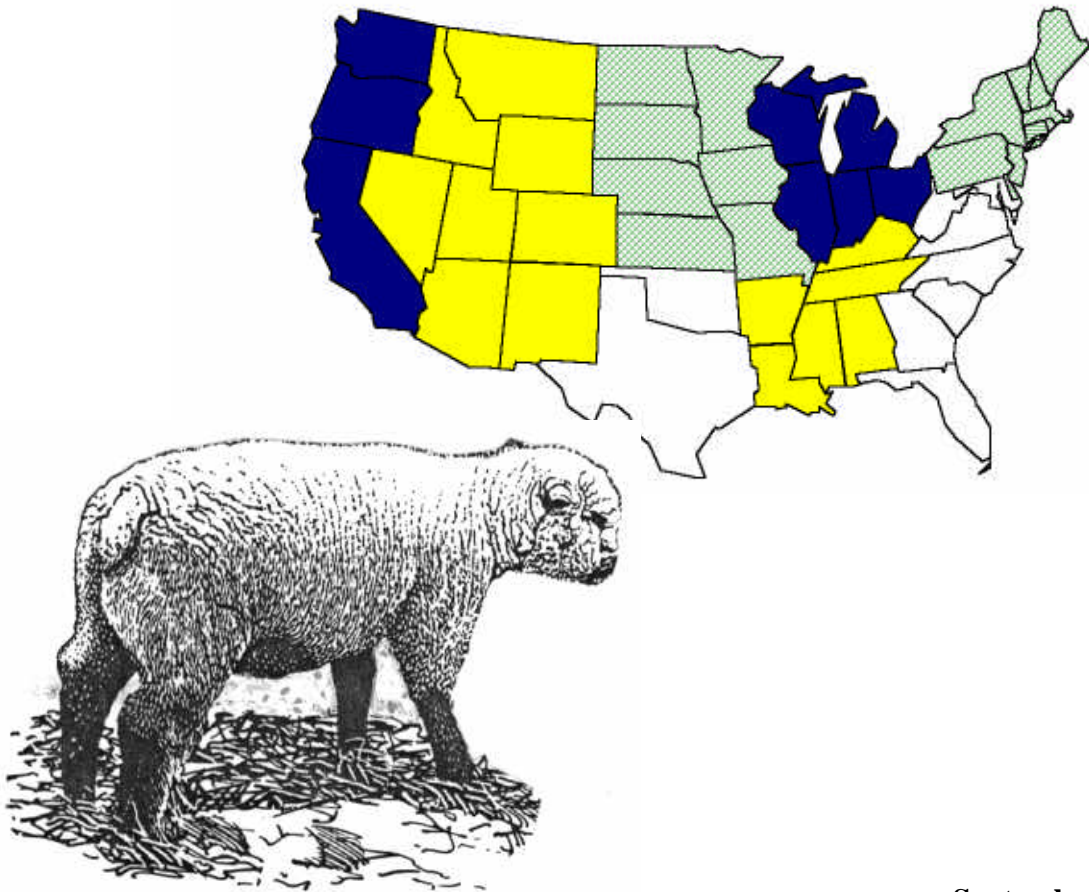


United States  
Department  
of Agriculture

Animal and  
Plant Health  
Inspection  
Service

Veterinary  
Services

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



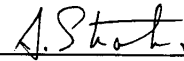
September 1996

## Acknowledgements

This report has been prepared from material received and analyzed by the U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS).

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.



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

# Table of Contents

Introduction . . . . .	1
Terms Used in this Report . . . . .	2
Section I: Population Estimates . . . . .	3
A. Flock Management . . . . .	3
1. Inventory and expected change by 2001 . . . . .	3
2. Primary flock type . . . . .	5
3. Primary breed . . . . .	7
4. Production records used . . . . .	9
5. Source of sheep information . . . . .	9
6. Altered management practices . . . . .	10
B. Births, Deaths, Culling, and Illness . . . . .	11
1. Productivity . . . . .	11
2. Culling and mortality . . . . .	13
3. Morbidity . . . . .	16
C. Health Management . . . . .	24
1. Vaccines . . . . .	24
2. Dewormers . . . . .	26
3. Additives . . . . .	30
4. Reproductive management practices . . . . .	31
5. Diagnostic practices . . . . .	32
D. Predator Management . . . . .	33
1. Use of any predator management practices . . . . .	33
2. Specific predator management practices used . . . . .	34
F. Economics . . . . .	36
1. Gross income . . . . .	36
2. Profitability limitations . . . . .	38

Section II: Sample Profile for Reporting Operations . . . . .	41
A. Regions . . . . .	41
1. Number of reporting operations by region . . . . .	41
B. Flock Size by Region . . . . .	41
1. Number of reporting operations by number of ewes present . . . . .	41
2. Number of reporting operations by total sheep inventory . . . . .	41
C. Type of Operation . . . . .	42
1. Number of reporting operations by type and region . . . . .	42

# Introduction

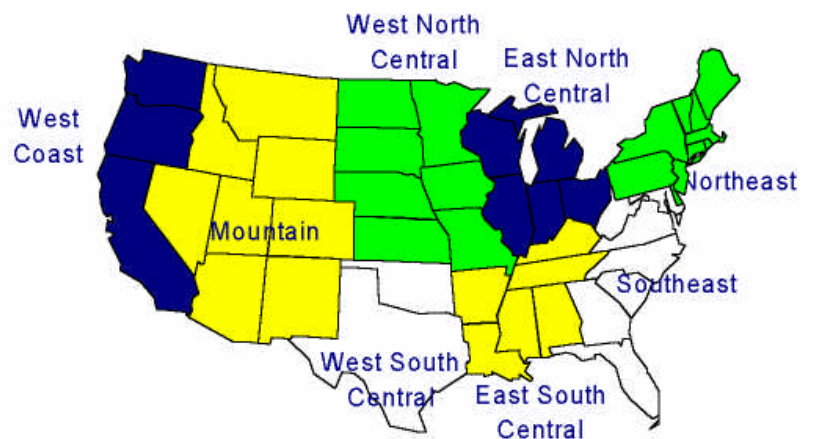
The National Animal Health Monitoring System (NAHMS) is sponsored by the USDA:APHIS:Veterinary Services (VS). From 1989 through 1996, NAHMS conducted national studies of the swine, dairy cattle, beef cow/calf, and beef feedlot industries to obtain information on animal health and management.

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 contiguous 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*.<sup>1</sup> 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:

Centers for Epidemiology and Animal Health  
USDA:APHIS:VS, attn. NAHMS  
555 South Howes  
Fort Collins, CO 80521  
Telephone: (970) 490-7800  
Internet: NAHMS\_INFO@aphis.usda.gov

<sup>1</sup> 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.

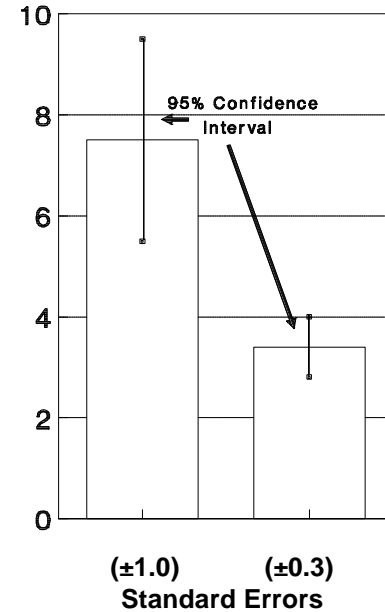
**Percent sheep/lambs:** the sum of the actual number of sheep/lambs on each operation with a given characteristic divided by the total number of sheep on all operations. (**Percent sheep/lambs on operations:** an operation characteristic was applied to all sheep/lambs on the operation. The total number 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 operations 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.

**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 ( $\pm$ ). 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  $\pm 1.0$  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  $\pm 0.3$  results with a range of 2.8 and 4.0.

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

**Examples of 95% Confidence Intervals**



#999a\*

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

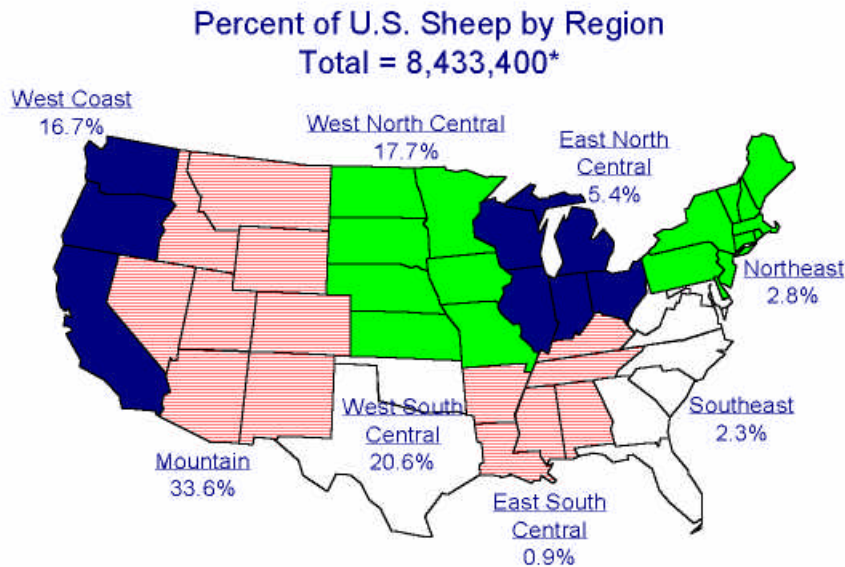
# Section I: Population Estimates

## A. Flock Management

1. Inventory and expected change by 2001

a. Percent of United States sheep and lamb inventory January 1, 1996, by region<sup>1</sup>:

<u>Region</u>	<u>Percent Sheep</u>	<u>Standard Error</u>
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	



#3230

\*Source: USDA National Agricultural Statistics Service.

<sup>1</sup> 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:

<u>Expected Change</u>	<u>Percent Operations</u>							
	<u>West</u>		<u>Mountain</u>		<u>West</u>		<u>West</u>	
	<u>Coast</u>	Standard Error	<u>Mountain</u>	Standard Error	<u>North</u>	Standard Error	<u>South</u>	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	<u>25.3</u>	(± 2.8)	<u>36.5</u>	(± 2.7)	<u>39.9</u>	(± 2.3)	<u>36.5</u>	(± 4.6)
Total	100.0		100.0		100.0		100.0	

<u>Expected Change</u>	<u>East</u>		<u>East</u>		<u>Standard</u>		<u>Standard</u>	
	<u>North</u>	Standard Error	<u>South</u>	Standard Error	<u>Northeast</u>	Standard Error	<u>Southeast</u>	Standard Error
	<u>Central</u>	Standard Error	<u>Central</u>	Standard Error	<u>Northeast</u>	Standard Error	<u>Southeast</u>	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	<u>33.7</u>	(± 2.5)	<u>40.1</u>	(± 5.7)	<u>31.5</u>	(± 2.8)	<u>33.8</u>	(± 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:

<u>Expected Change</u>	<u>Percent Sheep</u>							
	<u>West</u>		<u>Mountain</u>		<u>West</u>		<u>West</u>	
	<u>Coast</u>	Standard Error	<u>Mountain</u>	Standard Error	<u>North</u>	Standard Error	<u>South</u>	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	<u>25.9</u>	(± 5.8)	<u>30.9</u>	(± 4.1)	<u>34.9</u>	(± 2.9)	<u>37.7</u>	(± 6.8)
Total	100.0		100.0		100.0		100.0	

<u>Expected Change</u>	<u>East</u>		<u>East</u>		<u>Standard</u>		<u>Standard</u>	
	<u>North</u>	Standard Error	<u>South</u>	Standard Error	<u>Northeast</u>	Standard Error	<u>Southeast</u>	Standard Error
	<u>Central</u>	Standard Error	<u>Central</u>	Standard Error	<u>Northeast</u>	Standard Error	<u>Southeast</u>	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	<u>36.9</u>	(± 2.5)	<u>46.1</u>	(± 5.8)	<u>38.5</u>	(± 3.3)	<u>42.3</u>	(± 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:

Flock Type	Percent Operations							
	West Coast		Mountain		West North Central		West South Central	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	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	<u>2.4</u>	(± 0.9)	<u>4.9</u>	(± 1.5)	<u>1.3</u>	(± 0.5)	<u>2.1</u>	(± 0.9)
Total	100.0		100.0		100.0		100.0	

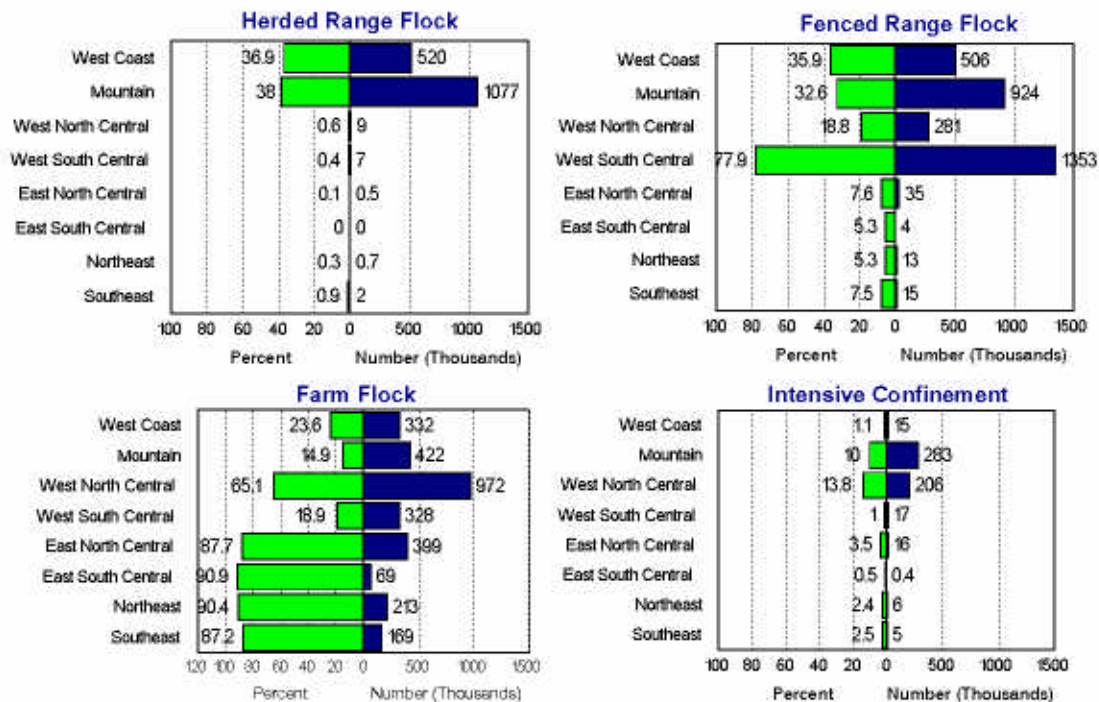
Flock Type	East North Central		East South Central		Northeast		Southeast	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	
	Herded range flock	0.3	(± 0.4)	0.0	(± 0.0)	0.3	(± 0.3)	0.9
Fenced range flock	5.7	(± 1.1)	6.9	(± 3.8)	9.0	(± 1.9)	8.9	(± 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	<u>0.2</u>	(± 0.1)	<u>2.5</u>	(± 2.1)	<u>1.2</u>	(± 0.7)	<u>0.3</u>	(± 0.2)
Total	100.0		100.0		100.0		100.0	

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

Flock Type	Percent Sheep							
	West Coast		Mountain		West North Central		West South Central	
	Standard	Standard	Standard	Standard	Standard	Standard	Standard	
	Error	Error	Error	Error	Error	Error	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 <sup>1</sup>	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		East South Central		Northeast		Southeast	
	Standard	Standard	Standard	Standard	Standard	Standard	Standard	
	Error	Error	Error	Error	Error	Error	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 <sup>1</sup>	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	

Percent (and Number) of Sheep by Primary Flock Type and Region



#3231a-d

<sup>1</sup> Producers selecting more than one category.

## 3. Primary breed

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

<u>Breed Category</u>	<u>Percent Operations</u>							
	<u>West Coast</u>		<u>Mountain</u>		<u>West North Central</u>		<u>West South Central</u>	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	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	<u>5.7</u>	(± 1.4)	<u>6.4</u>	(± 1.3)	<u>6.5</u>	(± 1.1)	<u>7.2</u>	(± 2.5)
Total	100.0		100.0		100.0		100.0	

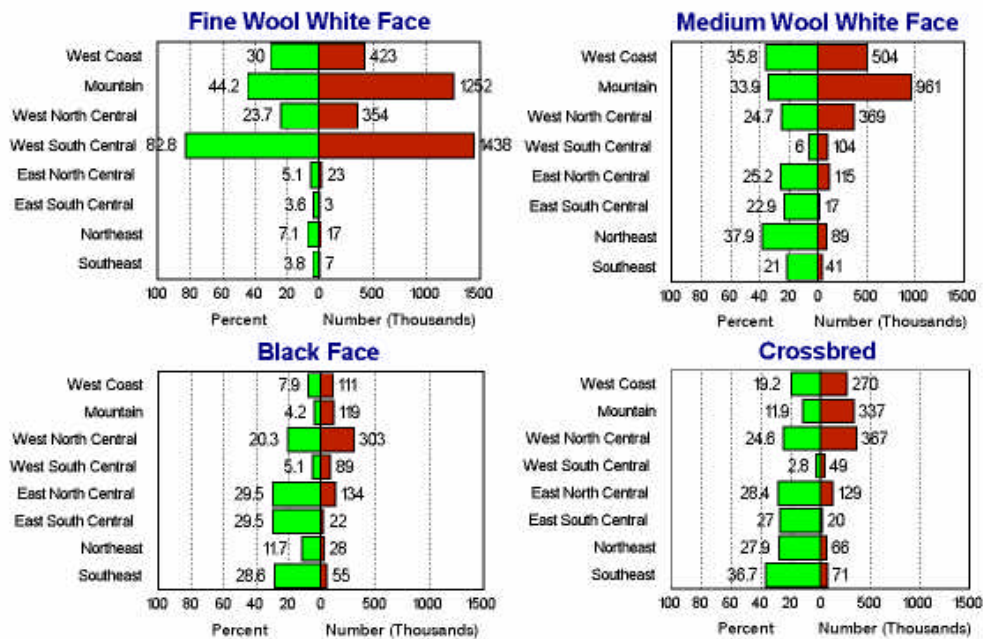
<u>Breed Category</u>	<u>East North Central</u>		<u>East South Central</u>		<u>Standard Northeast</u>		<u>Standard Southeast</u>	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	
	Colored wool	2.1	(± 0.7)	1.1	(± 0.5)	7.1	(± 1.7)	1.7
Fine wool 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	<u>7.2</u>	(± 1.4)	<u>10.3</u>	(± 5.6)	<u>5.9</u>	(± 1.3)	<u>11.3</u>	(± 3.3)
Total	100.0		100.0		100.0		100.0	

b. Percent of *sheep* by primary breed category and region<sup>1</sup>:

Breed Category	Percent Sheep							
	West Coast		Mountain		West North Central		West South Central	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	
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		East South Central		Northeast		Southeast	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	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	

Percent (and Number) of Sheep by Primary Breed of Operation and Region



#3232a-d

<sup>1</sup> 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	Percent Operations							
	West		Mountain		West		West	
	Coast	Standard Error	Mountain	Standard Error	North Central	Standard Error	South Central	Standard Error
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		East		Standard		Standard	
	North Central	Standard Error	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
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	Percent Operations							
	West		Mountain		West		West	
	Coast	Standard Error	Mountain	Standard Error	North Central	Standard Error	South Central	Standard Error
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		East		Standard		Standard	
	North Central	Standard Error	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
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:

<u>Practice</u>	<u>Percent Operations</u>							
	<u>West Coast</u>		<u>Mountain</u>		<u>West North Central</u>		<u>West South Central</u>	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	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)

<u>Practice</u>	<u>East North Central</u>		<u>East South Central</u>		<u>Northeast</u>		<u>Southeast</u>	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	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**

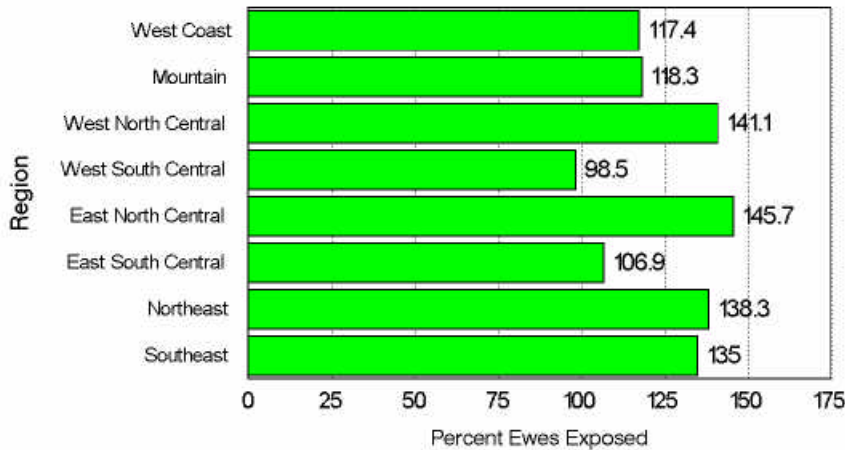
1. Productivity

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

Outcome	Percent Lambs							
	West Coast		Mountain		West North Central		West South Central	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	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		East South Central		Northeast		Southeast	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	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)

**Lambs Born Alive in 1995  
as a Percent of Ewes Exposed by Region**

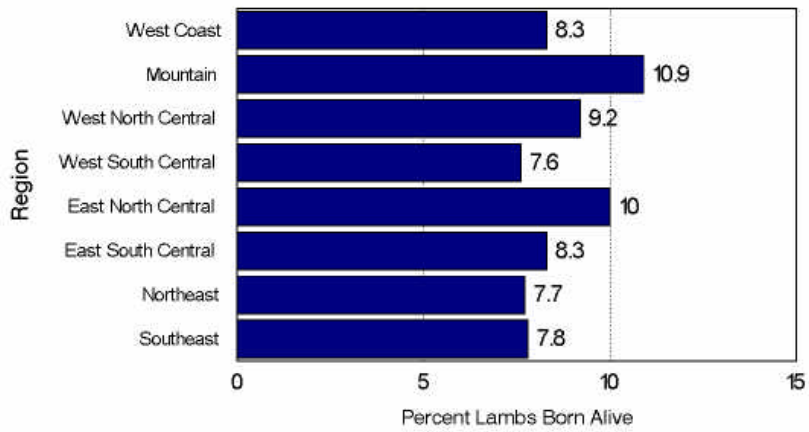


#3233

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

<u>Percent Lambs</u>							
<u>West Coast</u>	Standard Error	<u>Mountain</u>	Standard Error	<u>West North Central</u>	Standard Error	<u>West South Central</u>	Standard Error
8.3	(± 0.6)	10.9	(± 0.7)	9.2	(± 0.5)	7.6	(± 1.1)
<u>East North Central</u>	Standard Error	<u>East South Central</u>	Standard Error	<u>Northeast</u>	Standard Error	<u>Southeast</u>	Standard Error
10.0	(± 0.9)	8.3	(± 1.0)	7.7	(± 0.7)	7.8	(± 0.5)

Percent of Lambs that Died Before Weaning in 1995 by Region



#3234



2. Culling and Mortality

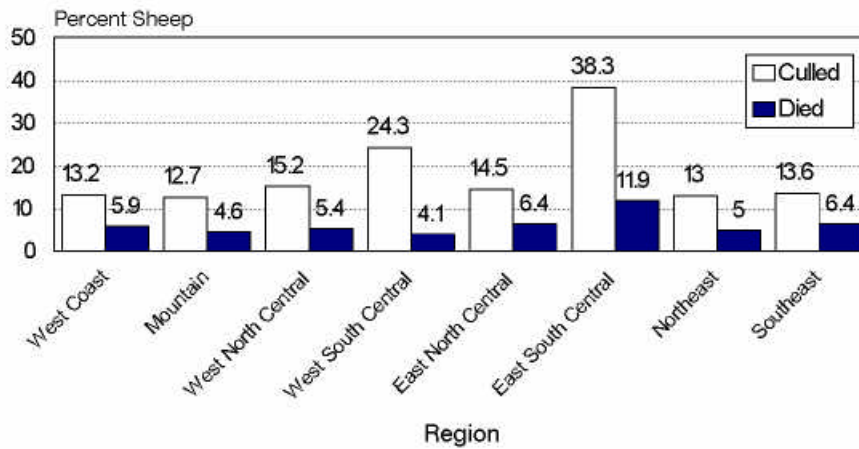
- a. Sheep 1 year of age and older that left the flock in 1995 due to death or culling, as a percent of January 1, 1996, inventory (ewes and rams 1 year of age or older) by region:

Exit Reason	Percent Sheep							
	West Coast		Mountain		West North Central		West South Central	
	Standard	Standard	Standard	Standard	Standard	Standard	Standard	
	Error	Error	Error	Error	Error	Error	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		East South Central		Northeast		Southeast	
	Standard	Standard	Standard	Standard	Standard	Standard	Standard	
	Error	Error	Error	Error	Error	Error	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	

Sheep 1 Year of Age or Older that Died or Were Culled in 1995 as a Percent of the January 1, 1996, Inventory by Region

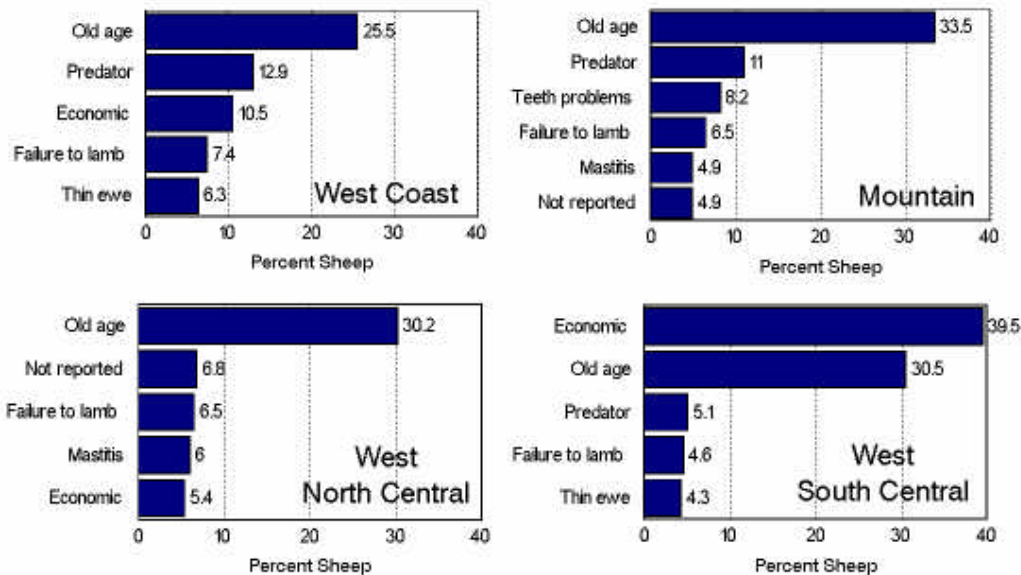


#3246

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

Exit Reason	Percent Sheep							
	West Coast	Standard Error	Mountain	Standard Error	West 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	

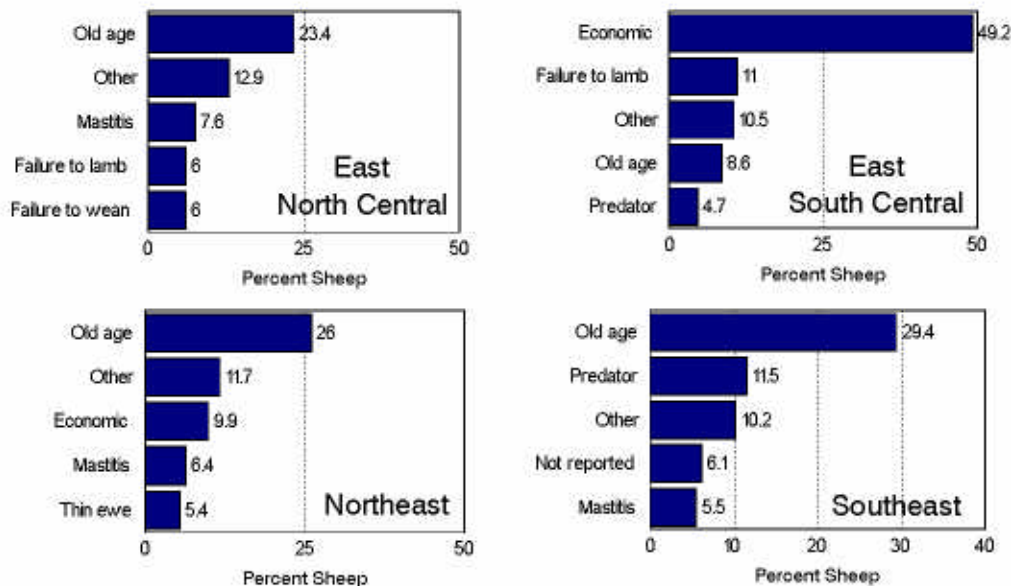
Percent of Sheep 1 Year or Older that were Culled or Died in 1995 by Top 5 Reported Reasons and Region



#3235a-d

Exit Reason	Percent Sheep							
	East North Central	Standard Error	East South Central	Standard Error	Standard Northeast Error	Standard Southeast Error	Standard Error	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	

Percent of Sheep 1 Year or Older that were Culled or Died in 1995 by Top 5 Reported Reasons and Region



#3235e-h

## 3. Morbidity

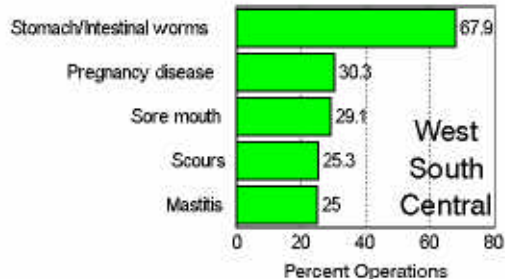
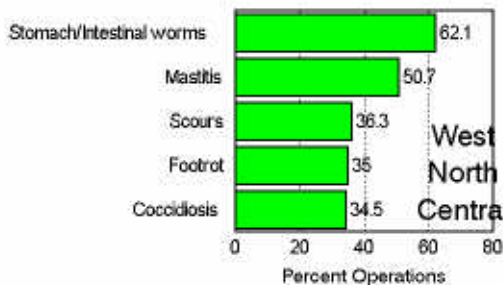
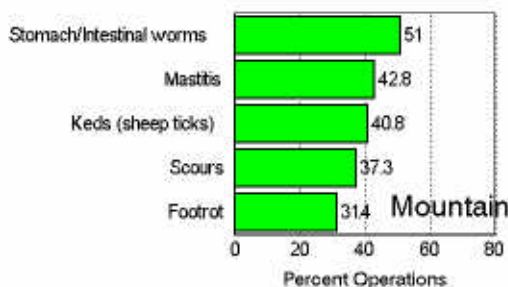
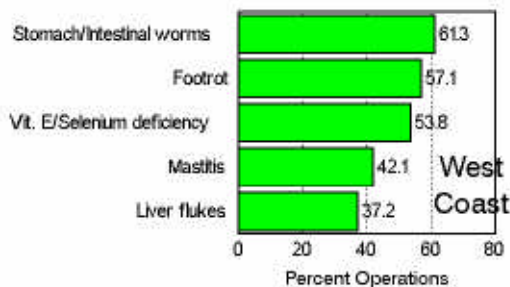
a. Percent of operations that reported moderate or high concern<sup>1</sup> for the following conditions by region:

Condition	Percent Operations							
	West Coast	Standard Error	Mountain	Standard Error	West 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 ( <i>B. ovis</i> )	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 (CI, boils, abscess)	21.7	(± 2.6)	18.5	(± 2.1)	15.4	(± 1.5)	10.3	(± 2.1)
Ovine progressive pneumonia (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)

<sup>1</sup> 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



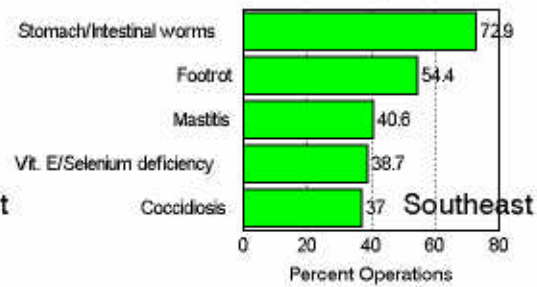
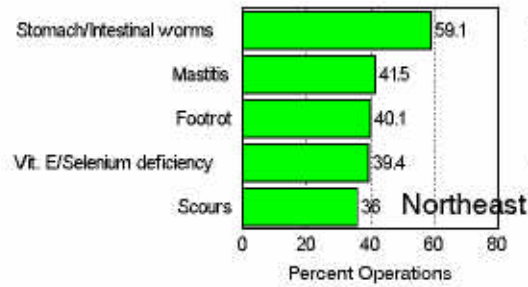
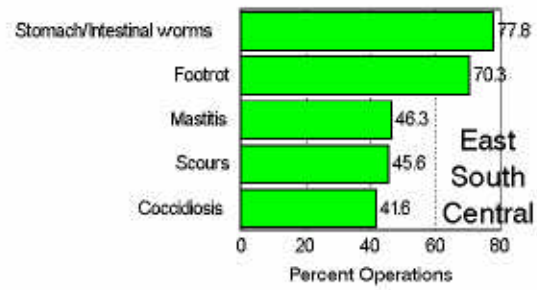
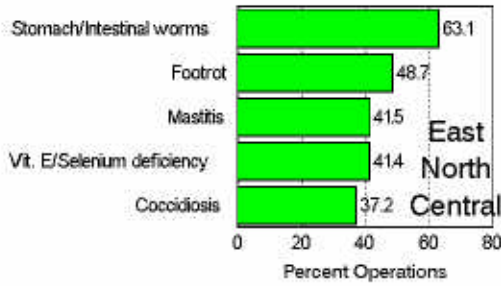
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a. Percent of operations that reported moderate or high concern<sup>1</sup> for the following conditions by region (continued):

<u>Condition</u>	<u>Percent Operations</u>							
	<u>East North Central</u>		<u>East South Central</u>		<u>Standard Northeast</u>		<u>Standard Southeast</u>	
	<u>Central</u>	<u>Error</u>	<u>Central</u>	<u>Error</u>	<u>Error</u>	<u>Error</u>	<u>Error</u>	<u>Error</u>
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 ( <i>B. ovis</i> )	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 (CI, boils, abscess)	14.6	(± 1.6)	20.3	(± 6.3)	19.1	(± 2.4)	19.7	(± 3.5)
Ovine progressive pneumonia (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)

<sup>1</sup> 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



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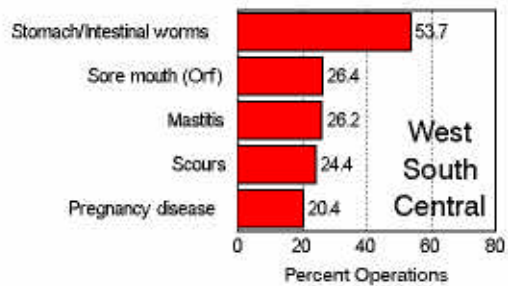
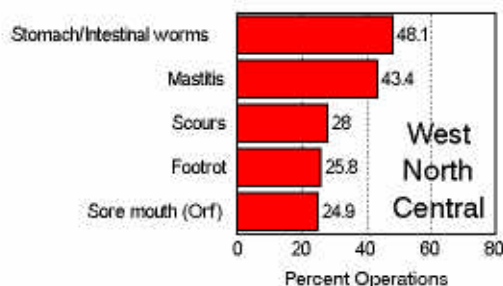
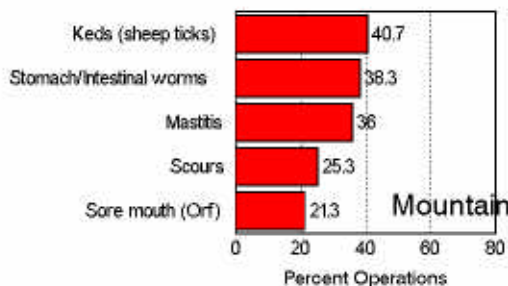
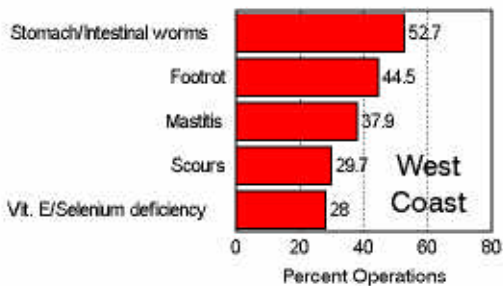
b. Percent of operations on which the following conditions were known to be present (suspected or confirmed) in the previous 5 years by region:

Condition	Percent Operations							
	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 ( <i>B. ovis</i> )	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 pneumonia (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



\*In the previous 5 years.

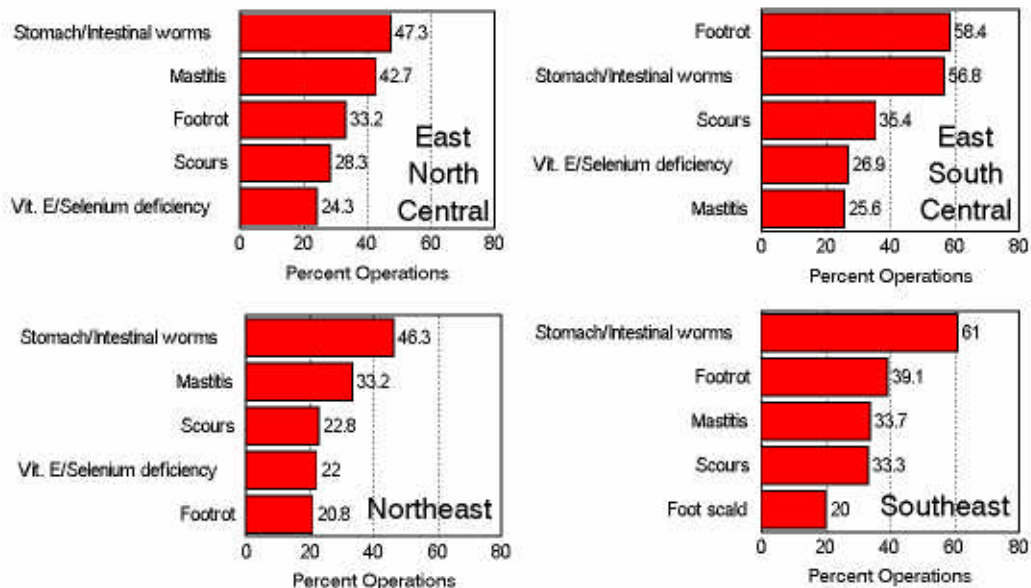
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b. Percent of operations on which the following conditions were known to be present (suspected or confirmed) in the previous 5 years by region (continued):

<u>Condition</u>	<u>Percent Operations</u>							
	<u>East</u>		<u>East</u>		<u>Standard</u>		<u>Standard</u>	
	<u>North</u>	<u>Standard</u>	<u>South</u>	<u>Standard</u>	<u>Standard</u>	<u>Standard</u>	<u>Standard</u>	<u>Standard</u>
	<u>Central</u>	<u>Error</u>	<u>Central</u>	<u>Error</u>	<u>Northeast</u>	<u>Error</u>	<u>Southeast</u>	<u>Error</u>
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)
<u>Toxoplasmosis abortion</u>	<u>3.1</u>	<u>(± 0.8)</u>	<u>6.4</u>	<u>(± 4.3)</u>	<u>2.8</u>	<u>(± 1.0)</u>	<u>1.6</u>	<u>(± 0.5)</u>
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)
<u>Bluetongue</u>	<u>0.2</u>	<u>(± 0.1)</u>	<u>3.3</u>	<u>(± 2.0)</u>	<u>0.0</u>	<u>(± 0.0)</u>	<u>0.8</u>	<u>(± 0.7)</u>
Epididymitis ( <i>B. ovis</i> )	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)
<u>Scours</u>	<u>28.3</u>	<u>(± 2.4)</u>	<u>35.4</u>	<u>(± 7.2)</u>	<u>22.8</u>	<u>(± 2.4)</u>	<u>33.3</u>	<u>(± 4.3)</u>
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)
<u>Stomach/intestinal worms</u>	<u>47.3</u>	<u>(± 2.6)</u>	<u>56.8</u>	<u>(± 6.4)</u>	<u>46.3</u>	<u>(± 3.1)</u>	<u>61.0</u>	<u>(± 4.2)</u>
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)
<u>Sore mouth (Orf)</u>	<u>21.8</u>	<u>(± 2.0)</u>	<u>14.3</u>	<u>(± 4.3)</u>	<u>12.2</u>	<u>(± 1.7)</u>	<u>14.0</u>	<u>(± 2.6)</u>
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)
<u>Grain overload (rumen acidosis)</u>	<u>20.1</u>	<u>(± 2.1)</u>	<u>11.8</u>	<u>(± 4.9)</u>	<u>7.0</u>	<u>(± 1.4)</u>	<u>11.4</u>	<u>(± 2.9)</u>
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)
<u>Pregnancy disease (toxemia)</u>	<u>19.5</u>	<u>(± 2.0)</u>	<u>10.4</u>	<u>(± 3.7)</u>	<u>19.5</u>	<u>(± 2.4)</u>	<u>19.1</u>	<u>(± 3.2)</u>
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 pneumonia (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)
<u>Bad teeth</u>	<u>9.1</u>	<u>(± 1.2)</u>	<u>5.1</u>	<u>(± 2.1)</u>	<u>8.5</u>	<u>(± 1.5)</u>	<u>11.1</u>	<u>(± 1.9)</u>
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)
<u>Footrot</u>	<u>33.2</u>	<u>(± 2.5)</u>	<u>58.4</u>	<u>(± 6.5)</u>	<u>20.8</u>	<u>(± 2.3)</u>	<u>39.1</u>	<u>(± 4.4)</u>
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)
<u>Lice</u>	<u>11.7</u>	<u>(± 1.6)</u>	<u>12.0</u>	<u>(± 4.9)</u>	<u>11.5</u>	<u>(± 1.7)</u>	<u>11.0</u>	<u>(± 2.1)</u>
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)
<u>Copper toxicity</u>	<u>2.7</u>	<u>(± 0.6)</u>	<u>3.6</u>	<u>(± 2.2)</u>	<u>1.2</u>	<u>(± 0.5)</u>	<u>1.8</u>	<u>(± 1.3)</u>
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



\*In the previous 5 years.

#3237e-h

### C. Health Management

1. Vaccines

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

Vaccine	Percent Operations							
	West Coast		Mountain		West Central		West South Central	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	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)
<i>E. coli</i>	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		East South Central		Standard Northeast		Standard Southeast	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	
	Clostridia C & D (overeating)	56.6	(± 2.7)	50.8	(± 7.4)	33.0	(± 2.9)	55.9
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)
<i>E. coli</i>	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:

<u>Vaccine</u>	<u>Percent Sheep</u>							
	<u>West Coast</u>	<u>Standard Error</u>	<u>Mountain</u>	<u>Standard Error</u>	<u>West North Central</u>	<u>Standard Error</u>	<u>West South Central</u>	<u>Standard Error</u>
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)
<i>E. coli</i>	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)

<u>Disease</u>	<u>Percent Sheep</u>							
	<u>East North Central</u>	<u>Standard Error</u>	<u>East South Central</u>	<u>Standard Error</u>	<u>Standard Error</u>	<u>Standard Error</u>	<u>Standard Error</u>	<u>Standard Error</u>
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)
<i>E. coli</i>	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

<u>Frequency</u>	<u>Percent Operations</u>							
	<u>West Coast</u>		<u>Mountain</u>		<u>West North Central</u>		<u>West South Central</u>	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	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	<u>24.9</u>	(± 2.8)	<u>12.6</u>	(± 4.1)	<u>22.0</u>	(± 2.1)	<u>36.9</u>	(± 4.5)
Total	100.0		100.0		100.0		100.0	

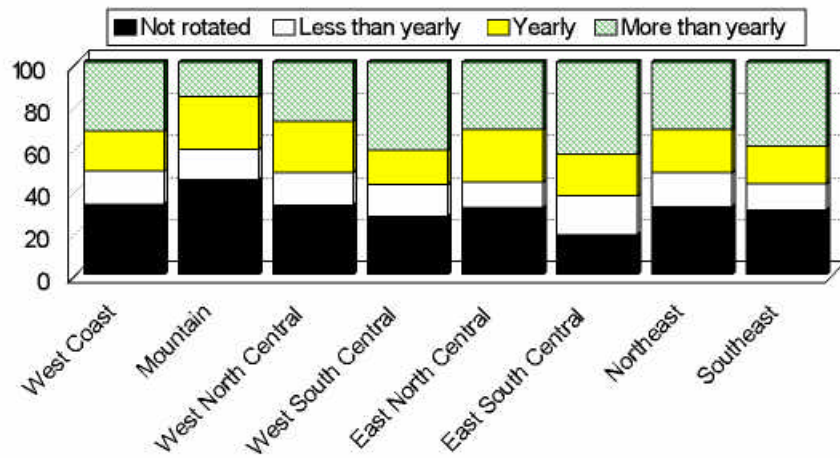
<u>Frequency</u>	<u>East North Central</u>		<u>East South Central</u>		<u>Northeast</u>		<u>Southeast</u>	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	
Not rotated	48.7	(± 2.9)	32.1	(± 7.6)	43.6	(± 3.4)	44.1	(± 4.3)
Less frequently than yearly	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	<u>25.4</u>	(± 2.3)	<u>47.2</u>	(± 7.7)	<u>28.0</u>	(± 3.1)	<u>27.6</u>	(± 3.5)
Total	100.0		100.0		100.0		100.0	

ii. Breeding stock

Frequency	Percent Operations							
	West Coast		Mountain		West North Central		West South Central	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	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	<u>32.2</u>	(± 3.1)	<u>16.0</u>	(± 3.7)	<u>27.8</u>	(± 2.0)	<u>41.6</u>	(± 4.7)
Total	100.0		100.0		100.0		100.0	

Frequency	East North Central		East South Central		Northeast		Southeast	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	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	<u>31.8</u>	(± 2.3)	<u>43.5</u>	(± 7.8)	<u>31.8</u>	(± 3.0)	<u>39.7</u>	(± 4.3)
Total	100.0		100.0		100.0		100.0	

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



#3238

\*Of operations that dewormed breeding stock.

iii. Feeder lambs

Frequency	Percent Operations							
	West		Mountain		West		West	
	<u>Coast</u>	Standard Error	<u>Mountain</u>	Standard Error	<u>North</u>	Standard Error	<u>South</u>	Standard Error
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	<u>25.2</u>	(± 3.2)	<u>14.0</u>	(± 4.9)	<u>20.6</u>	(± 2.2)	<u>41.9</u>	(± 5.5)
Total	100.0		100.0		100.0		100.0	

Frequency	East		East		Standard		Standard	
	<u>North</u>	Standard Error	<u>South</u>	Standard Error	<u>Northeast</u>	Standard Error	<u>Southeast</u>	Standard Error
	<u>Central</u>	Standard Error	<u>Central</u>	Standard Error	<u>Northeast</u>	Standard Error	<u>Southeast</u>	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	<u>27.4</u>	(± 2.6)	<u>43.6</u>	(± 9.6)	<u>26.4</u>	(± 3.6)	<u>33.0</u>	(± 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	Percent Operations							
	West		Mountain		West		West	
	<u>Coast</u>	Standard Error	<u>Mountain</u>	Standard Error	<u>North</u>	Standard Error	<u>South</u>	Standard Error
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		East		Standard		Standard	
	<u>North</u>	Standard Error	<u>South</u>	Standard Error	<u>Northeast</u>	Standard Error	<u>Southeast</u>	Standard Error
	<u>Central</u>	Standard Error	<u>Central</u>	Standard Error	<u>Northeast</u>	Standard Error	<u>Southeast</u>	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)



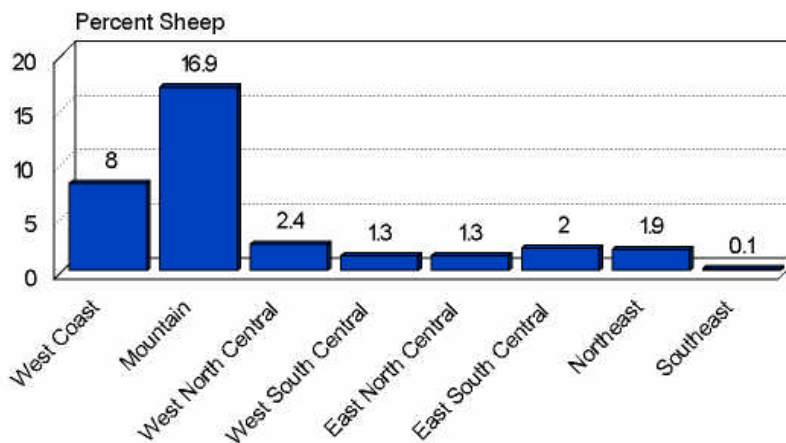
c. Percent of *sheep* on operations that used the following dewormers in the previous 3 years by region:

<u>Dewormer</u>	<u>Percent Sheep</u>							
	<u>West Coast</u>	<u>Standard Error</u>	<u>Mountain</u>	<u>Standard Error</u>	<u>West North Central</u>	<u>Standard Error</u>	<u>West South Central</u>	<u>Standard Error</u>
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)

<u>Dewormer</u>	<u>East North Central</u>		<u>East South Central</u>		<u>Standard Error</u>		<u>Standard Error</u>	
	<u>Standard Error</u>	<u>Standard Error</u>	<u>Standard Error</u>	<u>Standard Error</u>	<u>Standard Error</u>	<u>Standard Error</u>	<u>Standard Error</u>	
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)

Percent of Sheep on Operations Using No Dewormers in the Previous 3 Years by Region



#3239

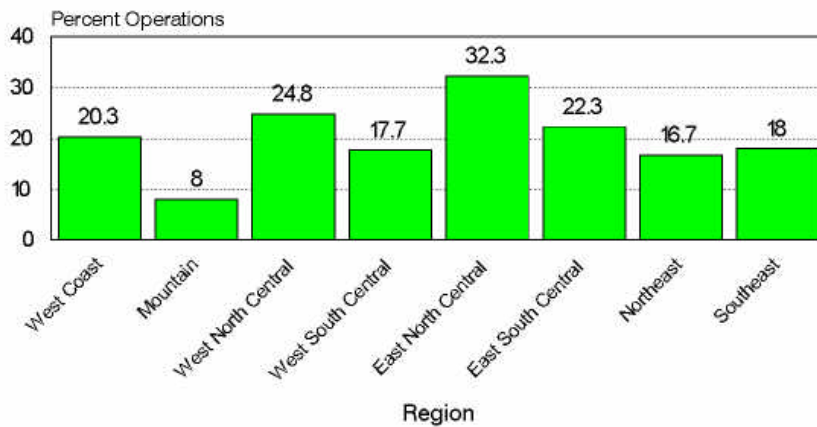
3. Additives

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

Additive	Percent Operations							
	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	Percent Operations							
	East North Central	Standard Error	East South Central	Standard Error	Northwest	Standard Error	Southwest	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)

Percent of Operations that Used Coccidiostats in Feed or Water in the Previous 3 Years by Region



#3240

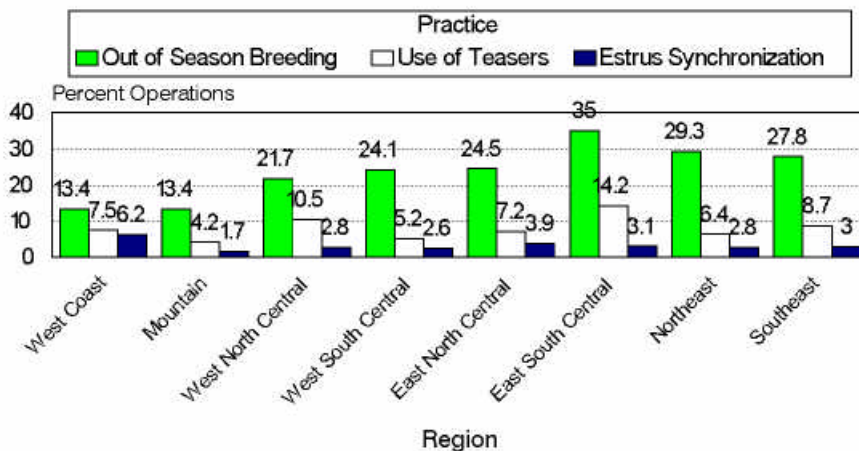
4. Reproductive management practices

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

Practice <sup>1</sup>	Percent Operations							
	West Coast		Mountain		West North Central		West South Central	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	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 <sup>1</sup>	East North Central		East South Central		Northeast		Southeast	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	
	Breeding soundness exam	20.3	(± 2.0)	17.3	(± 6.0)	13.8	(± 2.0)	17.6
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)

Percent of Operations\* by Reproductive Management Practice Used by Region



\*For operations with at least one ewe.

#3241

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

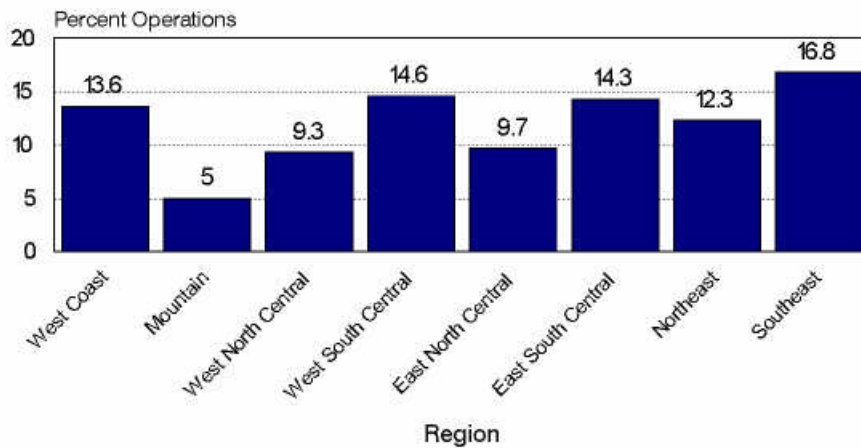
5. Diagnostic practices

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

Practice	Percent Operations							
	West Coast	Standard Error	Mountain	Standard Error	West North Central	Standard Error	West South Central	Standard Error
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		East South Central		Northeast		Southeast	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	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)

Percent of Operations that Checked Fecal Egg Counts by Region



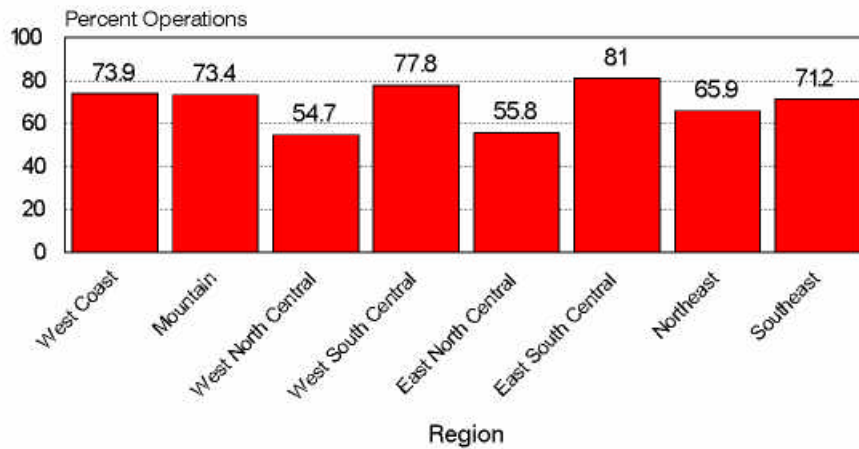
#3242

### D. Predator Management

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

<u>Percent Operations</u>							
<u>West Coast</u>		<u>Mountain</u>		<u>West North Central</u>		<u>West South Central</u>	
Standard Error		Standard Error		Standard Error		Standard Error	
(± 3.0)	73.9	(± 3.5)	73.4	(± 2.3)	54.7	(± 4.3)	77.8
<u>East North Central</u>		<u>East South Central</u>		<u>Northeast</u>		<u>Southeast</u>	
Standard Error		Standard Error		Standard Error		Standard Error	
(± 2.7)	55.8	(± 6.0)	81.0	(± 2.9)	65.9	(± 4.0)	71.2

**Percent of Operations that Used Any Predator Management Practice by Region**



#3243

2. Specific predator management practices used

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

	<u>Percent Operations</u>							
	<u>West</u>		<u>Mountain</u>		<u>West</u>		<u>West</u>	
	<u>Coast</u>	<u>Standard Error</u>	<u>Mountain</u>	<u>Standard Error</u>	<u>North Central</u>	<u>Standard Error</u>	<u>South Central</u>	<u>Standard Error</u>
<u>Guardian Animals</u>								
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)

	<u>East</u>		<u>East</u>		<u>Standard</u>		<u>Standard</u>	
	<u>North Central</u>	<u>Standard Error</u>	<u>South Central</u>	<u>Standard Error</u>	<u>Northeast</u>	<u>Standard Error</u>	<u>Southeast</u>	<u>Standard Error</u>
	<u>Guardian Animals</u>							
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)

	<u>Percent Operations</u>							
	<u>West</u>		<u>Mountain</u>		<u>West</u>		<u>West</u>	
	<u>Coast</u>	<u>Standard Error</u>	<u>Mountain</u>	<u>Standard Error</u>	<u>North Central</u>	<u>Standard Error</u>	<u>South Central</u>	<u>Standard Error</u>
<u>Lethal Methods</u>								
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)

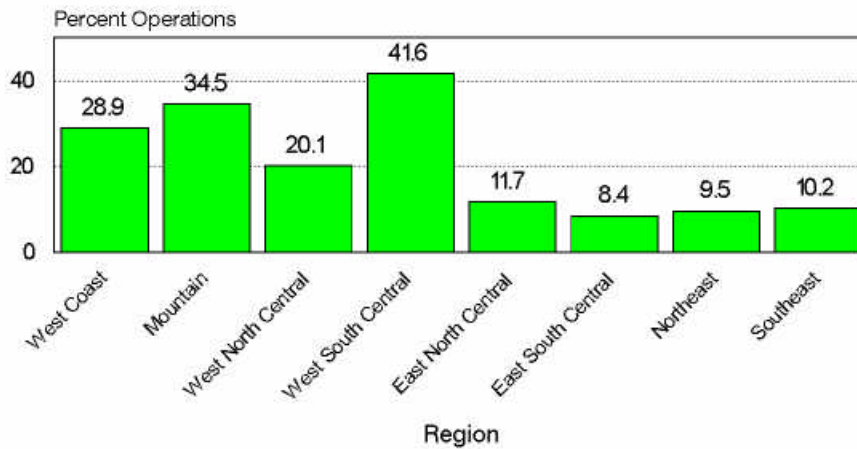
	<u>East</u>		<u>East</u>		<u>Standard</u>		<u>Standard</u>	
	<u>North Central</u>	<u>Standard Error</u>	<u>South Central</u>	<u>Standard Error</u>	<u>Northeast</u>	<u>Standard Error</u>	<u>Southeast</u>	<u>Standard Error</u>
	<u>Lethal Methods</u>							
Shooting	58.7	(± 3.4)	54.8	(± 7.9)	33.8	(± 3.2)	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)

Other Methods	Percent Operations							
	West Coast		Mountain		West Central		West South Central	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	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 <sup>1</sup>	11.3	(± 2.3)	8.1	(± 1.7)	11.4	(± 1.9)	5.5	(± 2.7)

Other Methods	East North Central		East South Central		Northeast		Southeast	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	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 <sup>1</sup>	12.2	(± 2.3)	18.3	(± 7.4)	9.6	(± 2.1)	7.7	(± 2.6)

Percent of Operations that Used Traps/Snares for Predator Management by Region



#3241

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.)

<sup>1</sup> 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	Operation Average Percent							
	West		Mountain		West North Central		West South Central	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	
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	<u>1.0</u>	(± 0.5)	<u>2.9</u>	(± 0.8)	<u>1.8</u>	(± 0.5)	<u>1.7</u>	(± 0.6)
Total	100.0		100.0		100.0		100.0	

Category	East North Central		East South Central		Northeast		Southeast	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	
	Slaughter lambs	60.4	(± 2.2)	51.2	(± 6.7)	62.0	(± 2.4)	62.6
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	<u>0.8</u>	(± 0.3)	<u>0.6</u>	(± 0.5)	<u>1.4</u>	(± 0.4)	<u>1.5</u>	(± 0.6)
Total	100.0		100.0		100.0		100.0	



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

<u>Category</u>	<u>Percent Operations</u>							
	<u>West Coast</u>	<u>Standard Error</u>	<u>Mountain</u>	<u>Standard Error</u>	<u>West North Central</u>	<u>Standard Error</u>	<u>West South Central</u>	<u>Standard Error</u>
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)

<u>Category</u>	<u>East North Central</u>		<u>East South Central</u>		<u>Standard Northeast</u>		<u>Standard Southeast</u>	
	<u>Central</u>	<u>Standard Error</u>	<u>Central</u>	<u>Standard Error</u>	<u>Standard Error</u>	<u>Standard Error</u>	<u>Standard Error</u>	<u>Standard Error</u>
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:

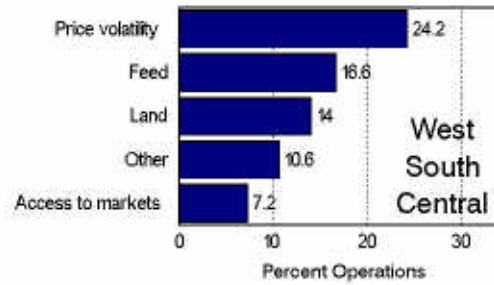
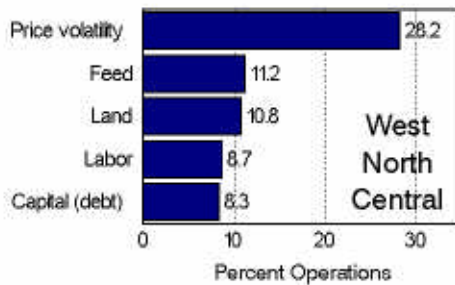
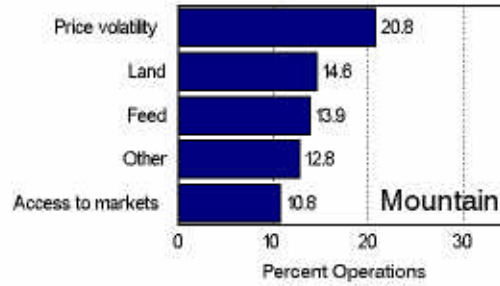
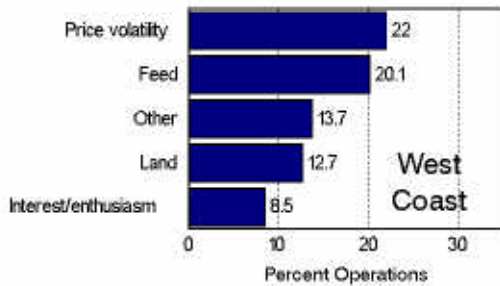
<u>Category</u>	<u>Percent Operations</u>							
	<u>West Coast</u>		<u>Mountain</u>		<u>West North Central</u>		<u>West South Central</u>	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	
Capital (debt)	15.4	(± 2.1)	20.3	(± 1.8)	24.4	(± 1.9)	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)

<u>Category</u>	<u>East North Central</u>		<u>East South Central</u>		<u>Standard Northeast</u>		<u>Standard Southeast</u>	
	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	Standard Error	
	Capital (debt)	18.9	(± 2.2)	17.9	(± 5.1)	22.3	(± 2.5)	15.0
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:

Category	Percent Operations							
	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	<u>3.6</u>	(± 1.1)	<u>3.3</u>	(± 1.0)	<u>3.4</u>	(± 0.8)	<u>5.1</u>	(± 1.7)
Total	100.0		100.0		100.0		100.0	

Percent of Operations by the Five Most Important Categories that Limited Profitability by Region

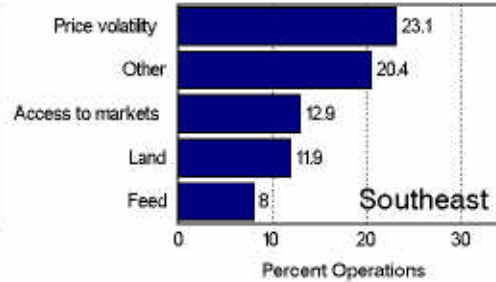
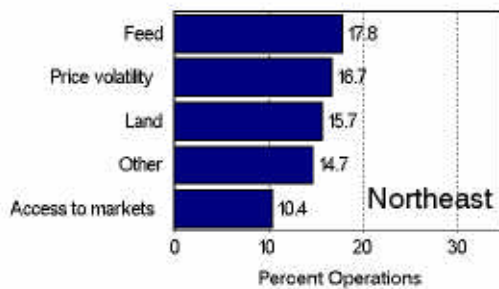
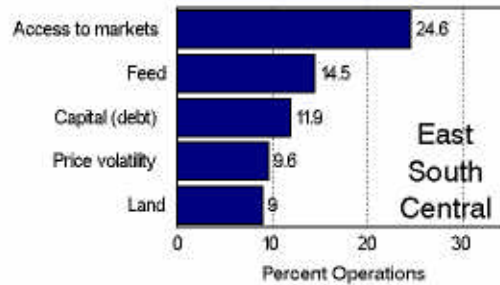
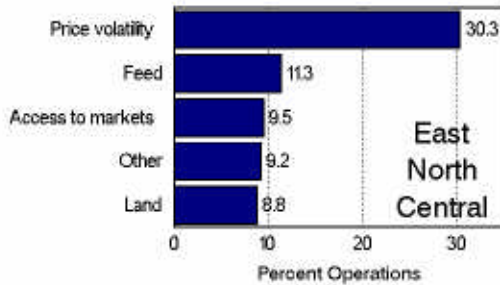


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b. Percent of operations by most important category that limited profitability by region (continued):

Category	East North Central		East South Central		Northeast		Southeast	
	Central	Standard Error	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	<u>5.1</u>	(± 1.5)	<u>6.8</u>	(± 4.2)	<u>1.4</u>	(± 0.9)	<u>6.5</u>	(± 2.8)
Total	100.0		100.0		100.0		100.0	

Percent of Operations by the Five Most Important Categories that Limited Profitability by Region



#3245e-h

## Section II. Sample Profile for Reporting Operations

### A. Regions

1. Number of reporting operations by region:

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

### B. Flock Size by Region

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

<u>Number Ewes</u>	<u>Number Operations</u>							
	<u>West Coast</u>	<u>Mountain</u>	<u>West North Central</u>	<u>West South Central</u>	<u>East North Central</u>	<u>East South Central</u>	<u>Northeast</u>	<u>Southeast</u>
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	<u>6</u>	<u>3</u>	<u>15</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>3</u>
Total	597	862	1,440	454	844	139	510	328

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

<u>Number Sheep</u>	<u>Number Operations</u>							
	<u>West Coast</u>	<u>Mountain</u>	<u>West North Central</u>	<u>West South Central</u>	<u>East North Central</u>	<u>East South Central</u>	<u>Northeast</u>	<u>Southeast</u>
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	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>
Total	597	862	1,440	454	844	139	510	328

**C. Type of Operation**

1. Number of reporting operations by type and region:

<u>Type</u>	<u>Number Operations</u>							
	<u>West Coast</u>	<u>Mountain</u>	<u>West North Central</u>	<u>West South Central</u>	<u>East North Central</u>	<u>East South Central</u>	<u>Northeast</u>	<u>Southeast</u>
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	<u>117</u>	<u>129</u>	<u>294</u>	<u>113</u>	<u>170</u>	<u>28</u>	<u>102</u>	<u>63</u>
Total	597	862	1,440	454	844	139	510	328

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