2)	20.9	(1.2)
Other diseases (mastitis, footrot, boils, etc.)	1.7	(1.0)	4.1	(1.0)	2.2	(0.4)	6.6	(1.3)	3.2	(0.4)
Other*	7.3	(2.5)	6.9	(1.6)	5.5	(0.5)	1.7	(0.3)	6.0	(0.8)
Unknown	20.7	(7.7)	11.2	(1.7)	9.7	(0.7)	12.0	(1.4)	12.6	(1.8)
Total	100.0		100.0		100.0		100.0		100.0	

*Being on back, lameness, etc.

In the Northeast region, a lower percentage of lamb losses on operations with 1,000 or more sheep and lambs was due to unknown causes (3.0 percent) compared to operations with 100 to 999, 25 to 99, and 1 to 24 sheep and lambs (20.3 percent, 12.5 percent, and 19.3 percent, respectively).

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

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.)	10.3	(2.9)	13.7	(3.3)	17.3	(2.3)	31.0	(5.5)	14.4	(1.9)
Respiratory problems (pneumonia, shipping fever, etc.)	10.7	(2.7)	14.7	(3.5)	19.3	(3.2)	25.3	(6.2)	15.4	(2.1)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	3.7	(1.4)	4.0	(1.6)	3.6	(1.7)	0.0	(0.0)	3.7	(1.0)
Weather-related causes (chilling, drowning, lightning, etc.)	20.5	(4.3)	24.2	(4.8)	20.0	(3.8)	24.2	(5.5)	22.2	(2.8)
Theft (stolen)	0.0	(0.0)	0.5	(0.5)	1.1	(0.6)	0.0	(0.0)	0.6	(0.3)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	2.4	(1.5)	0.5	(0.2)	1.2	(0.6)	0.0	(0.0)	1.1	(0.4)
Lambing problems	20.4	(3.7)	24.2	(4.5)	10.3	(1.7)	12.2	(3.3)	19.3	(2.6)
Other diseases (mastitis, footrot, boils, etc.)	4.1	(2.5)	0.3	(0.2)	1.1	(0.4)	1.4	(0.5)	1.3	(0.6)
Other *	8.6	(2.9)	5.4	(1.8)	5.8	(1.3)	2.9	(0.9)	6.1	(1.1)
Unknown	19.3	(4.1)	12.5	(2.7)	20.3	(3.5)	3.0	(1.2)	15.9	(2.0)
Total	100.0		100.0		100.0		100.0		100.0	

*Being on back, lameness, etc.

For operations in the Southeast/Other region with 100 to 999 sheep and lambs, 70.4 percent of lamb losses were due to digestive causes. No other size group lost such a large percentage of their lambs due to any one cause.

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

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.)	22.3	(8.4)	14.6	(3.8)	70.4	(17.7)			38.2	(14.6)
Respiratory problems (pneumonia, shipping fever, etc.)	15.1	(8.7)	9.1	(3.7)	6.0	(3.7)			9.5	(3.7)
Metabolic problems (milk fever, twin lamb disease, pregnancy toxemia, etc.)	10.2	(6.8)	0.5	(0.2)	0.3	(0.2)			3.5	(2.6)
Weather-related causes (chilling, drowning, lightning, etc.)	16.4	(6.9)	30.2	(10.0)	5.5	(3.3)			15.2	(5.0)
Theft (stolen)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)			0.0	(0.0)
Poisoning (nitrate poisoning, noxious feeds, noxious weeds, etc.)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)			0.0	(0.0)
Lambing problems	8.8	(3.8)	29.2	(12.1)	5.7	(3.5)			12.6	(4.9)
Other diseases (mastitis, footrot, boils, etc.)	1.7	(1.7)	0.4	(0.2)	3.1	(1.9)			1.8	(0.7)
Other **	12.8	(7.2)	6.1	(2.3)	3.1	(2.1)			6.9	(2.9)
Unknown	12.7	(5.7)	9.9	(2.7)	5.9	(3.8)			12.4	(3.5)
Total	100.0		100.0		100.0				100.0	

*Too few operations to report.

**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 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. A subsequent NASS staff report, "Sheep and Lamb Death Loss," was published in May 1995. This report included both predator and nonpredator death losses.

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 interviews.

2. Estimation procedures

Total death losses from all causes for sheep and lambs were as reported in NASS' "Meat Animals Production, Disposition, and Income, 2000 Summary" report (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. NASS' "Sheep and Goats Predator Loss" report was published May 5, 2000. Nonpredator loss percentages by cause of loss were generated by APHIS based upon analysis of the data collected in January 1999, and published in December 2005.

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" report.

C. 2004 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 22,000 operators were contacted during the first half of January 2005 by mail, telephone, and face-to-face interviews.

2. Estimation procedures

Total death losses from all causes for sheep and lambs were as reported in NASS' "Meat Animals Production, Disposition, and Income—2004 Summary" report (released April 2005). In setting the predator and nonpredator loss estimates, total predator and nonpredator losses were estimated as a percentage of total losses, then specific predator and nonpredator losses were estimated as a percentage of total predator and nonpredator losses. Death losses by predator and nonpredator cause of loss were published in NASS' "Sheep and Goats Death Loss" report (released May 6, 2005).

Nonpredator cause of loss percentages by cause of loss by region and operation were generated by APHIS based upon analysis of the data collected in January 2005.

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" report.

Appendix: Discussion of Pre- and Postdocking Losses

In the Western States (Arizona, California, Colorado, Idaho, Oregon, Montana, New Mexico, Nevada, Texas, Utah, Washington, Wyoming) NASS defines lamb crop as lambs marked, docked, or branded. These States make up the Pacific and West Central regions in this report. In the remaining States, lamb crop is defined as lambs born. The individual State versions of the January 1 Sheep and Goats Survey questionnaire reflect these differences.

For the States in the Pacific and West Central regions listed above, NASS reports* only lamb losses that occurred after marking, docking, or branding. However, the questionnaire used in the Pacific and West Central States did include a question regarding lambs lost before marking, docking, or branding. Five States (Colorado, Utah, Wyoming, Idaho, and Montana) publish State-level losses separated into pre- and postdocking. These States also conduct cause-of-loss surveys on annual or biannual basis and publish the results.

The exclusion of predocking losses from the two reports is due to the fact that lambs in the Pacific and West Central regions are usually born on range and, therefore, less likely to be observed. It is difficult for producers in these regions to accurately estimate the number of lambs both born and lost before marking, docking, or branding. However, this method leads to the exclusion of a large number of losses. In addition, no lambs lost due to lambing problems are counted in these States, as these losses would obviously all occur in the predocking period. Examination of the published predocking losses in the five States provide an estimate of the magnitude of losses that occur before docking (see table a).

With the exception of Colorado, over half of all reported lamb losses in the each of the five States occurred in the predocking period. In Colorado, only about one-third of all losses (32.1%) occurred predocking. The percentage of total predator losses that occurred in the predocking period (table b) ranged from 20.0 percent in Idaho to 48.1 percent in Wyoming. For nonpredator losses (table c), Idaho, Montana, Utah, and Wyoming show at least two-thirds of reported nonpredator losses occurred in the predocking period, while in Colorado, 26.1 percent of nonpredator losses occurred in the predocking period.

* NASS publications: "Meat Animals, Production, Disposition, and Income" (April) and the periodic published in May approximately every 5 years "Sheep and Goats Death Loss"

a. Number of postdocking lamb losses, predocking lamb losses, and predocking lamb losses as a percentage of total lamb losses, by State:

Number of Lamb Losses				
State	Postdocking NASS Reported	Predocking State Reported	Total	Predocking Losses as a Percentage of Total Losses
Colorado	19,000	9,000	28,000	32.1
Idaho	12,000	13,000	25,000	52.0
Montana	14,000	17,000	31,000	54.8
Utah	18,000	19,800	37,800	52.4
Wyoming	18,000	26,000	44,000	59.1

b. Number of postdocking predator lamb losses, predocking predator lamb losses, and predocking predator lamb losses as a percentage of total predator lamb losses, by State:

Number of Predator Lamb Losses				
State	Postdocking NASS Reported	Predocking State Reported	Total	Predocking Losses as a Percentage of Total Losses
Colorado	8,000	5,100	13,100	38.9
Idaho	6,800	1,700	8,500	20.0
Montana	7,900	2,900	10,800	26.9
Utah	14,800	9,800	24,600	39.8
Wyoming	14,000	13,000	27,000	48.1

c. Number of postdocking nonpredator lamb losses, predocking nonpredator lamb losses, and predocking nonpredator lamb losses as a percentage of total nonpredator lamb losses, by State:

Number of Nonpredator Lamb Losses				
State	Postdocking NASS Reported	Predocking State Reported	Total	Predocking Losses as a Percentage of Total Losses
Colorado	11,000	3,900	14,900	26.2
Idaho	5,200	11,300	16,500	68.5
Montana	6,100	14,100	20,200	69.8
Utah	3,200	10,000	13,200	75.8
Wyoming	4,000	13,000	17,000	76.4