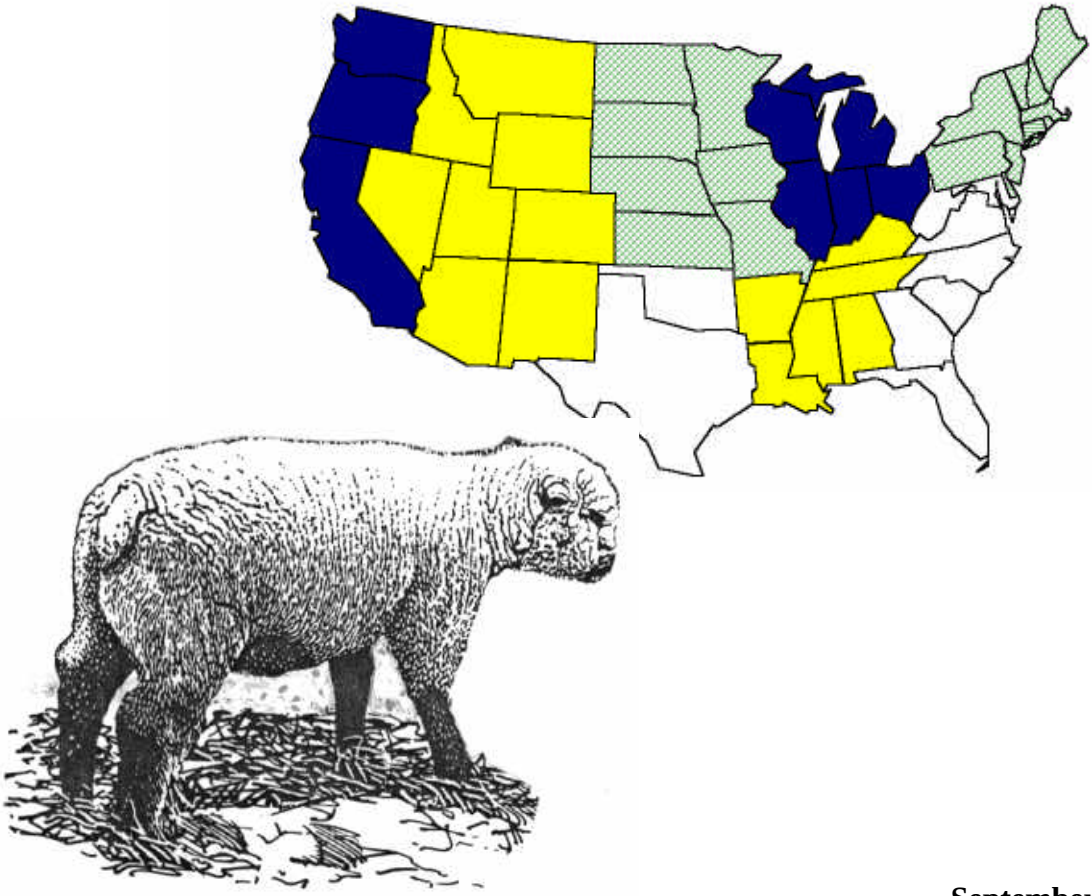
United States
Department
of Agriculture

Animal and
Plant Health
Inspection
Service

**Veterinary
Services**

Reference of 1996 U.S. Regional Sheep Health and Management Practices



September 1996

Acknowledgements

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This study was a cooperative effort, and we would like to thank all participants for their efforts and dedication. The American Sheep Industry Association (ASI) co-sponsored the project. ASI's Animal Health Committee helped develop and deliver data collection materials and reviewed this and other reports resulting from the data. Personnel at the University of Minnesota and Colorado State University assisted in questionnaire development. The USDA's National Agricultural Statistics Service (NASS) conducted the sample selection, and the Colorado Agricultural Statistics Service prepared mailing labels and helped coordinate the mailing.

The participating producers were also critical to the success of this project. Their voluntary efforts made this study possible.

Dr. Al Strating, Director
Centers for Epidemiology & Animal Health

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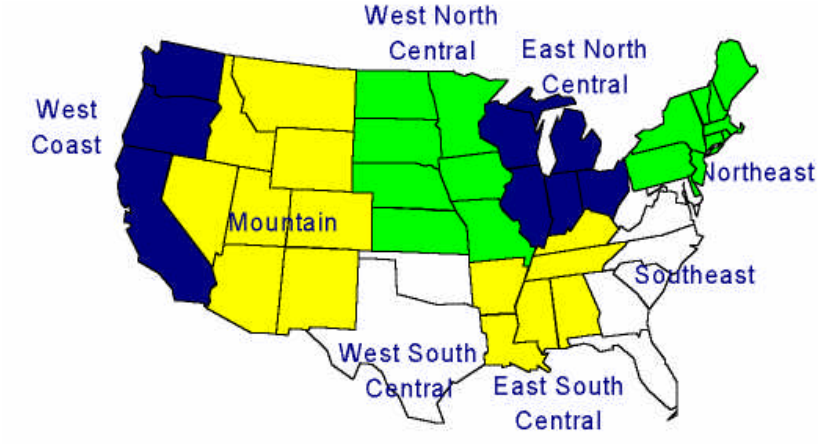
Introduction

The National Animal Health Monitoring System (NAHMS) is sponsored by the USDA:APHIS:Veterinary Services (VS). From 1989 through 1996, NAHMS conducted national studies of the swine, dairy cattle, beef cow/calf, and beef feedlot industries to obtain information on animal health and management.

In 1995, NAHMS collaborated with the Research and Education Division of the American Sheep Industry Association (ASI) in developing a needs assessment tool to identify the most important health and productivity factors for the sheep industry. The resulting information will be used to develop programs and projects to enhance the profitability of sheep.

For this sheep study, the USDA's National Agricultural Statistics Service (NASS) collaborated with VS to select a producer sample that was statistically designed to provide estimates for the United States (48 continguous states) sheep population. The sample was selected and stratified by state and flock size to allow the regional comparisons included in this report. Regional designations shown in the figure below were based on climatic differences and differences in husbandry practices.

The NAHMS/ASI questionnaires were mailed to 19,807 eligible sheep operations in January 1996 with postage-paid, return envelopes. A reminder post card was sent 4 weeks after the initial mailing. In addition, a 1-800 telephone number was provided so that participants could call with questions.



Data were summarized from 5,174 respondents.

This is the second report documenting the needs assessment results, following a summary of estimates representing the national sheep population, the *Reference of 1996 U.S. Health and Management Practices*.[1] Subsequent releases will discuss specific topics addressed by the study. All NAHMS sheep needs assessment results are available on the World Wide Web at http://www.aphis.usda.gov/vs/ceah.
For questions about this report or additional NAHMS results, please contact:

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1 Wording on table and figure headings in this report reflect that used on the questionnaire. Unless specifically indicated, respondents were not given further definitions or instructions on how to respond.

Terms Used in This Report

Flock size: data throughout the report are often summarized by five size groupings or categories based on the total number of sheep and lambs on January 1, 1996, reported for each operation.

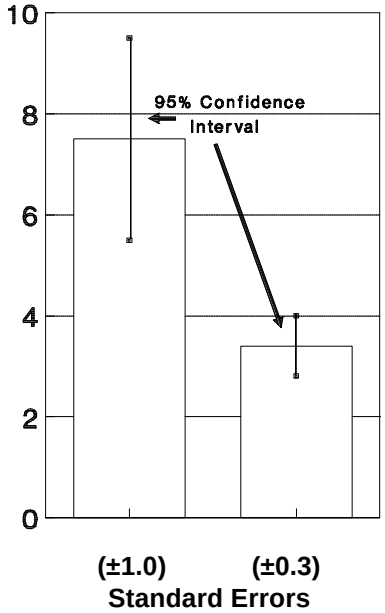
Operation average: a single value for each operation is summed over all operations reporting divided by the number of operations reporting. For instance, operation average percent of gross income is calculated by summing the reported percent over all operations then dividing by the number of operations.

Percent operations: number of operations with a given characteristic divided by the total number of operations.

Percent sheep/lambs: the sum of the actual number of sheep/lambs on each operation with a given characteristic divided by the total number of sheep on all operations. (**Percent sheep/lambs on operations:** an operation characteristic was applied to all sheep/lambs on the operation. The total number of sheep/lambs residing on operations with a given characteristic divided by the total sheep/lambs on all operations. See the example on page 4, percent of sheep on operatons by expected change in inventory.)

Primary breed category: producers identified one primary breed category and all sheep and lambs on the operation were summarized in the category.

Examples of 95% Confidence Intervals



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* Identification numbers are assigned to each graph in this report for public reference.

Population estimates: averages and proportions weighted to represent the population. Most of the estimates in this report are provided with a measure of variability called the standard error and denoted by (±). Chances are 95 out of 100 that the interval created by the estimate plus or minus two standard errors will contain the true population value. In the example at right, an estimate of 7.5 with a standard error of ±1.0 results in a range of 5.5 to 9.5 (two times the standard error above and below the estimate.) The second estimate of 3.4 shows a standard error of ±0.3 results with a range of 2.8 and 4.0.

Sample profile: information that describes characteristics of the operations from which data were collected.

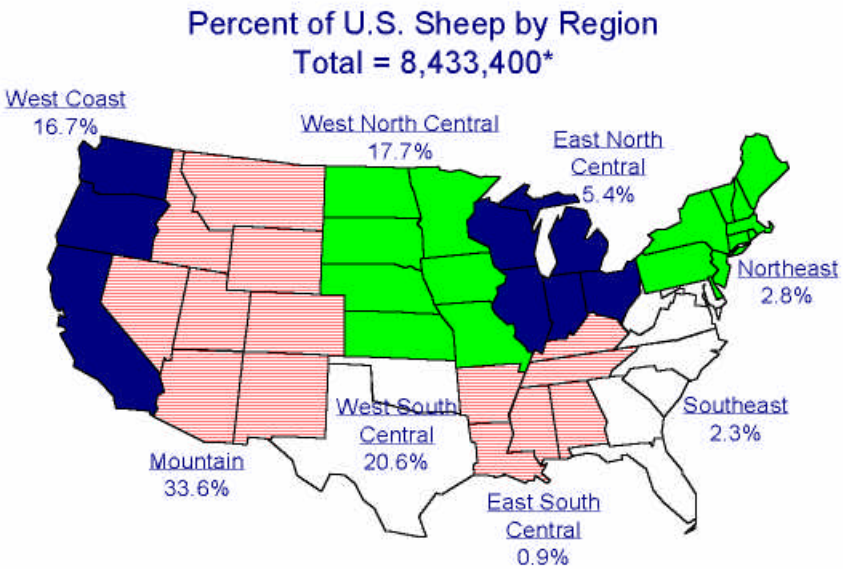
Section I: Population Estimates

A. Flock Management

1. Inventory and expected change by 2001

   a. Percent of United States sheep and lamb inventory January 1, 1996, by region[1]:

Region	Percent Sheep	Standard Error
West Coast	16.7	(± 2.0)
Mountain	33.6	(± 2.2)
West North Central	17.7	(± 1.0)
West South Central	20.6	(± 1.8)
East North Central	5.4	(± 0.3)
East South Central	0.9	(± 0.1)
Northeast	2.8	(± 0.1)
Southeast	2.3	(± 0.1)
Total	100.0	



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*Source: USDA National Agricultural Statistics Service.

1 Source: USDA:National Agricultural Statistics Service.

b. Percent of *operations* by number of sheep expected in 2001 compared to January 1, 1996, inventory by region:

Percent Operations

Expected Change	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
No sheep in 2001	14.5	(± 2.5)	13.4	(± 3.1)	10.6	(± 1.5)	6.9	(± 2.3)
Fewer sheep in 2001	15.0	(± 2.3)	8.4	(± 1.5)	6.8	(± 1.0)	13.6	(± 3.2)
Same number in 2001	45.2	(± 3.2)	41.7	(± 3.5)	42.7	(± 2.3)	43.0	(± 4.7)
More sheep in 2001	25.3	(± 2.8)	36.5	(± 2.7)	39.9	(± 2.3)	36.5	(± 4.6)
Total	100.0		100.0		100.0		100.0	

Expected Change	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
No sheep in 2001	14.3	(± 2.0)	10.7	(± 4.1)	11.9	(± 2.1)	11.3	(± 2.8)
Fewer sheep in 2001	7.4	(± 1.2)	9.2	(± 5.1)	10.6	(± 1.8)	9.2	(± 2.4)
Same number in 2001	44.6	(± 2.7)	40.0	(± 6.6)	46.0	(± 3.1)	45.7	(± 4.2)
More sheep in 2001	33.7	(± 2.5)	40.1	(± 5.7)	31.5	(± 2.8)	33.8	(± 3.9)
Total	100.0		100.0		100.0		100.0	

c. Percent of *sheep* on operations by number of sheep expected in 2001 compared to January 1, 1996, inventory by region:

Percent Sheep

Expected Change	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
No sheep in 2001	3.4	(± 0.8)	5.5	(± 1.3)	6.3	(± 1.1)	2.2	(± 0.7)
Fewer sheep in 2001	20.2	(± 6.0)	11.0	(± 3.1)	13.5	(± 2.3)	14.6	(± 3.1)
Same number in 2001	50.5	(± 8.7)	52.6	(± 4.9)	45.3	(± 2.8)	45.5	(± 5.4)
More sheep in 2001	25.9	(± 5.8)	30.9	(± 4.1)	34.9	(± 2.9)	37.7	(± 6.8)
Total	100.0		100.0		100.0		100.0	

Expected Change	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
No sheep in 2001	7.4	(± 1.1)	6.0	(± 2.5)	7.2	(± 1.4)	7.1	(± 1.6)
Fewer sheep in 2001	9.0	(± 1.1)	9.2	(± 3.4)	11.5	(± 1.7)	8.3	(± 1.7)
Same number in 2001	46.7	(± 2.6)	38.7	(± 6.2)	42.8	(± 3.3)	42.3	(± 3.9)
More sheep in 2001	36.9	(± 2.5)	46.1	(± 5.8)	38.5	(± 3.3)	42.3	(± 3.3)
Total	100.0		100.0		100.0		100.0	

2. Primary flock type

a. Percent of *operations* by primary flock type and region:

Percent Operations

Flock Type	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Herded range flock	0.8	(± 0.2)	4.9	(± 0.9)	0.2	(± 0.1)	0.3	(± 0.2)
Fenced range flock	8.2	(± 1.5)	12.2	(± 1.2)	5.9	(± 1.0)	27.4	(± 3.7)
Farm flock	85.9	(± 2.1)	75.5	(± 2.1)	90.0	(± 1.3)	68.0	(± 3.9)
Intensive confinement	2.7	(± 1.1)	2.5	(± 1.1)	2.6	(± 0.8)	2.2	(± 1.2)
Multiple	2.4	(± 0.9)	4.9	(± 1.5)	1.3	(± 0.5)	2.1	(± 0.9)
Total	100.0		100.0		100.0		100.0	

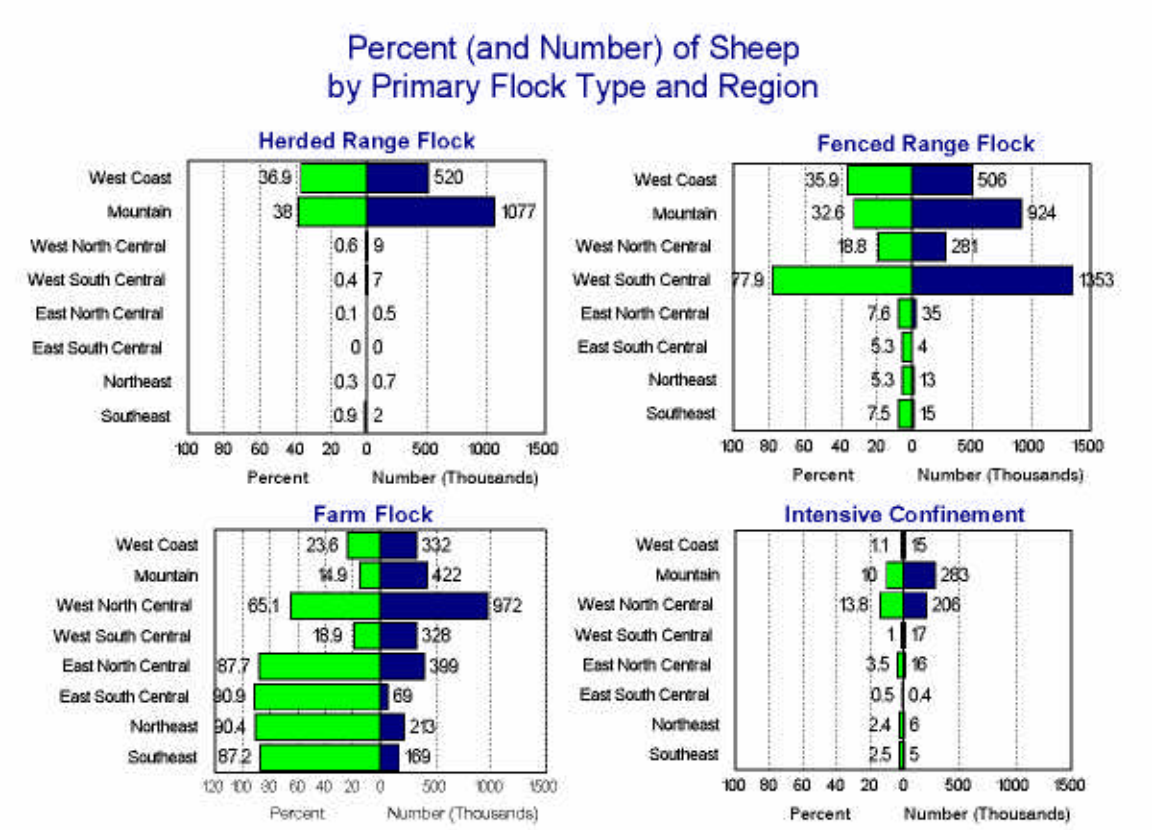
Flock Type	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Herded range flock	0.3	(± 0.4)	0.0	(± 0.0)	0.3	(± 0.3)	0.9	(± 0.6)
Fenced range flock	5.7	(± 1.1)	6.9	(± 3.8)	9.0	(± 1.9)	8.9	(± 2.7)
Farm flock	91.3	(± 1.4)	90.4	(± 4.2)	88.0	(± 2.1)	88.4	(± 2.9)
Intensive confinement	2.5	(± 0.8)	0.2	(± 0.1)	1.5	(± 0.6)	1.5	(± 0.9)
Multiple	0.2	(± 0.1)	2.5	(± 2.1)	1.2	(± 0.7)	0.3	(± 0.2)
Total	100.0		100.0		100.0		100.0	

b. Percent of *sheep* on operations by primary flock type and region:

Percent Sheep

Flock Type	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Herded range flock	36.9	(± 9.9)	38.0	(± 4.3)	0.6	(± 0.3)	0.4	(± 0.3)
Fenced range flock	35.9	(± 7.7)	32.6	(± 3.4)	18.8	(± 2.3)	77.9	(± 2.7)
Farm flock	23.6	(± 3.7)	14.9	(± 1.5)	65.1	(± 3.0)	18.9	(± 2.3)
Intensive confinement	1.1	(± 0.6)	10.0	(± 7.1)	13.8	(± 3.3)	1.0	(± 0.5)
Multiple[1]	2.5	(± 1.1)	4.5	(± 1.5)	1.7	(± 0.5)	1.8	(± 0.6)
Total	100.0		100.0		100.0		100.0	

Flock Type	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Herded range flock	0.1	(± 0.1)	0.0	(± 0.0)	0.3	(± 0.3)	0.9	(± 0.5)
Fenced range flock	7.6	(± 2.1)	5.3	(± 3.7)	5.3	(± 1.4)	7.5	(± 2.0)
Farm flock	87.7	(± 2.3)	90.9	(± 4.1)	90.4	(± 1.8)	87.2	(± 2.7)
Intensive confinement	3.5	(± 1.0)	0.5	(± 0.5)	2.4	(± 0.9)	2.5	(± 1.6)
Multiple[1]	1.1	(± 0.7)	3.3	(± 1.8)	1.6	(± 0.7)	1.9	(± 1.0)
Total	100.0		100.0		100.0		100.0	



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1 Producers selecting more than one category.

3. Primary breed

a. Percent of *operations* by primary breed category and region:

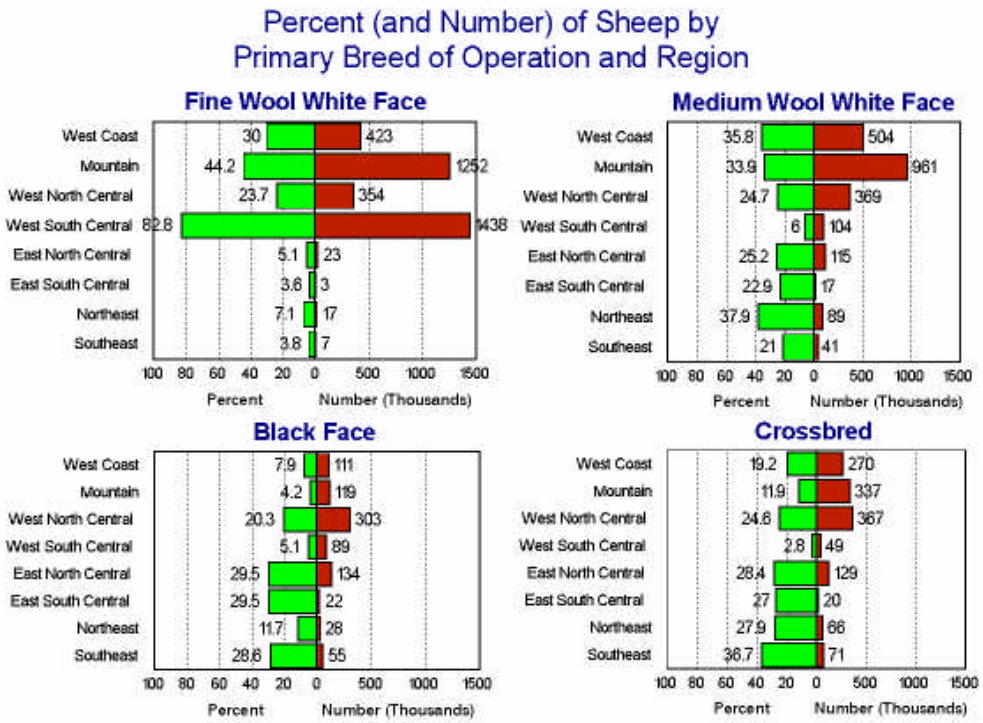
	Percent Operations							
Breed Category	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Colored wool	3.9	(± 1.3)	2.1	(± 0.9)	1.1	(± 0.5)	0.7	(± 0.7)
Fine wool white face	7.5	(± 1.6)	21.9	(± 2.0)	9.7	(± 1.2)	42.1	(± 4.5)
Medium wool white face	17.8	(± 2.4)	25.1	(± 2.3)	19.9	(± 1.7)	11.7	(± 2.7)
Black face	39.9	(± 3.2)	32.7	(± 2.5)	32.9	(± 2.2)	25.3	(± 4.6)
Crossbred	25.0	(± 2.9)	11.5	(± 1.6)	29.5	(± 2.2)	10.0	(± 2.8)
Hair sheep	0.2	(± 0.1)	0.3	(± 0.3)	0.2	(± 0.1)	3.0	(± 2.1)
Milk sheep	0.0	(± 0.0)	0.0	(± 0.0)	0.2	(± 0.1)	0.0	(± 0.0)
Multiple	5.7	(± 1.4)	6.4	(± 1.3)	6.5	(± 1.1)	7.2	(± 2.5)
Total	100.0		100.0		100.0		100.0	

Breed Category	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Colored wool	2.1	(± 0.7)	1.1	(± 0.5)	7.1	(± 1.7)	1.7	(± 1.2)
Fine wool white face	5.7	(± 1.4)	3.8	(± 2.2)	6.3	(± 1.3)	2.2	(± 1.0)
Medium wool white face	18.7	(± 1.9)	18.8	(± 6.0)	32.2	(± 2.8)	20.5	(± 3.5)
Black face	39.1	(± 2.6)	36.3	(± 6.9)	18.1	(± 2.4)	31.0	(± 4.2)
Crossbred	26.8	(± 2.3)	26.8	(± 6.5)	28.0	(± 2.7)	31.3	(± 3.9)
Hair sheep	0.4	(± 0.3)	2.9	(± 1.4)	2.4	(± 1.0)	2.0	(± 1.1)
Milk sheep	0.0	(± 0.0)	0.0	(± 0.0)	0.0	(± 0.0)	0.0	(± 0.0)
Multiple	7.2	(± 1.4)	10.3	(± 5.6)	5.9	(± 1.3)	11.3	(± 3.3)
Total	100.0		100.0		100.0		100.0	

b. Percent of *sheep* by primary breed category and region[1]:

Breed Category	West Coast	Standard Error	Mountain	Standard Error	West North Central	Standard Error	West South Central	Standard Error
	Percent Sheep							
Colored wool	0.6	(± 0.2)	0.6	(± 0.4)	0.4	(± 0.1)	0.0	(± 0.0)
Fine wool white face	30.0	(± 7.1)	44.2	(± 4.5)	23.7	(± 2.6)	82.8	(± 2.3)
Medium wool white face	35.8	(± 10.0)	33.9	(± 4.3)	24.7	(± 1.8)	6.0	(± 1.2)
Black face	7.9	(± 1.3)	4.2	(± 0.7)	20.3	(± 2.8)	5.1	(± 0.9)
Crossbred	19.2	(± 4.7)	11.9	(± 6.9)	24.6	(± 2.1)	2.8	(± 0.7)
Hair sheep	0.4	(± 0.3)	0.1	(± 0.0)	0.2	(± 0.1)	0.2	(± 0.1)
Milk sheep	0.0	(± 0.4)	0.0	(± 0.0)	0.1	(± 0.1)	0.0	(± 0.0)
Multiple	6.1	(± 2.3)	5.1	(± 1.4)	6.0	(± 1.1)	3.1	(± 0.9)
Total	100.0		100.0		100.0		100.0	

Breed Category	East North Central	Standard Error	East South Central	Standard Error	Northeast	Standard Error	Southeast	Standard Error
Colored wool	1.8	(± 0.6)	1.4	(± 0.7)	4.2	(± 1.0)	0.7	(± 0.5)
Fine wool white face	5.1	(± 1.1)	3.6	(± 1.5)	7.1	(± 1.5)	3.8	(± 1.5)
Medium wool white face	25.2	(± 2.4)	22.9	(± 6.1)	37.9	(± 3.1)	21.0	(± 3.2)
Black face	29.5	(± 2.1)	29.5	(± 5.6)	11.7	(± 1.6)	28.6	(± 3.7)
Crossbred	28.4	(± 2.4)	27.0	(± 7.3)	27.9	(± 3.0)	36.7	(± 3.7)
Hair sheep	0.4	(± 0.2)	7.5	(± 4.8)	3.1	(± 1.2)	1.4	(± 0.7)
Milk sheep	0.2	(± 0.2)	0.0	(± 0.0)	0.3	(± 0.3)	0.0	(± 0.0)
Multiple	9.4	(± 1.5)	8.1	(± 3.6)	7.8	(± 1.8)	7.8	(± 1.8)
Total	100.0		100.0		100.0		100.0	



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1 Producers identified one breed category and all sheep and lambs on the operation were summarized in that category.

4. Production records used

a. Percent of operations by types of production records used to make decisions and region:

Record Type	West Coast	Standard Error	Mountain	Standard Error	West North Central	Standard Error	West South Central	Standard Error
	Percent Operations							
Manual	78.8	(± 2.8)	76.1	(± 2.4)	78.5	(± 2.1)	74.0	(± 4.5)
Computerized	12.1	(± 1.9)	14.4	(± 2.8)	9.9	(± 1.2)	9.3	(± 2.0)
Other	3.4	(± 1.2)	1.4	(± 0.4)	1.1	(± 0.3)	0.9	(± 0.5)
None	18.5	(± 2.7)	19.3	(± 2.3)	19.4	(± 2.0)	23.4	(± 4.4)

Record Type	East North Central	Standard Error	East South Central	Standard Error	Northeast	Standard Error	Southeast	Standard Error
Manual	78.3	(± 2.4)	78.7	(± 6.2)	75.3	(± 2.7)	74.5	(± 4.3)
Computerized	9.7	(± 1.5)	11.4	(± 4.9)	9.8	(± 1.6)	10.6	(± 2.5)
Other	1.7	(± 0.8)	4.8	(± 3.8)	2.0	(± 0.7)	1.0	(± 0.7)
None	17.1	(± 2.2)	16.4	(± 4.9)	19.9	(± 2.6)	21.7	(± 4.2)

5. Source of sheep information

a. Percent of operations using each source for sheep information by region:

Information Source	West Coast	Standard Error	Mountain	Standard Error	West North Central	Standard Error	West South Central	Standard Error
	Percent Operations							
SID Sheep Production Handbook	33.6	(± 3.1)	24.5	(± 3.1)	21.7	(± 1.6)	18.9	(± 3.0)
Other books	63.6	(± 3.2)	48.4	(± 3.6)	46.7	(± 2.3)	34.2	(± 4.3)
Magazines/Newsletters	68.7	(± 3.2)	70.1	(± 2.5)	71.3	(± 2.3)	67.5	(± 4.8)
Fairs/Shows	46.8	(± 3.3)	38.0	(± 3.5)	38.9	(± 2.2)	38.3	(± 4.5)
Meetings	34.1	(± 3.0)	32.1	(± 3.2)	31.9	(± 2.0)	32.5	(± 3.9)
Internet	2.0	(± 0.5)	2.1	(± 0.7)	1.7	(± 0.5)	2.5	(± 2.0)
University/Extension	53.7	(± 3.3)	49.1	(± 2.7)	49.3	(± 2.3)	40.0	(± 4.3)
Veterinarians	71.0	(± 2.9)	57.0	(± 2.7)	67.3	(± 2.2)	63.4	(± 4.7)
Feed and drug salesmen	28.8	(± 2.9)	25.0	(± 3.1)	26.6	(± 2.0)	29.8	(± 4.2)
Shearer	53.2	(± 3.3)	46.5	(± 3.6)	61.4	(± 2.2)	31.0	(± 4.5)
Other sheep producers	73.2	(± 3.0)	75.3	(± 2.5)	68.3	(± 2.2)	63.7	(± 4.7)

Information Source	East North Central	Standard Error	East South Central	Standard Error	Northeast	Standard Error	Southeast	Standard Error
SID Sheep Production Handbook	22.7	(± 2.1)	25.1	(± 4.6)	24.5	(± 2.5)	25.5	(± 3.3)
Other books	47.9	(± 2.6)	63.3	(± 7.5)	62.1	(± 3.0)	53.6	(± 4.1)
Magazines/Newsletters	75.2	(± 2.5)	65.2	(± 6.9)	65.2	(± 3.0)	76.9	(± 3.9)
Fairs/Shows	49.4	(± 2.7)	53.8	(± 6.8)	43.8	(± 3.0)	37.6	(± 4.3)
Meetings	43.0	(± 2.6)	41.1	(± 7.3)	39.2	(± 2.9)	37.0	(± 3.8)
Internet	4.9	(± 1.3)	2.2	(± 1.9)	4.0	(± 1.2)	1.6	(± 1.0)
University/Extension	50.9	(± 2.7)	53.0	(± 7.7)	46.3	(± 3.0)	55.4	(± 4.2)
Veterinarians	61.0	(± 2.7)	59.2	(± 7.1)	58.4	(± 3.1)	61.2	(± 4.1)
Feed and drug salesmen	26.8	(± 2.2)	24.3	(± 5.1)	21.3	(± 2.4)	28.6	(± 4.0)
Shearer	50.9	(± 2.7)	32.2	(± 6.6)	45.6	(± 3.0)	41.8	(± 4.5)
Other sheep producers	69.7	(± 2.5)	73.3	(± 5.7)	64.8	(± 3.0)	68.7	(± 4.2)

6. Altered management practices

a. Percent of operations that altered the following management practices in the last 5 years due to animal welfare concerns by region:

	Percent Operations							
Practice	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Docking tails	16.6	(± 2.5)	15.2	(± 2.2)	17.2	(± 1.8)	19.1	(± 3.6)
Castration	14.7	(± 2.4)	14.1	(± 2.1)	18.7	(± 1.9)	18.1	(± 3.5)
Shearing	11.0	(± 2.1)	15.5	(± 2.1)	15.7	(± 1.8)	15.0	(± 3.0)
Disposal of dead animals and offal	15.5	(± 2.2)	22.9	(± 3.3)	27.7	(± 2.1)	15.0	(± 2.8)
Housing	16.3	(± 2.5)	14.2	(± 2.0)	16.5	(± 1.8)	11.7	(± 2.5)
Predator control	23.7	(± 2.8)	24.1	(± 2.1)	15.1	(± 1.7)	21.0	(± 3.3)

Practice	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Docking tails	18.7	(± 2.1)	24.7	(± 5.7)	17.4	(± 2.4)	17.7	(± 3.5)
Castration	17.0	(± 2.1)	21.9	(± 5.2)	8.0	(± 1.6)	14.1	(± 3.3)
Shearing	16.5	(± 2.1)	20.3	(± 5.1)	12.3	(± 2.0)	13.1	(± 3.3)
Disposal of dead animals and offal	21.5	(± 2.1)	25.2	(± 6.5)	15.2	(± 2.2)	20.5	(± 3.8)
Housing	16.3	(± 2.2)	31.4	(± 7.4)	14.8	(± 2.2)	16.1	(± 3.5)
Predator control	15.2	(± 1.9)	29.2	(± 7.3)	15.1	(± 2.1)	18.7	(± 3.4)

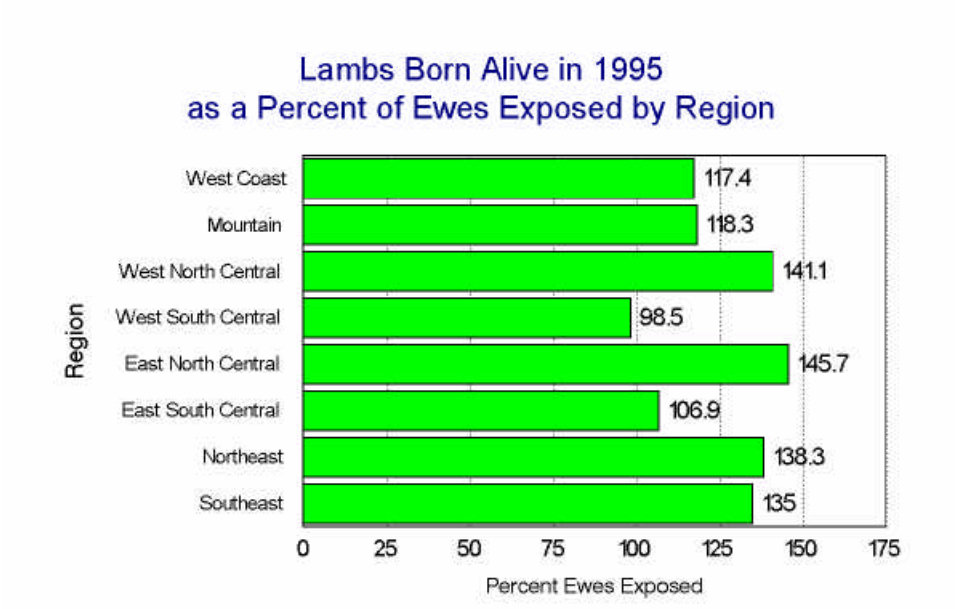
B. Births, Deaths, Culling, and Illness

1. Productivity

   a. Lamb outcomes as a percent of ewes exposed in 1995 by region:

	Percent Lambs							
Outcome	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Aborted (at less than full term)	1.7	(± 0.2)	1.9	(± 0.3)	2.2	(± 0.2)	1.3	(± 0.2)
Born dead (full term)	3.5	(± 0.3)	2.7	(± 0.2)	5.3	(± 0.2)	2.7	(± 0.4)
Born alive	117.4	(± 2.3)	118.3	(± 2.8)	141.1	(± 1.3)	98.5	(± 1.6)

Outcome	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Aborted (at less than full term)	1.7	(± 0.2)	2.8	(± 0.8)	1.3	(± 0.2)	1.5	(± 0.2)
Born dead (full term)	6.4	(± 0.3)	6.2	(± 0.9)	6.3	(± 0.5)	6.4	(± 0.5)
Born alive	145.7	(± 1.9)	106.9	(± 5.9)	138.3	(± 2.7)	135.0	(± 3.6)



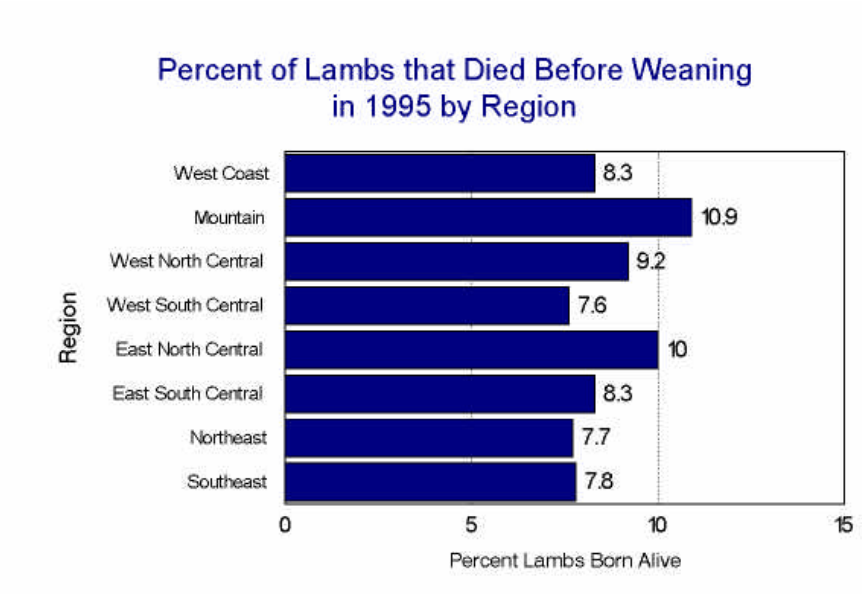
#3233

b. Of lambs born alive, percent that died before weaning by region:

Percent Lambs

West Coast	Standard Error	Mountain	Standard Error	West North Central	Standard Error	West South Central	Standard Error
8.3	(± 0.6)	10.9	(± 0.7)	9.2	(± 0.5)	7.6	(± 1.1)

East North Central	Standard Error	East South Central	Standard Error	Northeast	Standard Error	Southeast	Standard Error
10.0	(± 0.9)	8.3	(± 1.0)	7.7	(± 0.7)	7.8	(± 0.5)



#3234

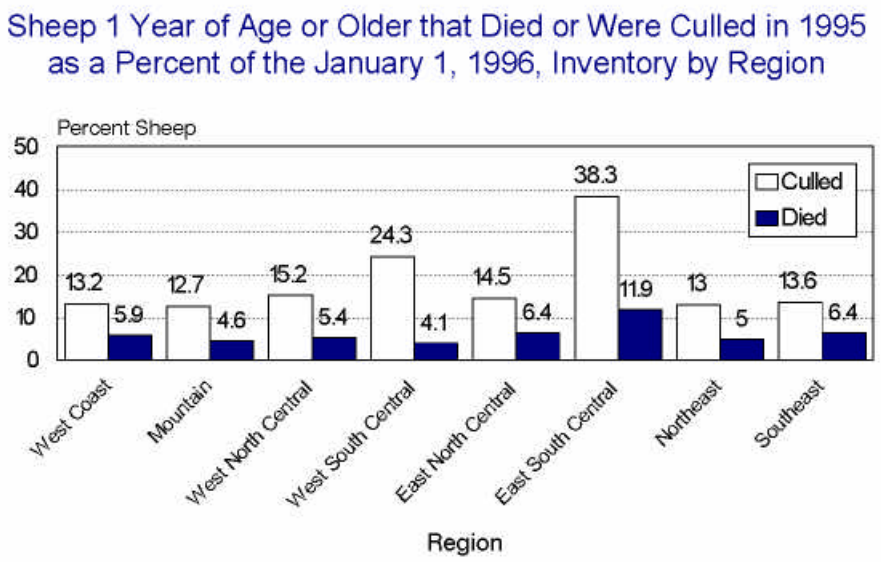
2. Culling and Mortality

a. Sheep 1 year of age and older that left the flock in 1995 due to death or culling, as a percent of January 1, 1996, inventory (ewes and rams 1 year of age or older) by region:

Percent Sheep

Exit Reason	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Were culled	13.2	(± 1.4)	12.7	(± 0.5)	15.2	(± 10.7)	24.3	(± 8.5)
Died	5.9	(± 0.5)	4.6	(± 0.2)	5.4	(± 0.2)	4.1	(± 0.3)
Total	19.1		17.3		20.6		28.4	

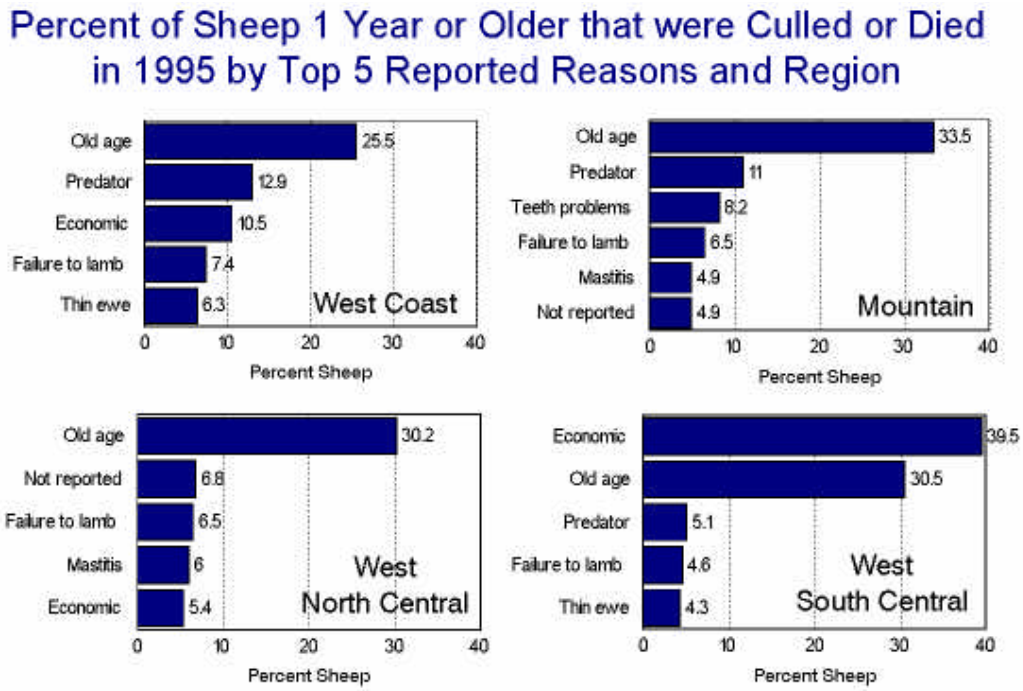
Exit Reason	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Were culled	14.5	(± 1.0)	38.3	(± 20.5)	13.0	(± 1.2)	13.6	(± 1.4)
Died	6.4	(± 0.5)	11.9	(± 2.7)	5.0	(± 0.3)	6.4	(± 0.6)
Total	20.9		50.2		18.0		20.0	



#3246

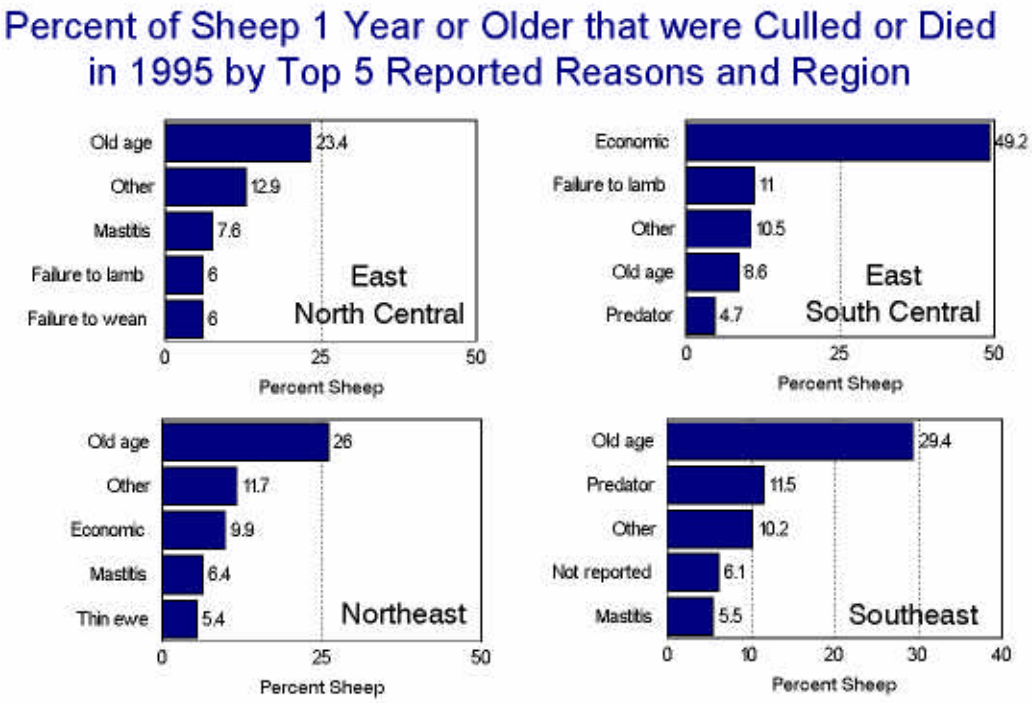
b. Of sheep 1 year of age and older that were culled or died in 1995, percent culled or died by reason:

	Percent Sheep							
Exit Reason	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Mastitis	6.0	(± 1.3)	4.9	(± 0.5)	6.0	(± 0.4)	1.4	(± 0.6)
Poor udder/teat conformation	1.9	(± 0.6)	2.5	(± 0.3)	3.0	(± 0.6)	0.6	(± 0.3)
'Hard bag' syndrome	3.1	(± 0.5)	4.1	(± 0.4)	4.9	(± 0.4)	1.3	(± 0.3)
Poor milk production	2.6	(± 0.4)	1.9	(± 0.3)	5.2	(± 0.5)	0.5	(± 0.2)
Teeth problems	3.7	(± 1.0)	8.2	(± 1.3)	1.8	(± 0.3)	2.4	(± 1.0)
Old age	25.5	(± 2.8)	33.5	(± 1.9)	30.2	(± 1.8)	30.5	(± 10.4)
Thin ewe	6.3	(± 1.6)	3.4	(± 0.3)	4.1	(± 0.3)	4.3	(± 2.6)
Failure to lamb (open, aborted)	7.4	(± 1.2)	6.5	(± 0.7)	6.5	(± 0.5)	4.6	(± 0.6)
Failure to wean (birthing problems, poor mothering, lambs died)	2.4	(± 0.4)	2.6	(± 0.4)	4.8	(± 0.5)	1.1	(± 0.5)
Other reproductive problems (low productivity, pregnancy disease, etc.)	2.5	(± 0.6)	1.4	(± 0.2)	3.3	(± 0.8)	0.7	(± 0.3)
Respiratory problems	2.2	(± 0.6)	2.4	(± 0.7)	3.0	(± 0.3)	0.3	(± 0.1)
Infectious footrot	2.7	(± 0.5)	1.0	(± 0.4)	1.7	(± 0.8)	0.4	(± 0.1)
Lameness, not footrot	1.1	(± 0.3)	0.6	(± 0.9)	0.8	(± 0.4)	0.3	(± 0.7)
Poor leg/feet conformation	0.1	(± 0.1)	0.1	(± 0.0)	0.2	(± 0.1)	0.1	(± 0.1)
Accidental injury	1.0	(± 0.3)	0.9	(± 0.1)	1.5	(± 0.2)	0.5	(± 0.2)
Predator	12.9	(± 2.5)	11.0	(± 0.7)	4.7	(± 0.9)	5.1	(± 1.7)
Behavioral faults	0.6	(± 0.2)	0.5	(± 0.1)	0.6	(± 0.2)	0.1	(± 0.1)
Poisoning	0.4	(± 0.1)	2.0	(± 0.2)	0.4	(± 0.1)	0.4	(± 0.2)
Ram breeding soundness	0.3	(± 0.1)	0.6	(± 0.1)	1.1	(± 0.8)	0.1	(± 0.1)
Economic	10.5	(± 6.1)	2.4	(± 0.7)	5.4	(± 1.9)	39.5	(± 19.0)
Other	4.8	(± 1.0)	4.6	(± 0.9)	4.0	(± 0.6)	2.9	(± 1.3)
Not reported	2.0	(± 0.5)	4.9	(± 1.3)	6.8	(± 2.0)	2.9	(± 1.3)
Total	100.0		100.0		100.0		100.0	



#3235a-d

	Percent Sheep							
Exit Reason	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Mastitis	7.6	(± 1.0)	2.3	(± 1.3)	6.4	(± 0.9)	5.5	(± 0.9)
Poor udder/teat conformation	2.5	(± 0.3)	0.3	(± 0.3)	1.8	(± 0.5)	2.2	(± 0.6)
'Hard bag' syndrome	3.8	(± 0.5)	0.5	(± 0.3)	3.4	(± 0.6)	3.8	(± 0.7)
Poor milk production	4.7	(± 0.6)	1.7	(± 1.0)	4.0	(± 0.9)	2.9	(± 0.6)
Teeth problems	1.3	(± 0.3)	0.2	(± 0.2)	1.0	(± 0.4)	1.8	(± 0.8)
Old age	23.4	(± 1.6)	8.6	(± 4.9)	26.0	(± 2.4)	29.4	(± 3.3)
Thin ewe	3.9	(± 0.5)	1.0	(± 0.6)	5.4	(± 0.9)	3.6	(± 0.7)
Failure to lamb (open, aborted)	6.0	(± 0.6)	11.0	(± 2.4)	3.2	(± 0.5)	5.3	(± 0.8)
Failure to wean (birthing problems, poor mothering, lambs died)	6.0	(± 0.8)	1.7	(± 1.1)	5.3	(± 0.9)	4.6	(± 0.9)
Other reproductive problems (low productivity, pregnancy disease, etc.)	4.4	(± 0.8)	0.7	(± 0.4)	4.0	(± 0.6)	1.6	(± 0.3)
Respiratory problems	2.3	(± 0.4)	0.4	(± 0.2)	1.6	(± 0.4)	0.4	(± 0.1)
Infectious footrot	3.7	(± 1.0)	1.6	(± 1.2)	2.8	(± 0.9)	2.0	(± 0.8)
Lameness, not footrot	0.7	(± 0.2)	0.7	(± 0.6)	0.6	(± 0.2)	0.9	(± 0.3)
Poor leg/feet conformation	0.2	(± 0.1)	0.1	(± 0.1)	0.2	(± 0.2)	0.3	(± 0.1)
Accidental injury	1.9	(± 0.3)	2.1	(± 1.7)	3.1	(± 0.5)	1.0	(± 0.3)
Predator	4.7	(± 0.9)	4.7	(± 3.3)	4.1	(± 0.8)	11.5	(± 2.4)
Behavioral faults	0.6	(± 0.2)	0.9	(± 0.6)	1.3	(± 0.4)	0.3	(± 0.2)
Poisoning	0.8	(± 0.4)	0.0	(± 0.0)	1.2	(± 0.4)	1.2	(± 0.6)
Ram breeding soundness	0.5	(± 0.2)	0.3	(± 0.2)	0.7	(± 0.3)	0.3	(± 0.1)
Economic	5.3	(± 1.4)	49.2	(± 19.0)	9.9	(± 4.8)	5.1	(± 1.9)
Other	12.9	(± 4.2)	10.5	(± 7.0)	11.7	(± 2.4)	10.2	(± 2.8)
Not reported	2.8	(± 0.6)	1.5	(± 1.2)	2.3	(± 0.7)	6.1	(± 3.4)
Total	100.0		100.0		100.0		100.0	



#3235e-h

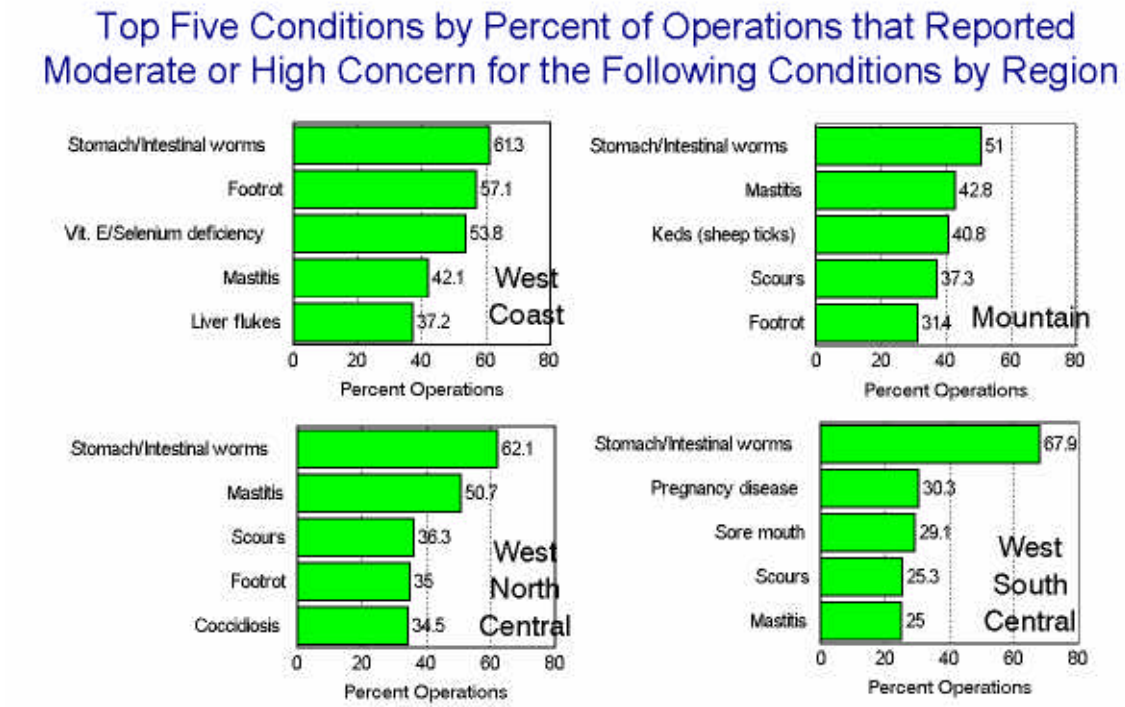
3. Morbidity

a. Percent of operations that reported moderate or high concern[1] for the following conditions by region:

	Percent Operations							
Condition	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Chlamydia (enzootic abortion)	21.2	(± 2.7)	24.4	(± 2.2)	20.9	(± 1.7)	10.2	(± 2.1)
Campylobacter (vibrio abortion)	21.0	(± 2.6)	27.9	(± 2.2)	23.8	(± 1.8)	11.8	(± 2.4)
Toxoplasmosis abortion	15.1	(± 2.4)	16.4	(± 2.0)	18.5	(± 1.6)	11.2	(± 2.3)
Salmonellosis	7.3	(± 1.7)	9.9	(± 1.7)	9.2	(± 1.1)	5.2	(± 1.5)
Border disease (hairy shaker disease)	4.3	(± 1.2)	8.3	(± 1.6)	5.4	(± 1.0)	2.0	(± 0.6)
Bluetongue	15.9	(± 2.1)	13.0	(± 1.6)	6.5	(± 1.1)	13.3	(± 2.3)
Epididymitis (*B. ovis*)	12.0	(± 2.0)	22.6	(± 2.2)	10.8	(± 1.3)	10.4	(± 1.9)
Lamb epididymitis (Histomoniasis/Actinobacillus)	7.8	(± 1.7)	13.7	(± 1.9)	9.2	(± 1.3)	5.4	(± 1.4)
Scours	34.3	(± 3.2)	37.3	(± 2.8)	36.3	(± 2.2)	25.3	(± 3.9)
Cryptosporidiosis	5.7	(± 1.4)	10.1	(± 1.8)	8.4	(± 1.2)	5.1	(± 1.6)
Coccidiosis	30.2	(± 3.0)	24.7	(± 2.2)	34.5	(± 2.1)	20.9	(± 3.1)
Stomach/intestinal worms	61.3	(± 3.3)	51.0	(± 3.8)	62.1	(± 2.3)	67.9	(± 5.1)
Liver flukes	37.2	(± 3.3)	31.1	(± 3.6)	19.1	(± 1.8)	19.2	(± 3.5)
Pasteurella pneumonia	25.4	(± 2.8)	29.8	(± 2.5)	30.1	(± 2.0)	14.7	(± 3.1)
Sore mouth (Orf)	20.9	(± 2.6)	25.7	(± 2.2)	26.7	(± 1.9)	29.1	(± 3.5)
Clostridial diseases	29.7	(± 3.0)	25.8	(± 2.3)	23.7	(± 1.9)	19.1	(± 3.4)
Vitamin E/Selenium deficiency (white muscle disease)	53.8	(± 3.4)	28.0	(± 2.4)	34.1	(± 2.1)	13.3	(± 2.6)
Grain overload (rumen acidosis)	17.5	(± 2.6)	21.6	(± 2.4)	33.1	(± 2.2)	14.1	(± 3.2)
Polio (polioencephalomalacia)	5.6	(± 1.4)	8.1	(± 1.4)	9.0	(± 1.2)	5.3	(± 1.6)
Listeriosis (circling disease)	6.0	(± 1.5)	7.7	(± 1.4)	9.5	(± 1.3)	6.6	(± 2.6)
Pregnancy disease (toxemia)	36.3	(± 3.3)	29.8	(± 2.5)	31.8	(± 2.1)	30.3	(± 4.4)
Milk fever (hypocalcemia)	19.7	(± 2.7)	18.5	(± 2.1)	23.2	(± 2.0)	8.2	(± 1.6)
Mastitis	42.1	(± 3.3)	42.8	(± 2.8)	50.7	(± 2.4)	25.0	(± 3.9)
Caseous lymphadenitis (Cl, boils, abscess)	21.7	(± 2.6)	18.5	(± 2.1)	15.4	(± 1.5)	10.3	(± 2.1)
Ovine progressive penumonia (OPP)	18.0	(± 2.5)	20.0	(± 2.1)	18.5	(± 1.6)	11.7	(± 3.0)
Johne's disease (paratuberculosis)	5.3	(± 1.4)	7.3	(± 1.3)	8.0	(± 1.2)	3.8	(± 1.3)
Bad teeth	15.3	(± 2.4)	18.6	(± 2.1)	19.4	(± 1.8)	16.0	(± 3.3)
Nutritional wasting	14.8	(± 2.4)	18.0	(± 2.0)	19.3	(± 1.7)	12.3	(± 2.4)
Scrapie	19.9	(± 2.6)	18.0	(± 3.1)	18.6	(± 1.7)	10.8	(± 2.9)
Footrot	57.1	(± 3.4)	31.4	(± 2.6)	35.0	(± 2.2)	17.3	(± 3.2)
Foot scald	30.6	(± 3.0)	12.3	(± 1.9)	14.9	(± 1.5)	21.4	(± 1.8)
Foot abscess	22.8	(± 2.8)	13.5	(± 1.9)	13.1	(± 1.4)	7.9	(± 1.9)
Lice	18.3	(± 2.6)	18.6	(± 2.1)	23.6	(± 2.0)	21.9	(± 3.9)
Keds (sheep ticks)	25.0	(± 3.0)	40.8	(± 2.7)	22.3	(± 1.8)	19.5	(± 3.5)
Fly strike	23.6	(± 2.8)	18.8	(± 2.2)	16.8	(± 1.7)	11.3	(± 2.4)
Copper toxicity	11.9	(± 2.1)	12.1	(± 1.6)	17.7	(± 1.8)	10.4	(± 2.3)
Plant toxicity	9.7	(± 2.0)	14.6	(± 1.9)	13.8	(± 1.7)	10.6	(± 2.8)
Genetic disorder	11.3	(± 2.1)	11.3	(± 1.8)	10.5	(± 1.3)	8.1	(±1.9)
Other	5.7	(± 1.5)	5.9	(± 1.4)	3.9	(± 0.8)	7.0	(± 2.7)

(continued on page 18)

1 Respondents were asked to consider the overall potential effects on their flock and customers regardless of whether the condition existed in their flock.

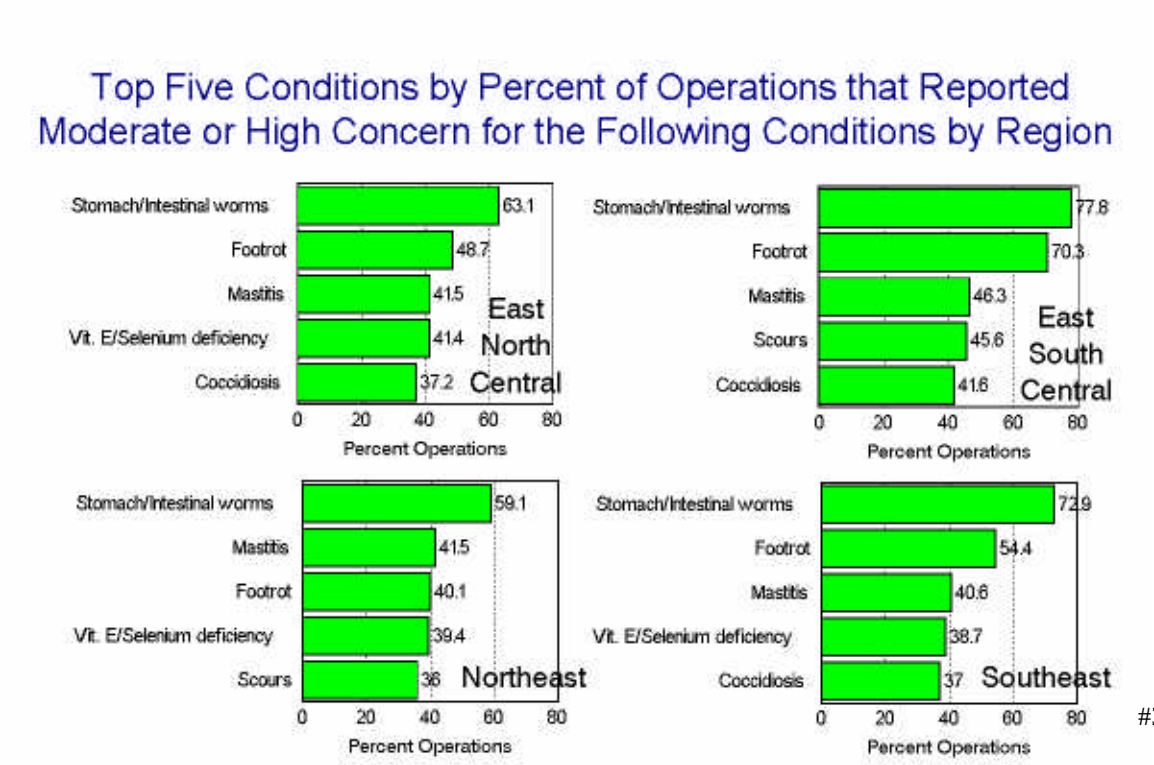

Top Five Conditions by Percent of Operations that Reported Moderate or High Concern for the Following Conditions by Region
Stomach/Intestinal worms
Footrot
Vit. E/Selenium deficiency
Mastitis
Liver flukes
61.3
57.1
53.8
42.1
37.2
West Coast
0 20 40 60 80
Percent Operations
Stomach/Intestinal worms
Mastitis
Keds (sheep ticks)
Scours
Footrot
51
42.8
40.8
37.3
31.4
Mountain
0 20 40 60 80
Percent Operations
Stomach/Intestinal worms
Mastitis
Scours
Footrot
Coccidiosis
62.1
50.7
36.3
35
34.5
West North Central
0 20 40 60 80
Percent Operations
Stomach/Intestinal worms
Pregnancy disease
Sore mouth
Scours
Mastitis
67.9
30.3
29.1
25.3
25
West South Central
0 20 40 60 80
Percent Operations

#3236a-d

a. Percent of operations that reported moderate or high concern[1] for the following conditions by region (continued):

	Percent Operations							
Condition	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Chlamydia (enzootic abortion)	14.4	(± 1.6)	23.2	(± 6.6)	11.7	(± 1.9)	17.4	(± 3.2)
Campylobacter (vibrio abortion)	15.5	(± 1.7)	22.6	(± 6.6)	12.6	(± 1.9)	18.4	(± 3.2)
Toxoplasmosis abortion	14.6	(± 1.7)	23.8	(± 6.8)	16.9	(± 2.1)	13.6	(± 3.3)
Salmonellosis	8.4	(± 1.4)	9.2	(± 3.9)	8.8	(± 1.7)	9.4	(± 2.6)
Border disease (hairy shaker disease)	2.8	(± 0.7)	7.3	(± 3.4)	5.7	(± 1.4)	8.2	(± 2.6)
Bluetongue	4.3	(± 1.1)	7.5	(± 3.5)	5.9	(± 1.5)	11.1	(± 2.8)
Epididymitis (*B. ovis*)	6.4	(± 1.1)	14.6	(± 5.8)	8.2	(± 1.6)	12.9	(± 3.0)
Lamb epididymitis (Histomoniasis/Actinobacillus)	4.9	(± 1.0)	8.4	(± 3.4)	6.5	(± 1.5)	12.3	(± 2.9)
Scours	34.3	(± 2.5)	45.6	(± 8.0)	36.0	(± 2.9)	36.0	(± 4.5)
Cryptosporidiosis	6.3	(± 1.2)	8.2	(± 3.4)	8.7	(± 1.7)	11.9	(± 2.9)
Coccidiosis	37.2	(± 2.6)	41.6	(± 8.3)	32.2	(± 2.8)	37.0	(± 4.5)
Stomach/intestinal worms	63.1	(± 2.8)	77.8	(± 5.9)	59.1	(± 3.1)	72.9	(± 4.0)
Liver flukes	18.4	(± 1.9)	36.0	(± 7.6)	19.2	(± 2.4)	19.6	(± 3.4)
Pasteurella pneumonia	27.5	(± 2.3)	32.5	(± 7.3)	19.9	(± 2.4)	20.4	(± 3.3)
Sore mouth (Orf)	27.4	(± 2.4)	30.5	(± 7.3)	22.7	(± 2.5)	23.8	(± 3.8)
Clostridial diseases	21.9	(± 2.1)	31.4	(± 7.3)	23.9	(± 2.6)	28.0	(± 3.9)
Vitamin E/Selenium deficiency (white muscle disease)	41.4	(± 2.7)	35.9	(± 6.5)	39.4	(± 3.0)	38.7	(± 4.2)
Grain overload (rumen acidosis)	27.9	(± 2.4)	30.1	(± 7.3)	18.8	(± 2.3)	23.4	(± 4.1)
Polio (polioencephalomalacia)	8.5	(± 1.3)	11.9	(± 4.5)	9.5	(± 1.7)	14.1	(± 3.4)
Listeriosis (circling disease)	11.1	(± 1.7)	11.4	(± 5.2)	9.4	(± 1.7)	17.6	(± 3.3)
Pregnancy disease (toxemia)	27.9	(± 2.4)	30.5	(± 7.3)	30.7	(± 2.8)	35.2	(± 4.5)
Milk fever (hypocalcemia)	17.8	(± 2.0)	19.8	(± 5.1)	18.5	(± 2.3)	23.4	(± 3.8)
Mastitis	41.5	(± 2.7)	46.3	(± 7.7)	41.5	(± 3.0)	40.6	(± 4.3)
Caseous lymphadenitis (Cl, boils, abscess)	14.6	(± 1.6)	20.3	(± 6.3)	19.1	(± 2.4)	19.7	(± 3.5)
Ovine progressive penumonia (OPP)	19.1	(± 2.0)	15.0	(± 5.4)	22.5	(± 2.6)	17.8	(± 3.3)
Johne's disease (paratuberculosis)	5.7	(± 1.1)	12.8	(± 5.6)	12.7	(± 2.0)	12.9	(± 3.0)
Bad teeth	15.1	(± 2.0)	16.4	(± 5.7)	16.8	(± 2.3)	14.8	(± 3.1)
Nutritional wasting	16.7	(± 2.0)	16.2	(± 5.6)	16.6	(± 2.2)	19.4	(± 3.4)
Scrapie	19.5	(± 2.0)	26.2	(± 7.2)	17.5	(± 2.3)	23.0	(± 4.0)
Footrot	48.7	(± 2.7)	70.3	(± 5.9)	40.1	(± 3.0)	54.4	(± 4.6)
Foot scald	21.4	(± 2.0)	35.2	(± 7.7)	21.1	(± 2.5)	29.1	(± 3.8)
Foot abscess	13.9	(± 1.7)	24.0	(± 6.6)	16.3	(± 2.2)	23.9	(± 3.7)
Lice	17.2	(± 2.0)	21.6	(± 5.1)	20.5	(± 2.3)	18.6	(± 3.2)
Keds (sheep ticks)	16.1	(± 2.0)	14.4	(± 4.9)	24.1	(± 2.7)	21.1	(± 3.5)
Fly strike	12.3	(± 1.5)	18.1	(± 5.0)	16.0	(± 2.1)	20.7	(± 3.6)
Copper toxicity	15.1	(± 1.8)	25.2	(± 6.4)	14.8	(± 2.1)	16.0	(± 3.3)
Plant toxicity	13.1	(± 1.9)	13.4	(± 5.3)	16.9	(± 2.4)	16.9	(± 3.5)
Genetic disorder	12.2	(± 1.8)	7.7	(± 3.4)	14.0	(± 2.1)	8.5	(± 2.5)
Other	5.4	(± 1.2)	4.1	(± 2.5)	6.5	(± 1.5)	10.2	(± 2.9)

1 Respondents were asked to consider the overall potential effects on their flock and customers regardless of whether the condition existed in their flock.


Top Five Conditions by Percent of Operations that Reported Moderate or High Concern for the Following Conditions by Region
Stomach/Intestinal worms
Footrot
Mastitis
Vit. E/Selenium deficiency
Coccidiosis
63.1
48.7
41.5
41.4
37.2
East North Central
0 20 40 60 80
Percent Operations
Stomach/Intestinal worms
Footrot
Mastitis
Scours
Coccidiosis
77.8
70.3
46.3
45.6
41.6
East South Central
0 20 40 60 80
Percent Operations
Stomach/Intestinal worms
Mastitis
Footrot
Vit. E/Selenium deficiency
Scours
59.1
41.5
40.1
39.4
36
Northeast
0 20 40 60 80
Percent Operations
Stomach/Intestinal worms
Footrot
Mastitis
Vit. E/Selenium deficiency
Coccidiosis
72.9
54.4
40.6
38.7
37
Southeast
0 20 40 60 80
Percent Operations

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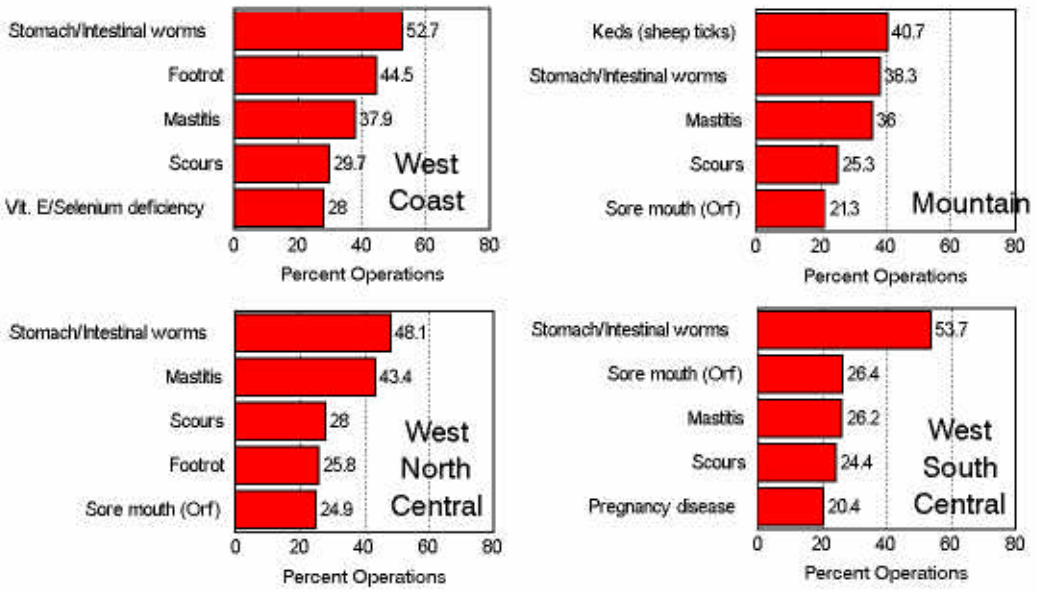
b. Percent of operations on which the following conditions were known to be present (suspected or confirmed) in the previous 5 years by region:

	Percent Operations							
Condition	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Chlamydia (enzootic abortion)	4.3	(± 1.0)	7.4	(± 1.0)	5.9	(± 0.8)	1.3	(± 0.6)
Campylobacter (vibrio abortion)	3.7	(± 0.6)	6.3	(± 0.8)	7.4	(± 0.9)	2.0	(± 0.7)
Toxoplasmosis abortion	2.7	(± 0.9)	2.1	(± 0.7)	4.7	(± 0.8)	2.7	(± 1.2)
Salmonellosis	0.9	(± 0.4)	1.0	(± 0.3)	1.2	(± 0.3)	0.8	(± 0.4)
Border disease (hairy shaker disease)	1.0	(± 0.3)	2.1	(± 0.6)	0.7	(± 0.3)	0.6	(± 0.3)
Bluetongue	6.9	(± 1.3)	4.5	(± 0.9)	0.4	(± 0.2)	7.8	(± 1.7)
Epididymitis (*B. ovis*)	1.7	(± 0.3)	3.7	(± 0.5)	0.9	(± 0.3)	2.4	(± 0.5)
Lamb epididymitis (Histomoniasis/Actinobacillus)	0.5	(± 0.2)	1.0	(± 0.3)	0.9	(± 0.3)	1.7	(± 0.8)
Scours	29.7	(± 3.1)	25.3	(± 2.3)	28.0	(± 2.0)	24.4	(± 4.1)
Cryptosporidiosis	0.4	(± 0.2)	1.9	(± 0.5)	0.8	(± 0.2)	0.9	(± 0.4)
Coccidiosis	18.2	(± 2.3)	11.2	(± 1.2)	20.2	(± 1.7)	16.2	(± 3.0)
Stomach/intestinal worms	52.7	(± 3.4)	38.3	(± 3.5)	48.1	(± 2.3)	53.7	(± 4.9)
Liver flukes	18.5	(± 2.4)	15.8	(± 2.0)	5.2	(± 0.9)	3.3	(± 0.8)
Pasteurella pneumonia	10.3	(± 1.6)	15.7	(± 1.8)	18.1	(± 1.6)	15.0	(± 3.5)
Sore mouth (Orf)	15.8	(± 2.1)	21.3	(± 1.8)	24.9	(± 1.8)	26.4	(± 3.5)
Clostridial diseases	9.4	(± 1.5)	10.1	(± 1.2)	9.5	(± 1.0)	13.8	(± 3.4)
Vitamin E/Selenium deficiency (white muscle disease)	28.0	(± 2.9)	17.4	(± 2.0)	19.1	(± 1.7)	8.3	(± 2.7)
Grain overload (rumen acidosis)	8.0	(± 1.7)	10.4	(± 1.5)	24.0	(± 1.9)	12.4	(± 2.9)
Polio (polioencephalomalacia)	1.7	(± 0.7)	1.4	(± 0.3)	3.9	(± 0.7)	2.5	(± 1.0)
Listeriosis (circling disease)	1.9	(± 0.7)	3.0	(± 0.7)	3.8	(± 0.7)	2.5	(± 2.1)
Pregnancy disease (toxemia)	19.2	(± 2.4)	17.4	(± 1.5)	20.5	(± 1.7)	20.4	(± 3.3)
Milk fever (hypocalcemia)	11.8	(± 2.1)	7.5	(± 1.1)	9.7	(± 1.3)	6.0	(± 1.5)
Mastitis	37.9	(± 3.2)	36.0	(± 2.5)	43.4	(± 2.3)	26.2	(± 3.9)
Caseous lymphadenitis (Cl, boils, abscess)	17.2	(± 2.1)	14.7	(± 1.6)	13.8	(± 1.3)	13.4	(± 2.5)
Ovine progressive penumonia (OPP)	4.1	(± 1.0)	6.3	(± 1.0)	6.7	(± 0.9)	1.5	(± 0.7)
Johne's disease (paratuberculosis)	0.9	(± 0.6)	1.1	(± 0.4)	1.1	(± 0.3)	0.5	(± 0.3)
Bad teeth	13.4	(± 2.1)	17.0	(± 1.9)	16.4	(± 1.6)	18.2	(± 3.5)
Nutritional wasting	4.8	(± 0.9)	8.2	(± 1.4)	9.0	(± 1.2)	5.4	(± 1.5)
Scrapie	0.3	(± 0.1)	1.2	(± 0.6)	0.9	(± 0.3)	1.3	(± 0.9)
Footrot	44.5	(± 3.3)	19.2	(± 1.9)	25.8	(± 2.0)	11.2	(± 2.9)
Foot scald	22.5	(± 2.5)	3.4	(± 0.8)	5.6	(± 0.9)	3.3	(± 1.3)
Foot abscess	13.3	(± 2.0)	7.1	(± 1.0)	4.6	(± 0.7)	5.3	(± 1.6)
Lice	14.3	(± 2.3)	8.1	(± 1.1)	12.0	(± 1.3)	17.9	(± 3.5)
Keds (sheep ticks)	22.6	(± 2.7)	40.7	(± 2.7)	16.3	(± 1.5)	15.2	(± 3.3)
Fly strike	17.4	(± 2.1)	10.9	(± 1.3)	9.4	(± 1.1)	9.1	(± 1.9)
Copper toxicity	4.1	(± 1.3)	1.4	(± 0.6)	3.9	(± 1.0)	0.9	(± 0.5)
Plant toxicity	6.1	(± 1.5)	9.1	(± 1.1)	5.3	(± 0.9)	9.3	(± 3.0)
Genetic disorder	5.9	(± 1.6)	4.2	(± 0.9)	6.2	(± 1.0)	4.5	(± 1.4)
Other	6.5	(± 1.7)	3.8	(± 1.1)	1.7	(± 0.5)	4.2	(± 2.3)

(continued on page 22)

Top Five Conditions by Percent of Operations on Which the Following Conditions Were Known to be Present* by Region



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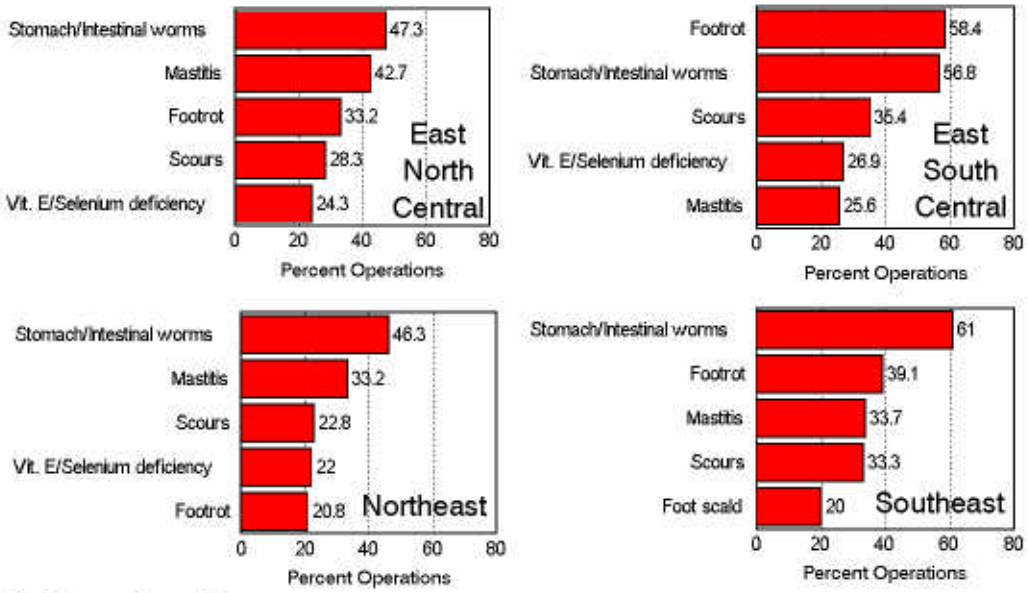
*In the previous 5 years.

b. Percent of operations on which the following conditions were known to be present (suspected or confirmed) in the previous 5 years by region (continued):

	Percent Operations							
Condition	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Chlamydia (enzootic abortion)	4.5	(± 0.9)	0.4	(± 0.3)	2.1	(± 0.7)	2.3	(± 0.8)
Campylobacter (vibrio abortion)	3.7	(± 0.7)	2.9	(± 2.0)	1.3	(± 0.4)	2.8	(± 0.6)
Toxoplasmosis abortion	3.1	(± 0.8)	6.4	(± 4.3)	2.8	(± 1.0)	1.6	(± 0.5)
Salmonellosis	1.2	(± 0.3)	2.2	(± 2.0)	0.2	(± 0.1)	1.0	(± 0.4)
Border disease (hairy shaker disease)	0.3	(± 0.1)	0.3	(± 0.3)	0.0	(± 0.0)	0.2	(± 0.2)
Bluetongue	0.2	(± 0.1)	3.3	(± 2.0)	0.0	(± 0.0)	0.8	(± 0.7)
Epididymitis (*B. ovis*)	0.9	(± 0.3)	1.1	(± 1.1)	0.4	(± 0.3)	0.2	(± 0.1)
Lamb epididymitis (Histomoniasis/Actinobacillus)	1.0	(± 0.3)	0.0	(± 0.0)	0.6	(± 0.5)	0.3	(± 0.2)
Scours	28.3	(± 2.4)	35.4	(± 7.2)	22.8	(± 2.4)	33.3	(± 4.3)
Cryptosporidiosis	1.7	(± 0.6)	0.0	(± 0.0)	1.0	(± 0.7)	0.4	(± 0.3)
Coccidiosis	23.9	(± 2.1)	15.3	(± 4.1)	17.3	(± 2.1)	17.4	(± 3.3)
Stomach/intestinal worms	47.3	(± 2.6)	56.8	(± 6.4)	46.3	(± 3.1)	61.0	(± 4.2)
Liver flukes	3.6	(± 0.7)	2.1	(± 1.2)	2.2	(± 0.8)	6.1	(± 1.7)
Pasteurella pneumonia	14.7	(± 1.6)	12.5	(± 4.5)	5.2	(± 1.1)	9.4	(± 2.1)
Sore mouth (Orf)	21.8	(± 2.0)	14.3	(± 4.3)	12.2	(± 1.7)	14.0	(± 2.6)
Clostridial diseases	10.5	(± 1.5)	7.5	(± 3.6)	7.0	(± 1.3)	9.2	(± 1.7)
Vitamin E/Selenium deficiency (white muscle disease)	24.3	(± 2.2)	26.9	(± 7.3)	22.0	(± 2.4)	17.3	(± 2.8)
Grain overload (rumen acidosis)	20.1	(± 2.1)	11.8	(± 4.9)	7.0	(± 1.4)	11.4	(± 2.9)
Polio (polioencephalomalacia)	4.1	(± 0.8)	3.4	(± 2.2)	3.0	(± 0.9)	3.7	(± 1.4)
Listeriosis (circling disease)	4.7	(± 0.8)	1.5	(± 0.5)	4.3	(± 1.0)	9.1	(± 2.2)
Pregnancy disease (toxemia)	19.5	(± 2.0)	10.4	(± 3.7)	19.5	(± 2.4)	19.1	(± 3.2)
Milk fever (hypocalcemia)	8.3	(± 1.5)	4.3	(± 2.3)	7.5	(± 1.5)	10.4	(± 2.7)
Mastitis	42.7	(± 2.6)	25.6	(± 7.0)	33.2	(± 2.8)	33.7	(± 4.1)
Caseous lymphadenitis (Cl, boils, abscess)	15.6	(± 1.7)	9.3	(± 4.5)	11.5	(± 1.8)	7.2	(± 1.7)
Ovine progressive penumonia (OPP)	6.3	(± 1.2)	0.6	(± 0.4)	4.8	(± 1.2)	3.3	(± 1.4)
Johne's disease (paratuberculosis)	0.4	(± 0.1)	0.7	(± 0.4)	0.2	(± 0.1)	1.2	(± 0.4)
Bad teeth	9.1	(± 1.2)	5.1	(± 2.1)	8.5	(± 1.5)	11.1	(± 1.9)
Nutritional wasting	8.0	(± 1.5)	5.9	(± 2.9)	6.0	(± 1.4)	4.2	(± 1.0)
Scrapie	1.9	(± 0.7)	2.6	(± 2.2)	1.2	(± 0.7)	1.3	(± 0.8)
Footrot	33.2	(± 2.5)	58.4	(± 6.5)	20.8	(± 2.3)	39.1	(± 4.4)
Foot scald	15.1	(± 1.7)	21.3	(± 6.6)	10.9	(± 1.7)	20.0	(± 3.4)
Foot abscess	8.3	(± 1.3)	4.1	(± 1.0)	6.9	(± 1.5)	16.2	(± 3.2)
Lice	11.7	(± 1.6)	12.0	(± 4.9)	11.5	(± 1.7)	11.0	(± 2.1)
Keds (sheep ticks)	10.6	(± 1.7)	4.6	(± 2.3)	17.9	(± 2.3)	14.5	(± 2.5)
Fly strike	8.0	(± 1.1)	10.2	(± 3.5)	9.7	(± 1.6)	14.2	(± 2.4)
Copper toxicity	2.7	(± 0.6)	3.6	(± 2.2)	1.2	(± 0.5)	1.8	(± 1.3)
Plant toxicity	6.0	(± 1.2)	1.0	(± 0.4)	8.3	(± 1.8)	8.6	(± 2.4)
Genetic disorder	5.7	(± 1.1)	3.9	(± 2.4)	5.7	(± 1.2)	1.3	(± 0.4)
Other	3.6	(± 0.9)	2.5	(± 2.2)	3.7	(± 1.1)	5.7	(± 2.1)

c. Level of diagnosis for conditions present is not provided by region, however U.S. estimates are included in a *Reference of 1996 U.S. Sheep Health and Management Practices* (see contact address on the back of this report.)

Top Five Conditions by Percent of Operations on Which the Following Conditions Were Known to be Present* by Region



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*In the previous 5 years.

C. Health Management

1. Vaccines

   a. Percent of *operations* by vaccines used at least once within the previous 3 years by region:

Percent Operations

Vaccine	West Coast	Standard Error	Mountain	Standard Error	West North Central	Standard Error	West South Central	Standard Error
Clostridia C & D (overeating)	55.2	(± 3.3)	62.9	(± 3.6)	74.3	(± 2.1)	50.0	(± 4.6)
Clostridia CDT (tetanus)	67.2	(± 3.0)	43.9	(± 2.6)	61.7	(± 2.2)	49.2	(± 4.5)
Clostridia 7- or 8-way	41.4	(± 3.2)	34.9	(± 3.5)	19.7	(± 1.6)	24.7	(± 3.5)
Any clostridia	79.6	(± 2.7)	75.1	(± 2.5)	81.9	(± 1.9)	58.8	(± 4.7)
Soremouth	10.6	(± 1.5)	23.3	(± 2.9)	14.2	(± 1.5)	31.6	(± 3.7)
Chlamydia	6.8	(± 1.4)	9.1	(± 1.2)	10.3	(± 1.1)	1.5	(± 0.7)
Campylobacter (vibrio)	11.4	(± 1.8)	20.4	(± 3.0)	18.7	(± 1.5)	4.3	(± 1.2)
E. coli	4.1	(± 1.2)	9.3	(± 2.7)	12.5	(± 1.4)	3.2	(± 1.0)
Respiratory diseases	14.2	(± 2.2)	12.1	(± 1.7)	18.7	(± 1.7)	15.9	(± 3.5)
Bluetongue	4.3	(± 1.0)	3.9	(± 1.3)	0.6	(± 0.4)	2.7	(± 1.1)
Footrot	21.1	(± 2.5)	13.7	(± 1.9)	16.7	(± 1.7)	5.1	(± 1.4)
Caseous lymphadenitis	2.7	(± 1.0)	3.7	(± 0.9)	1.8	(± 0.4)	2.2	(± 0.9)
Other	2.5	(± 1.0)	0.7	(± 0.3)	1.4	(± 0.6)	0.7	(± 0.5)

Vaccine	East North Central	Standard Error	East South Central	Standard Error	Northeast	Standard Error	Southeast	Standard Error
Clostridia C & D (overeating)	56.6	(± 2.7)	50.8	(± 7.4)	33.0	(± 2.9)	55.9	(± 4.7)
Clostridia CDT (tetanus)	62.4	(± 2.7)	50.0	(± 7.4)	49.6	(± 3.1)	56.4	(± 4.5)
Clostridia 7- or 8-way	17.9	(± 2.1)	31.4	(± 6.5)	10.1	(± 1.7)	37.8	(± 4.2)
Any clostridia	72.3	(± 2.6)	64.8	(± 7.3)	56.5	(± 3.1)	72.1	(± 4.3)
Soremouth	11.7	(± 1.5)	9.0	(± 3.5)	3.7	(± 1.0)	6.5	(± 1.7)
Chlamydia	6.1	(± 1.2)	7.9	(± 4.3)	0.8	(± 0.5)	5.7	(± 1.7)
Campylobacter (vibrio)	8.5	(± 1.2)	13.5	(± 4.8)	1.6	(± 0.6)	8.8	(± 1.9)
E. coli	11.7	(± 1.7)	10.1	(± 4.4)	5.2	(± 1.3)	9.9	(± 2.5)
Respiratory diseases	16.4	(± 1.8)	10.4	(± 4.4)	9.0	(± 1.7)	7.1	(± 2.0)
Bluetongue	0.7	(± 0.5)	5.0	(± 3.3)	0.1	(± 0.1)	2.5	(± 1.4)
Footrot	23.1	(± 2.2)	30.3	(± 7.1)	11.8	(± 1.9)	25.1	(± 3.9)
Caseous lymphadenitis	2.1	(± 0.6)	0.3	(± 0.3)	2.8	(± 0.9)	5.4	(± 2.0)
Other	0.9	(± 0.4)	0.4	(± 0.4)	6.2	(± 1.4)	5.7	(± 2.4)

b. Percent of *sheep* on operations by vaccines used at least once within the previous 3 years by region:

	Percent Sheep							
Vaccine	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Clostridia C & D (overeating)	79.7	(± 5.2)	82.1	(± 2.7)	83.5	(± 1.9)	73.3	(± 3.6)
Clostridia CDT (tetanus)	59.9	(± 8.0)	42.8	(± 4.5)	58.3	(± 3.0)	50.8	(± 5.8)
Clostridia 7- or 8-way	40.7	(± 7.0)	33.9	(± 3.8)	27.2	(± 2.4).	28.6	(± 7.2)
Any clostridia	87.6	(± 4.6)	87.7	(± 2.2)	90.3	(± 1.6)	79.2	(± 3.1)
Soremouth	19.8	(± 4.1)	53.7	(± 5.2)	26.3	(± 2.5)	82.5	(± 2.2)
Chlamydia	33.1	(± 10.2)	13.5	(± 2.3)	21.6	(± 2.3)	11.7	(± 8.3)
Campylobacter (vibrio)	22.9	(± 5.1)	23.6	(± 3.1)	35.5	(± 2.6)	13.3	(± 8.2)
E. coli	19.3	(± 11.3)	14.3	(± 3.4)	20.4	(± 2.4)	3.1	(± 0.9)
Respiratory diseases	30.2	(± 10.3)	12.2	(± 2.2)	28.3	(± 2.3)	20.8	(± 7.7)
Bluetongue	25.3	(± 6.8)	3.1	(± 1.1)	2.3	(± 1.2)	7.2	(± 1.9)
Footrot	54.3	(± 8.1)	18.3	(± 3.4)	23.3	(± 3.0)	12.9	(± 8.3)
Caseous lymphadenitis	4.5	(± 2.4)	3.9	(± 1.4)	2.9	(± 1.0)	12.2	(± 8.3)
Other	0.7	(± 0.3)	3.0	(± 1.5)	2.0	(± 1.0)	1.0	(± 0.5)

Disease	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Clostridia C & D (overeating)	68.0	(± 2.3)	59.3	(± 7.1)	45.7	(± 3.2)	66.7	(± 3.6)
Clostridia CDT (tetanus)	72.3	(± 2.1)	54.4	(± 7.1)	66.2	(± 2.7)	61.7	(± 3.7)
Clostridia 7- or 8-way	25.6	(± 2.6)	33.3	(± 6.1)	12.0	(± 1.8)	49.4	(± 3.8)
Any clostridia	83.3	(± 1.8)	68.8	(± 6.7)	74.5	(± 2.5)	84.3	(± 2.6)
Soremouth	16.0	(± 1.8)	10.7	(± 2.9)	9.9	(± 2.4)	10.5	(± 2.3)
Chlamydia	9.6	(± 1.5)	10.5	(± 4.6)	3.0	(± 1.0)	8.2	(± 2.1)
Campylobacter (vibrio)	18.7	(± 2.6)	17.9	(± 5.0)	6.8	(± 1.7)	16.7	(± 2.7)
E. coli	10.5	(± 1.4)	14.4	(± 4.8)	5.7	(± 1.3)	12.3	(± 2.6)
Respiratory diseases	22.2	(± 2.1)	15.7	(± 4.9)	9.8	(± 1.9)	10.9	(± 2.3)
Bluetongue	0.2	(± 0.2)	8.0	(± 4.3)	0.2	(± 0.2)	1.2	(± 0.8)
Footrot	29.1	(± 2.5)	34.2	(± 6.2)	18.4	(± 2.6)	31.5	(± 3.5)
Caseous lymphadenitis	4.2	(± 1.3)	0.5	(± 0.4)	7.2	(± 1.9)	5.8	(± 1.9)
Other	2.0	(± 1.0)	1.0	(± 0.9)	4.4	(± 1.1)	4.2	(± 1.5)

2. Dewormers

a. For operations that dewormed the following types of sheep, percent of operations by frequency of rotating dewormers for:

i. Lambs

Percent Operations

Frequency	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Not rotated	48.2	(± 3.6)	55.4	(± 3.1)	51.2	(± 2.4)	35.9	(± 5.2)
Less frequently than yearly	15.5	(± 2.7)	12.7	(± 4.1)	12.3	(± 1.7)	10.1	(± 2.1)
Yearly	11.4	(± 2.2)	19.3	(± 2.8)	14.5	(± 1.7)	17.1	(± 4.0)
More frequently than yearly	24.9	(± 2.8)	12.6	(± 4.1)	22.0	(± 2.1)	36.9	(± 4.5)
Total	100.0		100.0		100.0		100.0	

Frequency	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Not rotated	48.7	(± 2.9)	32.1	(± 7.6)	43.6	(± 3.4)	44.1	(± 4.3)
Less frequently than yearly	9.4	(± 1.6)	11.5	(± 4.4)	15.0	(± 2.4)	12.7	(± 2.7)
Yearly	16.5	(± 2.2)	9.2	(± 3.6)	13.4	(± 2.2)	15.6	(± 2.9)
More frequently than yearly	25.4	(± 2.3)	47.2	(± 7.7)	28.0	(± 3.1)	27.6	(± 3.5)
Total	100.0		100.0		100.0		100.0	

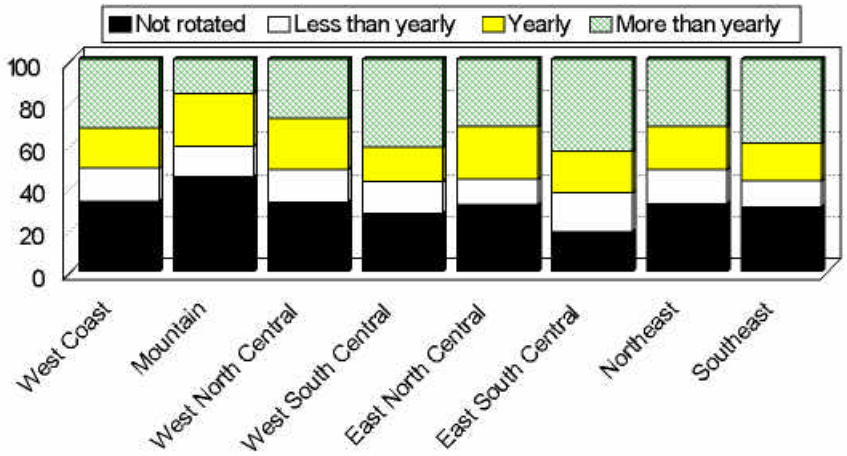
ii. Breeding stock

Percent Operations

Frequency	West Coast	Standard Error	Mountain	Standard Error	West North Central	Standard Error	West South Central	Standard Error
Not rotated	32.8	(± 3.4)	44.4	(± 2.9)	32.5	(± 2.3)	27.0	(± 4.9)
Less frequently than yearly	15.7	(± 2.6)	14.5	(± 3.6)	15.4	(± 1.7)	15.2	(± 3.2)
Yearly	19.3	(± 2.8)	25.1	(± 2.7)	24.3	(± 2.1)	16.2	(± 2.8)
More frequently than yearly	32.2	(± 3.1)	16.0	(± 3.7)	27.8	(± 2.0)	41.6	(± 4.7)
Total	100.0		100.0		100.0		100.0	

Frequency	East North Central	Standard Error	East South Central	Standard Error	Northeast	Standard Error	Southeast	Standard Error
Not rotated	31.2	(± 2.7)	18.4	(± 6.0)	31.7	(± 3.1)	30.3	(± 4.5)
Less frequently than yearly	12.0	(± 1.7)	18.5	(± 6.8)	16.1	(± 2.3)	12.3	(± 2.8)
Yearly	25.0	(± 2.4)	19.6	(± 5.3)	20.4	(± 2.6)	17.7	(± 3.0)
More frequently than yearly	31.8	(± 2.3)	43.5	(± 7.8)	31.8	(± 3.0)	39.7	(± 4.3)
Total	100.0		100.0		100.0		100.0	

Percent of Operations* by Frequency of Rotating Dewormers for Breeding Stock and Region



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*Of operations that dewormed breeding stock.

iii. Feeder lambs

Frequency	West Coast	Standard Error	Mountain	Standard Error	West North Central	Standard Error	West South Central	Standard Error
	Percent Operations							
Not rotated	45.9	(± 4.1)	57.9	(± 4.6)	50.9	(± 2.7)	36.5	(± 6.0)
Less frequently than yearly	15.9	(± 3.0)	11.1	(± 2.4)	13.3	(± 1.9)	10.0	(± 2.3)
Yearly	13.0	(± 2.8)	17.0	(± 3.0)	15.2	(± 2.0)	11.6	(± 3.7)
More frequently than yearly	25.2	(± 3.2)	14.0	(± 4.9)	20.6	(± 2.2)	41.9	(± 5.5)
Total	100.0		100.0		100.0		100.0	

Frequency	East North Central	Standard Error	East South Central	Standard Error	Northeast	Standard Error	Southeast	Standard Error
Not rotated	46.0	(± 3.3)	28.1	(± 7.7)	39.9	(± 4.0)	37.5	(± 5.3)
Less frequently than yearly	12.5	(± 2.1)	18.7	(± 8.4)	16.7	(± 3.1)	15.4	(± 4.1)
Yearly	14.1	(± 2.3)	9.6	(± 4.2)	17.0	(± 2.9)	14.1	(± 3.6)
More frequently than yearly	27.4	(± 2.6)	43.6	(± 9.6)	26.4	(± 3.6)	33.0	(± 4.7)
Total	100.0		100.0		100.0		100.0	

b. Percent of *operations* that used the following dewormers in the previous 3 years by region:

Dewormer	West Coast	Standard Error	Mountain	Standard Error	West North Central	Standard Error	West South Central	Standard Error
	Percent Operations							
Ivermectin	74.3	(± 2.9)	57.5	(± 2.7)	67.5	(± 2.2)	71.5	(± 4.7)
Valbazen	17.8	(± 2.1)	17.8	(± 1.7)	31.4	(± 1.9)	24.1	(± 2.9)
Levamisole	42.0	(± 3.2)	34.8	(± 2.4)	51.7	(± 2.3)	47.2	(± 4.6)
Thiabendazole	29.8	(± 3.0)	23.0	(± 3.3)	33.6	(± 2.2)	35.1	(± 4.7)
Fenbendazole	24.9	(± 2.6)	15.1	(± 1.6)	32.0	(± 2.1)	29.5	(± 3.2)
Other	4.2	(± 1.3)	0.6	(± 0.3)	4.5	(± 1.0)	7.5	(± 2.4)
None	11.0	(± 2.1)	22.6	(± 2.4)	4.8	(± 1.2)	8.1	(± 3.6)

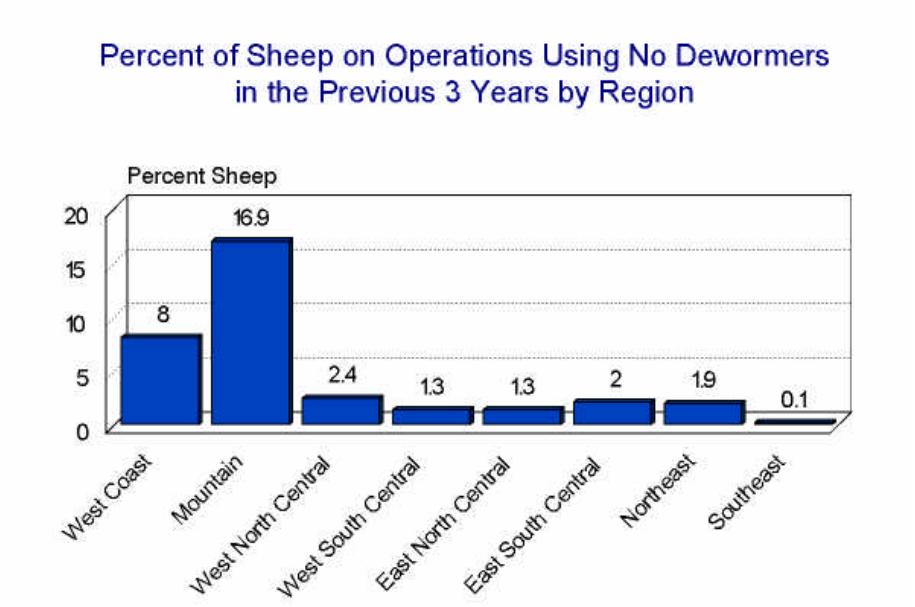
Dewormer	East North Central	Standard Error	East South Central	Standard Error	Northeast	Standard Error	Southeast	Standard Error
Ivermectin	62.9	(± 2.7)	75.9	(± 6.1)	62.8	(± 3.0)	76.4	(± 4.3)
Valbazen	19.8	(± 1.7)	29.3	(± 6.5)	8.5	(± 1.5)	20.0	(± 3.2)
Levamisole	56.9	(± 2.7)	49.5	(± 7.6)	47.8	(± 3.1)	51.9	(± 4.4)
Thiabendazole	44.8	(± 2.7)	27.9	(± 7.0)	49.4	(± 3.1)	38.8	(± 4.3)
Fenbendazole	30.2	(± 2.2)	56.8	(± 7.0)	37.5	(± 2.9)	44.1	(± 4.2)
Other	1.9	(± 0.7)	11.7	(± 3.8)	3.4	(± 1.1)	4.7	(± 1.7)
None	4.4	(± 1.3)	8.4	(± 3.5)	5.9	(± 1.5)	1.1	(± 1.1)

c. Percent of *sheep* on operations that used the following dewormers in the previous 3 years by region:

Percent Sheep

Dewormer	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Ivermectin	75.8	(± 5.6)	45.0	(± 4.6)	62.1	(± 3.1)	87.2	(± 2.2)
Valbazen	34.3	(± 6.9)	37.8	(± 5.6)	58.8	(± 2.5)	50.6	(± 5.7)
Levamisole	65.2	(± 6.9)	52.1	(± 4.8)	58.9	(± 2.7)	66.7	(± 4.4)
Thiabendazole	17.8	(± 4.8)	16.5	(± 2.3)	23.0	(± 1.8)	29.3	(± 7.0)
Fenbendazole	29.2	(± 6.0)	28.8	(± 6.2)	38.4	(± 2.6)	39.4	(± 6.4)
Other	3.1	(± 1.3)	0.6	(± 0.3)	5.0	(± 0.9)	6.7	(± 1.6)
None	8.0	(± 3.2)	16.9	(± 2.5)	2.4	(± 0.5)	1.3	(± 0.6)

Dewormer	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Ivermectin	72.8	(± 2.5)	81.5	(± 7.0)	76.7	(± 2.8)	85.2	(± 3.5)
Valbazen	39.0	(± 2.5)	44.0	(± 7.2)	21.3	(± 2.8)	31.1	(± 3.4)
Levamisole	66.7	(± 2.3)	59.4	(± 7.2)	58.1	(± 2.9)	63.5	(± 3.9)
Thiabendazole	35.9	(± 2.3)	23.3	(± 5.9)	37.4	(± 2.7)	33.9	(± 4.0)
Fenbendazole	46.4	(± 2.6)	53.8	(± 7.8)	43.9	(± 3.1)	58.6	(± 3.8)
Other	2.1	(± 0.6)	12.0	(± 3.5)	6.3	(± 1.9)	5.5	(± 1.6)
None	1.3	(± 0.5)	2.0	(± 1.2)	1.9	(± 0.6)	0.1	(± 0.1)



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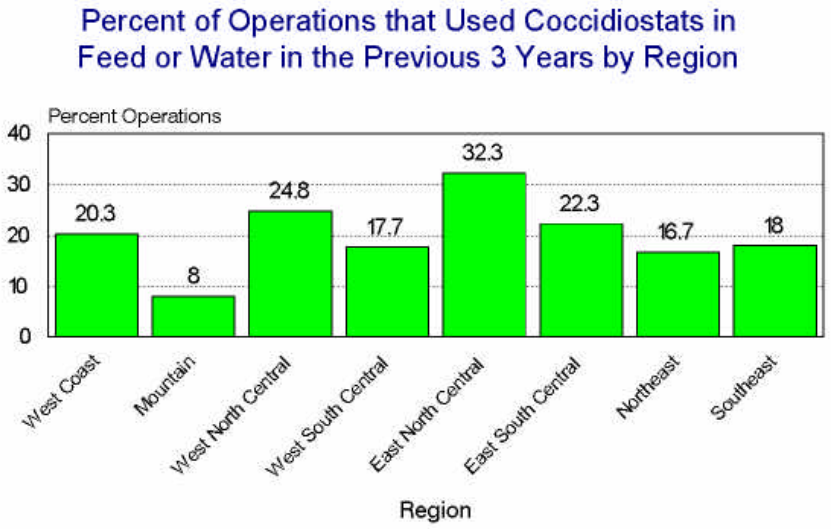
3. Additives

a. Percent of *operations* that used the following additives in the previous 3 years by region:

Percent Operations

Additive	West Coast	Standard Error	Mountain	Standard Error	West North Central	Standard Error	West South Central	Standard Error
Coccidiostats in feed or water	20.3	(± 2.4)	8.0	(± 0.9)	24.8	(± 1.7)	17.7	(± 3.3)
Antibiotics in feed or water	26.8	(± 2.8)	35.8	(± 2.6)	42.5	(± 2.2)	32.9	(± 4.3)
Growth promotants in feed or water	0.5	(± 0.2)	1.8	(± 0.5)	12.0	(± 1.3)	6.3	(± 2.3)
Hormone implants in lambs	0.9	(± 0.7)	1.3	(± 0.5)	1.5	(± 0.4)	3.0	(± 0.7)

Additive	East North Central	Standard Error	East South Central	Standard Error	Northeast	Standard Error	Southeast	Standard Error
Coccidiostats in feed or water	32.3	(± 2.4)	22.3	(± 4.9)	16.7	(± 2.0)	18.0	(± 3.1)
Antibiotics in feed or water	40.9	(± 2.6)	40.3	(± 7.5)	21.0	(± 2.5)	26.9	(± 3.5)
Growth promotants in feed or water	8.4	(± 1.2)	5.2	(± 2.8)	3.6	(± 1.2)	3.5	(± 1.3)
Hormone implants in lambs	2.9	(± 0.7)	0.5	(± 0.3)	0.5	(± 0.5)	1.5	(± 0.7)



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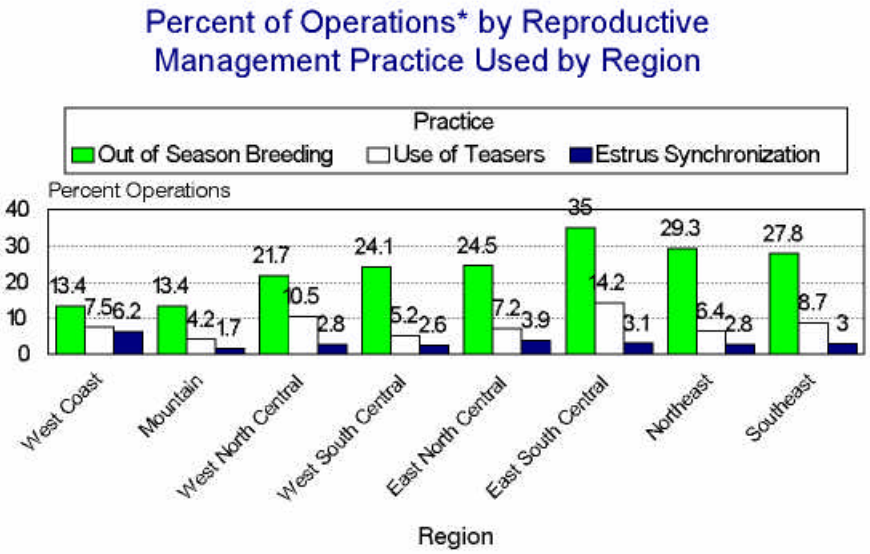
4. Reproductive management practices

a. Of operations that had at least one ewe, percent of operations by reproductive management practice used and region:

Percent Operations

Practice[1]	West Coast	Standard Error	Mountain	Standard Error	West North Central	Standard Error	West South Central	Standard Error
Breeding soundness exam	26.3	(± 2.8)	27.5	(± 3.0)	20.2	(± 1.6)	15.6	(± 2.1)
Out of season breeding	13.4	(± 1.9)	13.4	(± 2.0)	21.7	(± 1.9)	24.1	(± 3.6)
Accelerated lambing	5.7	(± 1.3)	5.7	(± 1.1)	9.2	(± 1.1)	4.5	(± 1.3)
Flushing	57.5	(± 3.4)	50.1	(± 2.5)	64.8	(± 2.4)	37.4	(± 4.2)
Use of teasers	7.5	(± 1.3)	4.2	(± 0.7)	10.5	(± 1.2)	5.2	(± 1.5)
Estrus synchronization	6.2	(± 1.3)	1.7	(± 0.4)	2.8	(± 0.6)	2.6	(± 1.1)
Ultrasound (pregnancy diagnosis, fetal counting)	9.5	(± 1.7)	7.4	(± 0.9)	5.7	(± 0.9)	7.4	(± 1.7)

Practice[1]	East North Central	Standard Error	East South Central	Standard Error	Northeast	Standard Error	Southeast	Standard Error
Breeding soundness exam	20.3	(± 2.0)	17.3	(± 6.0)	13.8	(± 2.0)	17.6	(± 3.1)
Out of season breeding	24.5	(± 2.2)	35.0	(± 7.2)	29.3	(± 2.7)	27.8	(± 3.7)
Accelerated lambing	10.6	(± 1.5)	5.1	(± 2.0)	10.1	(± 1.7)	8.3	(± 1.9)
Flushing	56.4	(± 2.7)	42.6	(± 7.3)	57.8	(± 3.0)	43.1	(± 4.0)
Use of teasers	7.2	(± 1.1)	14.2	(± 5.9)	6.4	(± 1.3)	8.7	(± 2.5)
Estrus synchronization	3.9	(± 1.0)	3.1	(± 2.0)	2.8	(± 1.0)	3.0	(± 1.0)
Ultrasound (pregnancy diagnosis, fetal counting)	4.2	(± 0.7)	3.3	(± 2.0)	3.7	(± 0.9)	5.1	(± 1.3)



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*For operations with at least one ewe.

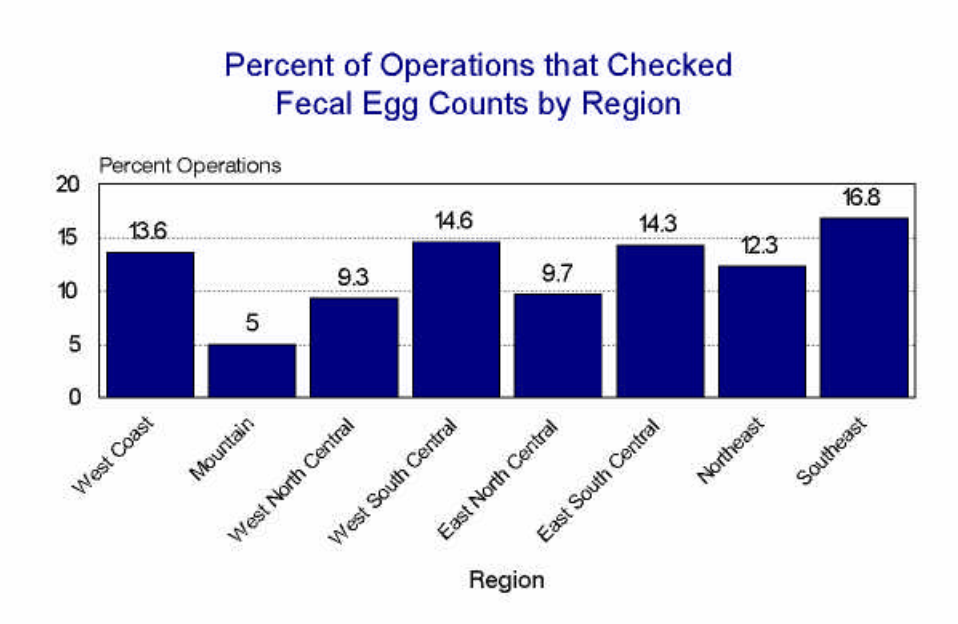
1 Artificial insemination and embryo transfer not reported by region due to small (inadequate) sample size.

5. Diagnostic practices

a. Percent of operations that used the following diagnostic practices by region:

Practice	West Coast	Standard Error	Mountain	Standard Error	West North Central	Standard Error	West South Central	Standard Error
	Percent Operations							
Necropsy	15.0	(± 2.3)	7.6	(± 1.1)	7.9	(± 0.9)	6.0	(± 2.2)
Laboratory services (serology, culture)	13.2	(± 2.1)	9.8	(± 1.3)	7.9	(± 0.9)	2.9	(± 0.9)
Fecal egg counts	13.6	(± 2.1)	5.0	(± 0.9)	9.3	(± 1.1)	14.6	(± 2.1)
Veterinary consultation	52.3	(± 3.3)	39.8	(± 2.4)	46.2	(± 2.3)	44.7	(± 4.8)
Other	2.9	(± 1.1)	1.1	(± 0.5)	1.7	(± 0.7)	0.5	(± 0.2)

Practice	East North Central	Standard Error	East South Central	Standard Error	Northeast	Standard Error	Southeast	Standard Error
Necropsy	7.7	(± 1.3)	12.1	(± 5.4)	6.9	(± 1.3)	11.8	(± 2.6)
Laboratory services (serology, culture)	6.7	(± 1.1)	13.1	(± 5.7)	6.5	(± 1.3)	11.4	(± 2.7)
Fecal egg counts	9.7	(± 1.5)	14.3	(± 5.7)	12.3	(± 1.9)	16.8	(± 3.1)
Veterinary consultation	44.7	(± 2.6)	45.5	(± 7.7)	47.4	(± 3.1)	40.5	(± 3.9)
Other	2.8	(± 0.9)	5.5	(± 2.9)	1.1	(± 0.7)	2.6	(± 1.4)



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D. Predator Management

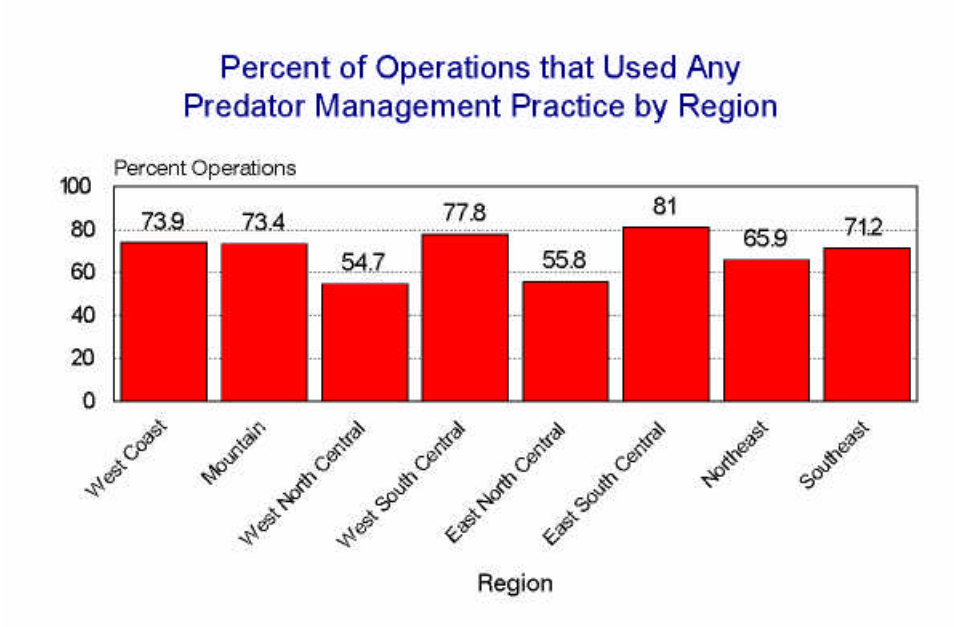
1. Use of any predator management practice

   a. Percent of operations that used any predator management practice by region:

Percent Operations

West Coast	Standard Error	Mountain	Standard Error	West North Central	Standard Error	West South Central	Standard Error
73.9	(± 3.0)	73.4	(± 3.5)	54.7	(± 2.3)	77.8	(± 4.3)

East North Central	Standard Error	East South Central	Standard Error	Northeast	Standard Error	Southeast	Standard Error
55.8	(± 2.7)	81.0	(± 6.0)	65.9	(± 2.9)	71.2	(± 4.0)



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2. Specific predator management practices used

a. Of operations that used a predator management practice, percent that used the following practices by region:

	Percent Operations							
Guardian Animals	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Llamas	11.1	(± 2.2)	12.1	(± 1.6)	5.1	(± 1.3)	0.5	(± 0.3)
Donkeys	8.3	(± 2.2)	9.2	(± 1.6)	10.6	(± 1.7)	13.5	(± 3.1)
Dogs	37.2	(± 3.7)	42.4	(± 3.2)	44.5	(± 3.1)	36.1	(± 4.8)
Any of the above	48.9	(± 3.8)	54.8	(± 3.4)	50.6	(± 3.1)	45.5	(± 5.1)

Guardian Animals	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Llamas	3.2	(± 0.9)	11.8	(± 6.8)	2.8	(± 1.2)	3.3	(± 1.8)
Donkeys	8.6	(± 1.6)	17.3	(± 6.7)	8.7	(± 2.1)	24.4	(± 4.5)
Dogs	37.4	(± 3.3)	35.9	(± 6.6)	29.5	(± 3.4)	28.6	(± 4.5)
Any of the above	45.2	(± 3.4)	51.1	(± 8.4)	39.3	(± 3.6)	48.7	(± 5.2)

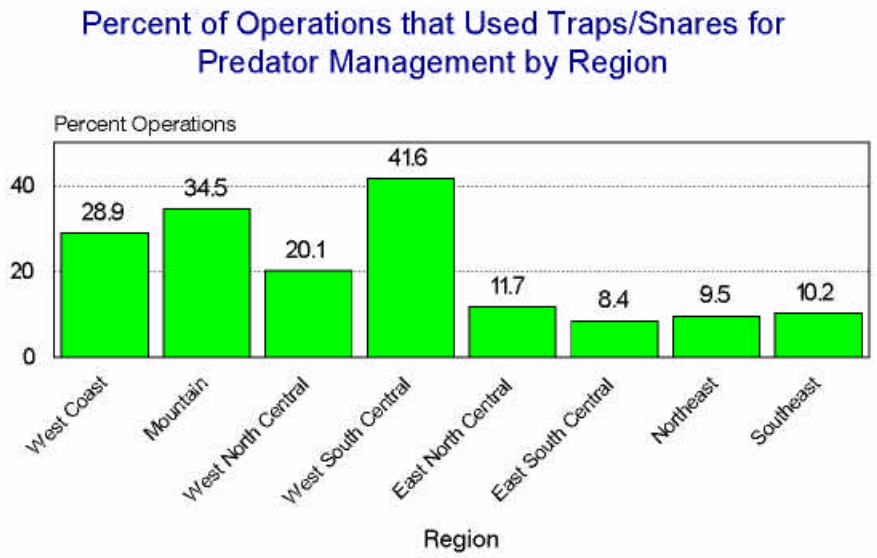
	Percent Operations							
Lethal Methods	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Shooting	58.2	(± 3.7)	72.1	(± 3.0)	56.4	(± 3.1)	64.4	(± 5.1)
Shooting, toxic collars, or M44	62.1	(± 3.8)	77.6	(± 2.9)	60.8	(± 3.2)	69.2	(± 5.1)

Lethal Methods	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Shooting	58.7	(± 3.4)	54.8	(± 7.9)	33.8	(± 3.2)	50.6	(± 5.3)
Shooting, toxic collars, or M44	62.8	(± 3.3)	57.3	(± 8.2)	36.8	(± 3.5)	54.6	(± 5.6)

Percent Operations

Other Methods	West Coast	Standard Error	Mountain	Standard Error	West North Central	Standard Error	West South Central	Standard Error
Fencing	68.8	(± 3.5)	59.7	(± 3.1)	57.1	(± 3.1)	53.2	(± 5.1)
Trap/snare	28.9	(± 3.1)	34.5	(± 2.7)	20.1	(± 2.1)	41.6	(± 4.8)
Other[1]	11.3	(± 2.3)	8.1	(± 1.7)	11.4	(± 1.9)	5.5	(± 2.7)

Other Methods	East North Central	Standard Error	East South Central	Standard Error	Northeast	Standard Error	Southeast	Standard Error
Fencing	65.6	(± 3.3)	71.9	(± 6.1)	87.0	(± 2.3)	73.6	(± 4.9)
Trap/snare	11.7	(± 2.0)	8.4	(± 4.1)	9.5	(± 2.1)	10.2	(± 1.9)
Other[1]	12.2	(± 2.3)	18.3	(± 7.4)	9.6	(± 2.1)	7.7	(± 2.6)



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b. Effectiveness of each predator management practice is not provided by region. The U.S. estimate is included in a *Reference of 1996 U.S. Sheep Health and Management Practices* (see contact address on the back of this report.)

1 Includes penning at night, other guardian animals, lights and noises, and USDA:APHIS:Animal Damage Control.

F. Economics

1. Gross income

   a. Operation average percent of gross income by category and region:

Category	West Coast	Standard Error	Mountain	Standard Error	West North Central	Standard Error	West South Central	Standard Error
	Operation Average Percent							
Slaughter lambs	47.7	(± 2.7)	39.6	(± 2.9)	51.5	(± 2.0)	26.9	(± 4.5)
Feeder lambs	22.1	(± 2.2)	26.1	(± 1.7)	28.0	(± 1.9)	34.6	(± 3.6)
Club lambs	10.2	(± 1.6)	8.1	(± 1.7)	2.8	(± 0.5)	11.5	(± 2.1)
Seedstock, purebred	5.1	(± 0.9)	5.5	(± 1.5)	2.8	(± 0.5)	4.7	(± 1.5)
Seedstock, commercial	1.5	(± 0.4)	2.9	(± 0.7)	2.2	(± 0.6)	3.6	(± 2.4)
Wool	12.3	(± 1.3)	14.8	(± 1.2)	10.8	(± 0.9)	17.0	(± 2.2)
Milk	0.1	(± 0.1)	0.1	(± 0.0)	0.1	(± 0.1)	0.0	(± 0.0)
Other	1.0	(± 0.5)	2.9	(± 0.8)	1.8	(± 0.5)	1.7	(± 0.6)
Total	100.0		100.0		100.0		100.0	

Category	East North Central	Standard Error	East South Central	Standard Error	Northeast	Standard Error	Southeast	Standard Error
Slaughter lambs	60.4	(± 2.2)	51.2	(± 6.7)	62.0	(± 2.4)	62.6	(± 3.7)
Feeder lambs	12.9	(± 1.7)	10.8	(± 3.2)	11.5	(± 1.6)	14.2	(± 2.7)
Club lambs	10.1	(± 1.4)	16.8	(± 5.0)	2.3	(± 0.6)	4.9	(± 2.2)
Seedstock, purebred	4.6	(± 0.7)	12.0	(± 3.5)	4.5	(± 0.9)	3.5	(± 1.0)
Seedstock, commercial	1.5	(± 0.2)	4.1	(± 1.6)	2.4	(± 0.6)	2.0	(± 0.8)
Wool	9.3	(± 0.8)	4.5	(± 0.8)	15.7	(± 1.5)	11.2	(± 1.6)
Milk	0.4	(± 0.2)	0.0	(± 0.0)	0.2	(± 0.1)	0.1	(± 0.1)
Other	0.8	(± 0.3)	0.6	(± 0.5)	1.4	(± 0.4)	1.5	(± 0.6)
Total	100.0		100.0		100.0		100.0	

b. Percent of operations that received any income from each category by region:

Percent Operations

Category	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Slaughter lambs	77.0	(± 2.9)	61.3	(± 3.4)	71.1	(± 2.2)	41.8	(± 4.9)
Feeder lambs	43.0	(± 3.3)	45.1	(± 3.5)	44.5	(± 2.3)	59.4	(± 4.9)
Club lambs	26.7	(± 3.0)	20.3	(± 3.4)	12.8	(± 1.5)	25.5	(± 4.0)
Seedstock, purebred	16.8	(± 2.3)	14.5	(± 3.1)	9.0	(± 1.1)	12.3	(± 2.9)
Seedstock, commercial	9.5	(± 1.8)	12.9	(± 2.9)	11.3	(± 1.4)	10.0	(± 2.7)
Wool	71.4	(± 3.2)	78.5	(± 3.6)	83.7	(± 1.9)	71.8	(± 4.7)
Milk	0.9	(± 0.6)	0.9	(± 0.5)	1.4	(± 0.7)	0.2	(± 0.1)
Other	3.7	(± 1.3)	7.7	(± 1.4)	5.4	(± 1.1)	6.9	(± 2.5)

Category	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Slaughter lambs	81.7	(± 2.3)	75.0	(± 6.4)	86.7	(± 2.3)	84.3	(± 3.8)
Feeder lambs	25.4	(± 2.4)	21.4	(± 6.4)	26.4	(± 2.7)	32.3	(± 4.2)
Club lambs	28.3	(± 2.4)	35.9	(± 7.5)	11.6	(± 2.1)	12.9	(± 2.8)
Seedstock, purebred	17.2	(± 1.9)	31.0	(± 7.5)	18.7	(± 2.4)	13.8	(± 2.8)
Seedstock, commercial	12.5	(± 1.4)	16.1	(± 4.8)	13.6	(± 2.2)	12.0	(± 2.9)
Wool	76.9	(± 2.5)	47.5	(± 7.8)	73.4	(± 2.9)	79.6	(± 4.3)
Milk	2.2	(± 0.8)	0.0	(± 0.0)	1.9	(± 0.8)	0.9	(± 0.7)
Other	4.1	(± 1.3)	2.5	(± 2.2)	6.8	(± 1.5)	5.4	(± 1.7)

2. Profitability limitations

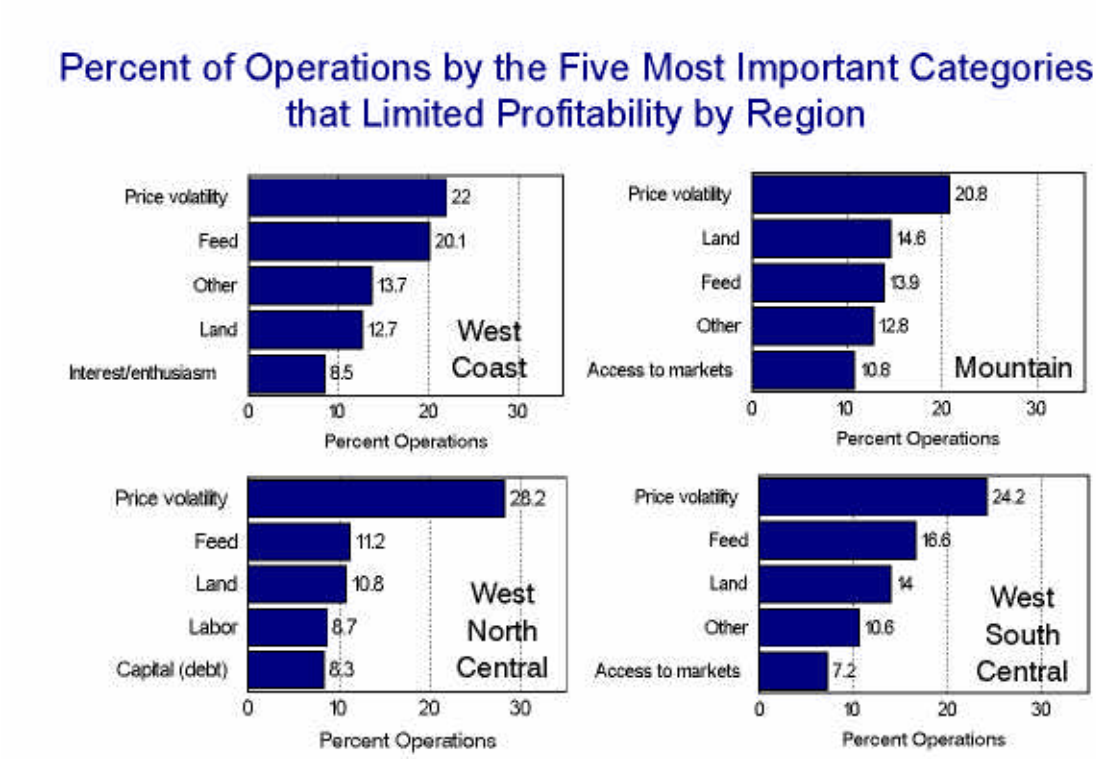
a. Percent of operations by categories that limited profitability by region:

	Percent Operations							
Category	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Capital (debt)	15.4	(± 2.1)	20.3	(± 1.8)	24.4	(± 1.9)	27.2	(± 3.9)
Labor	26.0	(± 2.8)	25.3	(± 2.3)	26.9	(± 1.8)	28.4	(± 3.8)
Land	38.4	(± 3.2)	40.6	(± 3.6)	34.0	(± 2.2)	41.3	(± 4.6)
Feed	50.9	(± 3.3)	44.5	(± 3.6)	36.0	(± 2.2)	52.7	(± 4.8)
Availability of sheep	7.3	(± 1.6)	7.7	(± 1.5)	10.2	(± 1.3)	7.4	(± 2.5)
Breed of sheep	6.6	(± 1.7)	5.9	(± 1.5)	6.5	(± 1.0)	6.9	(± 2.4)
Family succession	8.5	(± 1.8)	6.3	(± 1.1)	7.2	(± 1.2)	4.5	(± 1.3)
Government regulations	15.3	(± 2.1)	32.5	(± 2.3)	17.7	(± 1.7)	32.7	(± 4.4)
Access to markets	31.0	(± 2.9)	31.4	(± 3.4)	30.7	(± 2.1)	33.5	(± 4.5)
Price volatility	46.3	(± 3.3)	51.7	(± 3.6)	51.2	(± 2.3)	56.2	(± 4.8)
Operator interest and enthusiasm	23.7	(± 2.9)	13.0	(± 2.9)	20.5	(± 1.9)	12.1	(± 2.8)
Other	18.5	(± 2.6)	17.5	(± 3.1)	10.4	(± 1.4)	14.4	(± 3.5)

Category	**East North Central**	Standard Error	**East South Central**	Standard Error	**Northeast**	Standard Error	**Southeast**	Standard Error
Capital (debt)	18.9	(± 2.2)	17.9	(± 5.1)	22.3	(± 2.5)	15.0	(± 3.1)
Labor	28.8	(± 2.5)	21.2	(± 6.5)	26.7	(± 2.6)	26.5	(± 3.5)
Land	31.6	(± 2.5)	24.3	(± 5.3)	30.3	(± 2.8)	34.0	(± 4.2)
Feed	40.0	(± 2.7)	53.6	(± 6.1)	39.9	(± 3.0)	42.1	(± 4.3)
Availability of sheep	7.6	(± 1.3)	12.3	(± 4.0)	5.6	(± 1.3)	9.9	(± 2.5)
Breed of sheep	7.9	(± 1.5)	9.1	(± 3.2)	4.4	(± 1.1)	3.5	(± 1.6)
Family succession	11.0	(± 1.7)	6.1	(± 3.0)	8.4	(± 1.7)	6.7	(± 2.0)
Government regulations	15.6	(± 1.8)	17.8	(± 6.4)	13.5	(± 2.0)	10.0	(± 2.3)
Access to markets	23.4	(± 2.2)	52.9	(± 7.7)	29.1	(± 2.7)	35.3	(± 4.0)
Price volatility	55.7	(± 2.7)	43.4	(± 7.5)	35.8	(± 2.9)	50.7	(± 4.6)
Operator interest and enthusiasm	19.5	(± 2.3)	23.1	(± 6.9)	19.7	(± 2.5)	16.9	(± 3.3)
Other	11.5	(± 1.9)	15.1	(± 6.1)	18.4	(± 2.3)	29.1	(± 4.3)

b. Percent of operations by most important category that limited profitability by region:

	Percent Operations							
Category	**West Coast**	Standard Error	**Mountain**	Standard Error	**West North Central**	Standard Error	**West South Central**	Standard Error
Capital (debt)	1.0	(± 0.4)	6.6	(± 1.3)	8.3	(± 1.4)	5.9	(± 1.9)
Labor	5.6	(± 1.7)	3.6	(± 1.1)	8.7	(± 1.4)	2.5	(± 0.7)
Land	12.7	(± 2.6)	14.6	(± 3.8)	10.8	(± 1.8)	14.0	(± 4.5)
Feed	20.1	(± 3.1)	13.9	(± 2.3)	11.2	(± 1.7)	16.6	(± 3.9)
Availability of sheep	0.1	(± 0.1)	1.3	(± 0.8)	1.9	(± 0.7)	1.7	(± 1.3)
Breed of sheep	1.3	(± 0.9)	0.7	(± 0.6)	1.1	(± 0.5)	0.0	(± 0.0)
Family succession	1.1	(± 0.8)	0.4	(± 0.3)	2.0	(± 0.9)	0.1	(± 0.1)
Government regulations	4.5	(± 1.5)	8.1	(± 1.6)	3.7	(± 1.1)	6.1	(± 3.1)
Access to markets	5.8	(± 1.7)	10.8	(± 3.7)	6.9	(± 1.3)	7.2	(± 2.2)
Price volatility	22.0	(± 3.1)	20.8	(± 2.2)	28.2	(± 2.3)	24.2	(± 4.7)
Operator interest and enthusiasm	8.5	(± 2.4)	3.1	(± 1.2)	6.9	(± 1.6)	6.0	(± 3.3)
Other	13.7	(± 2.8)	12.8	(± 2.2)	6.9	(± 1.4)	10.6	(± 3.6)
Multiple reasons	3.6	(± 1.1)	3.3	(± 1.0)	3.4	(± 0.8)	5.1	(± 1.7)
Total	100.0		100.0		100.0		100.0	



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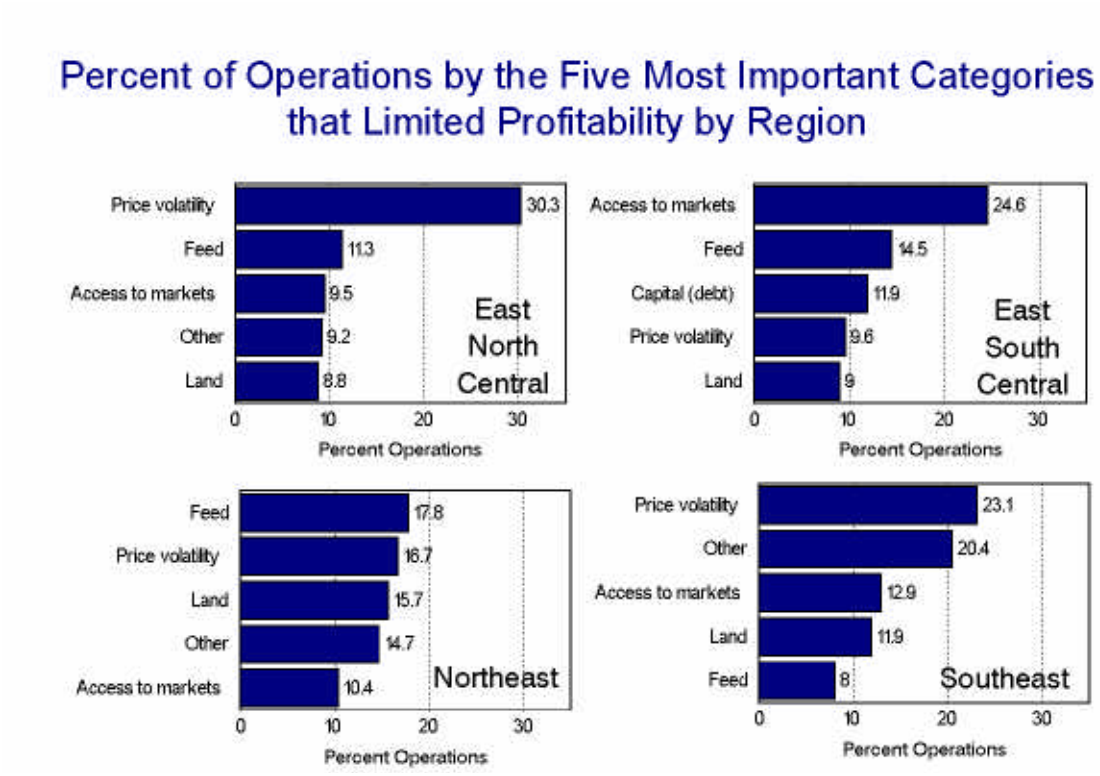
b. Percent of operations by most important category that limited profitability by region (continued):

Category	East North Central	Standard Error	East South Central	Standard Error	Northeast	Standard Error	Southeast	Standard Error
Capital (debt)	6.9	(± 1.8)	11.9	(± 5.7)	5.0	(± 1.3)	4.1	(± 1.7)
Labor	5.5	(± 1.5)	0.8	(± 0.5)	6.8	(± 1.7)	5.2	(± 1.5)
Land	8.8	(± 1.7)	9.0	(± 4.5)	15.7	(± 2.7)	11.9	(± 3.3)
Feed	11.3	(± 1.7)	14.5	(± 7.7)	17.8	(± 2.7)	8.0	(± 2.2)
Availability of sheep	1.9	(± 0.7)	7.1	(± 4.2)	1.5	(± 0.8)	0.0	(± 0.0)
Breed of sheep	0.7	(± 0.4)	0.0	(± 0.0)	0.2	(± 0.1)	0.0	(± 0.0)
Family succession	1.4	(± 0.6)	3.3	(± 3.1)	0.9	(± 0.6)	1.6	(± 1.4)
Government regulations	2.7	(± 0.8)	3.3	(± 1.9)	1.5	(± 0.8)	2.1	(± 1.5)
Access to markets	9.5	(± 2.1)	24.6	(± 7.6)	10.4	(± 2.2)	12.9	(± 3.3)
Price volatility	30.3	(± 2.8)	9.6	(± 3.7)	16.7	(± 2.6)	23.1	(± 4.2)
Operator interest and enthusiasm	6.7	(± 1.7)	2.8	(± 2.8)	7.4	(± 1.8)	4.2	(± 2.3)
Other	9.2	(± 2.1)	6.3	(± 3.5)	14.7	(± 2.5)	20.4	(± 4.5)
Multiple reasons	5.1	(± 1.5)	6.8	(± 4.2)	1.4	(± 0.9)	6.5	(± 2.8)
Total	100.0		100.0		100.0		100.0	



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Section II. Sample Profile for Reporting Operations

A. Regions

1. Number of reporting operations by region:

Region	Number Operations
East North Central	844
East South Central	139
Mountain	862
Northeast	510
Southeast	328
West Coast	597
West North Central	1440
West South Central	454
Total	5,174

B. Flock Size by Region

1. Number of reporting operations by number of ewes present on January 1, 1996:

	Number Operations							
Number Ewes	West Coast	Mountain	West North Central	West South Central	East North Central	East South Central	Northeast	Southeast
0	120	139	335	111	176	26	99	66
1-49	241	244	512	77	440	75	302	159
50-99	84	92	271	51	145	18	58	69
100 - 499	99	193	269	94	77	19	46	30
500 or more	47	191	38	119	5	0	4	1
Not reported	6	3	15	2	1	1	1	3
Total	597	862	1,440	454	844	139	510	328

2. Number of reporting operations by total sheep inventory present on January 1, 1996:

	Number Operations							
Number Sheep	West Coast	Mountain	West North Central	West South Central	East North Central	East South Central	Northeast	Southeast
Less than 50	337	340	725	173	545	88	369	199
50-99	78	95	267	25	157	27	69	70
100-499	122	212	354	108	128	24	64	50
500 - 999	22	63	53	63	10	0	6	5
1,000 or more	38	152	41	85	4	0	2	2
Not reported	0	0	0	0	0	0	0	2
Total	597	862	1,440	454	844	139	510	328

C. Type of Operation

1. Number of reporting operations by type and region:

	Number Operations							
Type	West Coast	Mountain	West North Central	West South Central	East North Central	East South Central	Northeast	Southeast
Herded range flock	17	92	4	2	2	0	1	3
Fenced range flock	72	191	109	188	35	5	28	17
Farm flock	368	410	970	137	613	101	363	238
Intensive confinement	9	14	49	5	20	1	10	3
Multiple	14	26	14	9	4	4	6	4
Not specified	117	129	294	113	170	28	102	63
Total	597	862	1,440	454	844	139	510	328

Centers for Epidemiology and Animal Health
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