United States
Department
of Agriculture

Animal and
Plant Health
Inspection
Service

**Veterinary
Services**

Part III: Reference of 1997 Beef Cow-Calf Production Management and Disease Control

National Animal Health Monitoring System **January 1998**

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) during a nationwide study of management and health on cow-calf operations.

The Beef ‘97 study was a cooperative effort between State and Federal agricultural statisticians, animal health officials, university researchers, and extension personnel. We want to thank the National Agricultural Statistics Service (NASS) enumerators and State and Federal Veterinary Medical Officers (VMO’s) and Animal Health Technician’s (AHT’s) who visited the operations and collected the data for their hard work and dedication to the National Animal Health Monitoring System (NAHMS).

The roles of the producer, Area Veterinarian in Charge (AVIC), NAHMS Coordinator, VMO, AHT, and NASS enumerator were critical in providing quality data for Beef ‘97 reports. Thanks also to the staff at the Centers for Epidemiology and Animal Health (CEAH) for their efforts in generating timely reports from Beef ‘97 data. All participants are to be commended for their efforts, particularly the producers whose voluntary efforts made the study possible.

_____

Dr. Nora Wineland, NAHMS Program Leader

Table of Contents

Introduction . . . 1

Terms used in this report . . . 2

Section I: Population Estimates . . . 3

A. General Management . . . 3

1. Breeding herd description . . . 3
2. Breed makeup . . . 4
3. Cow disposition . . . 5
4. SPA participation . . . 5
5. Hours per beef cow managing and caring . . . 6
6. Low price impact . . . 8
7. Changes in environmental and grazing management practices . . . 9

B. Calving and Breeding . . . 9

1. Reproductive technologies . . . 9

C. Health Management . . . 12

1. Castration . . . 12
2. Weaning management . . . 14
3. Vaccinations administered . . . 16
4. Type of vaccination . . . 17
5. Calf respiratory vaccination . . . 18
6. Brucellosis vaccination . . . 19
7. Economic impact of selected health conditions . . . 21
8. Problem diseases for the U.S. beef cattle industry . . . 22

D. Disease Control . . . 23

1. Vaccination of cattle brought onto the operation . . . 23
2. Distance to captive animals . . . 24
3. Frequency of wildlife sightings . . . 25
4. Access to dairy cattle . . . 25
5. Type of grazing used . . . 26
6. Distance to grazing areas . . . 27
7. Carcass disposal . . . 28
8. Fly control . . . 29
9. Rodent control . . . 29
10. Feed storage unit accessibility . . . 30

11. Females calving per acre 30
12. Selected breeding and calving management practices 31
13. Travel to fairs or shows 31
14. Manure handling 32
15. Familiarity with Johne's disease 32
16. Opinions on U.S. outbreak preparedness 33

E. Feed Management 34

1. Creep feeding 34

F. Marketing 35

1. Marketing calves for feeding 35
2. Marketing calves for breeding 39
3. Cull cows 40

Section II: Sample Profile 41

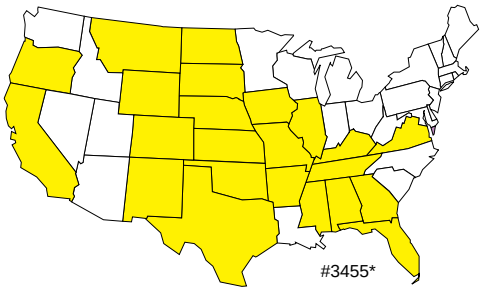
Section III: U.S. Inventory of Beef Cows and Number of Operations Estimates 42

Introduction

The National Animal Health Monitoring System's (NAHMS) Beef '97 study was designed to provide both participants and the industry with information on the nation's cow-calf population for education and research. NAHMS is sponsored by the USDA:APHIS:Veterinary Services (VS).

The first NAHMS national study of the beef cow-calf industry was the 1992-93 Beef Cow-Calf Health and Productivity Audit (CHAPA). Beef '97 was the second NAHMS national study of that industry. NAHMS developed study objectives by exploring existing literature and contacting industry members about their informational needs and priorities. The objectives are listed inside the back cover of this report.

Beef '97 Participating States



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

The USDA's National Agricultural Statistics Service (NASS) collaborated with VS to select a statistically-valid sample from 23 states for Beef '97 (see map at right). The 23-state target population represented 85.7 percent of U.S. beef cows on January 1, 1997, and 77.6 percent of U.S. operations with beef cows.

Part I: Reference of 1997 Beef Cow-Calf Management Practices was released in June 1997. July's *Part II: Reference of 1997 Beef Cow-Calf Health & Health Management Practices* continued documenting Beef '97 study results. NASS enumerators collected data for these reports from 2,713 producers via a questionnaire administered on-farm from December 30, 1996, through February 3, 1997.

Federal and state Veterinary Medical Officers (VMO's) and Animal Health Technicians (AHT's) collected data on-farm for *Part III: Reference of 1997 Beef Cow-Calf Production Management and Disease Control* from March 3 through May 23, 1997, from 1,190 operations that had five or more beef cows on January 1, 1997. *Part IV: Changes in Beef Cow-Calf Management Practices* will combine results of the 1992-93 CHAPA with the Beef '97 results for comparable items and is expected to be released in February 1998.

The 23-state target population of operations with five or more beef cows:

- 85.9 percent of beef cows on U.S. operations with five or more beef cows (see table below).
- 79.7 percent of beef cow operations in the U.S. with five or more beef cows (see the table on the next page).
- 85.0 percent of all beef cows in the U.S.
- 66.3 percent of all beef cow operations in the U.S.

Within the 23 Beef '97 states, the target population with 5 or more beef cows represented: 99.2 percent of all beef cows and 85.5 percent of all beef cow operations in the 23 states.

Target Population - Beef Cows

	Beef Cow Inventory - January 1, 1997		
States	On All* Operations (1,000 Head)	On Operations with 5 or More Beef Cows (1,000 Head)**	Percent All Beef Cows
United States (50 states)	34,279.8	33,937.0	99.0
Beef '97 (23 states)	29,375.0	29,140.0	99.2
23 states as a percent of United States	85.7	85.9	—

* Source: USDA's National Agricultural Statistics Service (NASS).
** NAHMS projection.

Beef '97 reports are accessible on the World Wide Web at
http://www.aphis.usda.gov/vs/ceah/cahm
(menu choices: National Animal Health Monitoring System and Beef Cow/Calf).

Discussions of selected topics are also accessible on the Internet through goher.aphis.usda.gov (menu choices: APHIS Information; Animal Health Information; Animal Health Monitoring, Risk Assessments, and Emerging Issues).

For questions about this report or additional Beef '97 and NAHMS results, please contact:

Centers for Epidemiology and Animal Health
USDA:APHIS:VS, attn. NAHMS
555 South Howes; Fort Collins, CO 80521
Telephone: (970) 490-8000
Internet: NAHMS_INFO@aphis.usda.gov

Target Population - Beef Cow Operations			
	Operations with Beef Cows, 1996		
	All* Operations	On Operations with 5 or More Beef Cows (1,000 Head)**	
States	Number	Number	Percent All Operations
United States (50 states)	900,680	749,366	83.2
Beef '97 (23 states)	698,600	597,303	85.5
23 states as a percent of United States	77.6	79.7	—

* Source: USDA's National Agricultural Statistics Service (NASS).
** NAHMS projection.

Terms Used in This Report

Beef cow: Female that has calved at least once.

Beef heifer: Female that has not yet calved.

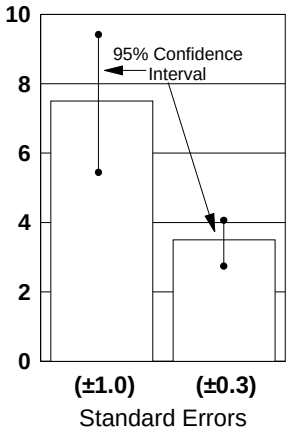
Herd size: Size groupings based on number of beef cows on hand January 1, 1997.

N/A: Not applicable.

Operation average: A single value for each operation is summed over all operations reporting divided by the number of operations reporting.

Population estimates: Averages and proportions weighted to represent the population. For this report, the reference population was cow-calf operations with five or more beef cows in the 23 selected States. 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 and results in a range of 2.8 and 4.0. Most estimates in this report are rounded to the nearest tenth.

Examples of 95% Confidence Intervals



Regions:

- **West**: California, Colorado, Montana, New Mexico, Oregon, and Wyoming.
- **Northcentral**: Kansas, Nebraska, North Dakota, and South Dakota.
- **Southcentral**: Oklahoma and Texas.
- **Central**: Arkansas, Illinois, Iowa, and Missouri.
- **Southeast**: Alabama, Florida, Georgia, Kentucky, Mississippi, Tennessee, and Virginia.

Sample profile: Information that describes characteristics of the operations from which Beef '97 data were collected.

Section I: Population Estimates

A. General Management

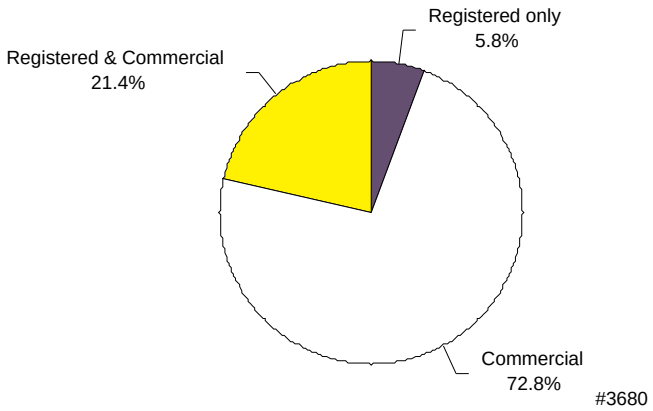
1. Breeding herd description

   a. Percent of operations by best description of the beef breeding herd by herd size:

Beef Breeding Herd Description	Percent Operations Number Cows: Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
Registered cattle only	6.6	(±2.3)	3.9	(±1.5)	3.6	(±1.0)	2.8	(±1.6)	5.8	(±1.7)
Commercial cattle (including composite breeds)	72.7	(±3.6)	75.8	(±3.2)	69.7	(±3.3)	70.4	(±5.9)	72.8	(±2.7)
Both registered and commercial cattle	20.7	(±3.1)	20.3	(±3.0)	26.7	(±3.2)	26.8	(±5.8)	21.4	(±2.3)
Total	100.0		100.0		100.0		100.0		100.0	

Most operations (72.8 percent) were best characterized as having commercial cattle only. Slightly more than one in five herds (21.4 percent) had both commercial and registered cattle. Relatively few operations (5.8 percent) had registered cattle exclusively. The percentage of operations with the various types of animals was consistent across herd sizes.

Percent of Operations by Best Description of the Beef Breeding Herd



2. Breed makeup

a. Percent of operations by best description of the breed makeup of the majority of ***beef cows*** by herd size:

	Percent Operations									
	Number Cows									
Breed Makeup	Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
Purebred or straightbred (including composite breeds)	21.9	(±3.6)	18.4	(±3.8)	15.0	(±2.3)	30.4	(±6.1)	20.8	(±2.6)
Crossbred:										
2 breeds	44.8	(±3.7)	44.0	(±3.8)	46.0	(±3.9)	40.8	(±6.0)	44.7	(±2.8)
3 or more breeds	33.3	(±3.8)	37.6	(±3.6)	39.0	(±3.7)	28.8	(±5.2)	34.5	(±2.8)
Total	100.0		100.0		100.0		100.0		100.0	

Nearly four-fifths (79.2 percent) of operations had crossbred cows. The largest percentage of herds (44.7 percent) had cows that were crossbred using two breeds followed by crosses of three or more breeds (34.5 percent of operations). Only 20.8 percent of operations were comprised primarily of purebred or straightbred cows. Herds of the largest size (300 or more cows) were more likely to have had cows that were straightbred or purebred than herds of smaller sizes.

b. Percent of operations by best description of breed makeup of the majority of the ***1996 calf crop*** by herd size:

	Percent Operations									
	Number Cows									
Breed Makeup	Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
Purebred or straightbred (including composite breeds)	17.9	(±3.2)	10.5	(±2.2)	12.6	(±1.9)	25.6	(±6.1)	16.3	(±2.4)
Crossbred:										
2 breeds	36.3	(±3.7)	37.7	(±4.0)	40.3	(±3.9)	41.5	(±6.1)	37.0	(±2.8)
3 or more breeds	45.8	(±4.1)	51.8	(±3.9)	47.1	(±3.8)	32.9	(±5.4)	46.7	(±3.0)
Total	100.0		100.0		100.0		100.0		100.0	

The largest percentage of herds (46.7 percent) had calves that were crossbred using three or more breeds. An additional 37.0 percent of herds had calves that were crossbred using two breeds. Calves from three or more breed crosses represented the largest percentage of herds in each size group with the exception of the largest herds (300 or more cows) where more operations had crossbred calves using two breeds. Overall, 83.7 percent of operations had crossbred calves. Comparing this table with the preceeding table (2.a. above) demonstrates that producers are attempting to take advantage of the hybrid vigor that can accrue from crossing animals of different breeds.

3. Cow disposition

a. Percent of operations where, during the last 5 years, an increase in problems was perceived to be associated with the temperament or disposition of cows by herd size:

Percent Operations									
Number Cows									
Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
8.4	(±1.8)	8.0	(±1.8)	8.4	(±1.9)	5.4	(±2.5)	8.3	(±1.3)

Animal temperament can affect the ease with which animals can be handled. In addition, temperament of the animals can lead to problems with beef quality if flighty animals injure themselves during the handling process. Concern has been raised that the proportion of animals with less than ideal temperament has been increasing. Only 8.3 percent of producers perceived an increase in problems associated with temperament or disposition of cows.

b. Percent of operations where, during the last 5 years, an increase in problems was perceived to be associated with the temperament or disposition of cows by region:

Percent Operations											
Region											
West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error	All Operations	Standard Error
4.5	(±1.4)	10.5	(±3.0)	4.2	(±1.1)	8.9	(±2.8)	11.9	(±3.7)	8.3	(±1.3)

Few producers reported temperament problems. Operations in the West and Southcentral regions were less likely to report increasing problems with temperament of cows than operations in other regions.

4. SPA participation

a. Percent of operations that used the Standardized Performance Analysis (SPA) sponsored by the National Cattlemen's Beef Association and the USDA Extension Service to determine the profitability of producing beef calves by herd size:

Percent Operations									
Number Cows									
Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
4.7	(±1.5)	2.5	(±0.9)	3.0	(±1.0)	3.0	(±1.5)	4.2	(±1.1)

A Standardized Performance Analysis is a method to calculate financial and productivity measures for cow-calf operations on a consistent basis across operations and years. In spite of widespread availability of these analysis tools through local Extension personnel and even across the internet, relatively few operations (4.2 percent) have used them. There was little indication of differences in use of SPA by herd size.

b. Percent of operations that used the Standardized Performance Analysis (SPA) sponsored by the National Cattlemen's Beef Association and the USDA Extension Service to determine the profitability of producing beef calves by region:

Percent Operations											
Region											
West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error	All Operations	Standard Error
4.0	(±2.2)	4.6	(±2.0)	4.8	(±2.7)	1.8	(±0.8)	5.1	(±2.4)	4.2	(±1.1)

There was little indication of differences in use of SPA across regions with the exception of the Central region which had the smallest proportion of operations (1.8 percent) that reported having used SPA.

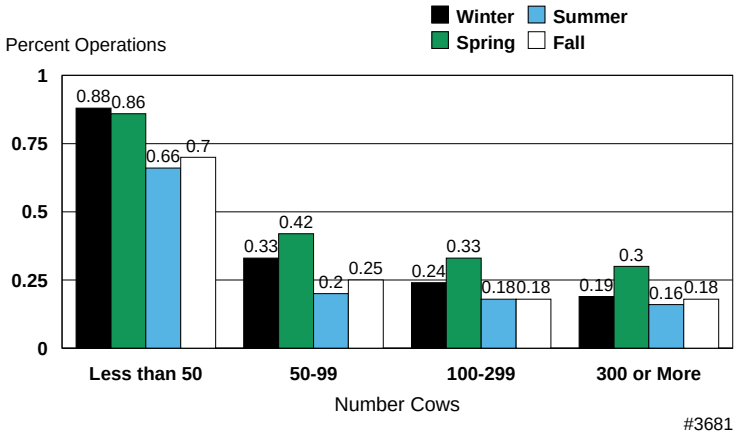
5. Hours per beef cow managing and caring

a. Operation average hours per beef cow per week allocated to the managing and caring for the animals in the cow-calf operation by season and herd size:

Operation Average (Hours per beef cow per week)											
Number Cows											
Season	Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
Winter	0.88	(±0.06)	0.33	(±0.02)	0.24	(±0.01)	0.19	(±0.02)	0.72	(±0.04)
Spring	0.86	(±0.06)	0.42	(±0.03)	0.33	(±0.02)	0.30	(±0.02)	0.73	(±0.05)
Summer	0.66	(±0.07)	0.20	(±0.01)	0.18	(±0.01)	0.16	(±0.02)	0.53	(±0.06)
Fall	0.70	(±0.06)	0.25	(±0.02)	0.18	(±0.01)	0.18	(±0.01)	0.57	(±0.05)

The largest number of hours per cow per week was spent on cow-calf operations in the winter (.72 hours) and the spring (.73 hours). These results are to be expected since most calves are born in the spring months and in many regions, winter is a time of supplementary feeding. Larger operations appeared to be more efficient with labor than smaller operations since they had the lowest hours required per cow per week in each season of all the size groups. These findings may be, in part, due to a larger investment in labor-saving mechanized equipment plus recognition that some amount of labor is fixed regardless of herd size.

Operation Average Hours per Week per Beef Cow Allocated to Managing and Caring for the Cow-calf Operation by Season and Herd Size



b. Operation average hours per beef cow per week allocated to managing and caring for the animals in the cow-calf operation by season and region:

	Operation Average (Hours per beef cow per week)									
	Region									
Season	West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error
Winter	0.79	(±0.16)	0.51	(±0.06)	0.81	(±0.10)	0.64	(±0.11)	0.74	(±0.07)
Spring	0.93	(±0.15)	0.74	(±0.10)	0.64	(±0.08)	0.75	(±0.11)	0.73	(±0.10)
Summer	0.55	(±0.14)	0.32	(±0.14)	0.49	(±0.06)	0.50	(±0.13)	0.68	(±0.13)
Fall	0.63	(±0.13)	0.34	(±0.06)	0.74	(±0.12)	0.40	(±0.06)	0.61	(±0.09)

c. Operation average hours per beef cow per year spent managing and caring for the animals in the cow-calf operation by herd size:

Operation Average (Hours per beef cow per year)									
Number Cows									
Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
40.5	(±2.9)	15.7	(±0.8)	12.1	(±0.6)	10.8	(±0.7)	33.1	(±2.2)

d. Operation average hours per beef cow per year spent managing and caring for the animals in the cow-calf operation by region:

Operation Average (Hours per beef cow per year)									
Region									
West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error
37.6	(±6.9)	24.8	(±4.4)	34.8	(±4.2)	30.0	(±4.4)	35.9	(±4.7)

6. Low price impact

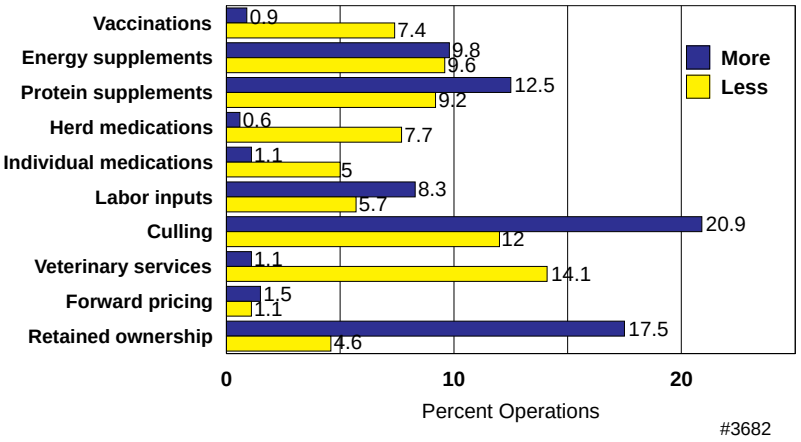
a. Because of the low prices for weaned calves sold in 1995 and 1996, percent of operations that did ***more, the same, or less*** of the following management practices or they were not applicable:

Management Practices	More	Standard Error	Same	Standard Error	Less	Standard Error	N/A	Standard Error	Total
	Percent Operations								
	Number Cows								
Vaccinations	0.9	(±0.2)	66.0	(±3.0)	7.4	(±1.3)	25.7	(±3.0)	100.0
Energy supplements	9.8	(±1.8)	63.6	(±2.9)	9.6	(±1.5)	17.0	(±2.2)	100.0
Protein supplements	12.5	(±2.0)	63.3	(±3.0)	9.2	(±1.5)	15.0	(±2.3)	100.0
Medications (herd)	0.6	(±0.2)	70.6	(±2.9)	7.7	(±1.7)	21.1	(±2.7)	100.0
Medications (individual)	1.1	(±0.3)	75.8	(±2.9)	5.0	(±1.4)	18.1	(±2.7)	100.0
Labor inputs	8.3	(±1.8)	78.1	(±2.6)	5.7	(±1.3)	7.9	(±2.0)	100.0
Culling	20.9	(±2.0)	53.6	(±2.9)	12.0	(±2.0)	13.5	(±2.5)	100.0
Veterinary services	1.1	(±0.3)	68.4	(±2.7)	14.1	(±1.8)	16.4	(±2.5)	100.0
Forward pricing	1.5	(±0.4)	21.6	(±2.3)	1.1	(±0.4)	75.8	(±2.4)	100.0
Retained ownership of weaned calves	17.5	(±2.3)	36.3	(±2.8)	4.6	(±1.4)	41.6	(±2.9)	100.0

Prices for weaned calves in 1995 and 1996 were at a low point in the cattle cycle. Numerous mangement actions are available to help producers cope with low prices received for their product. Some producers may focus on the cost side of the profit equation and attempt to trim costs in a variety of areas. Others may focus on the revenue side of the equation and attempt to increase productivity.

For the most part, producers did not alter their management based on decreased prices for weaned calves. In addition, with each management practice listed, some producers increased use and some decreased use indicating no clear strategy with regard to the usefullness of each management practice in times of adverse prices. Among those producers that did indicate some changes, they tended to use less vaccination, less herd medications, less individual medications, do more culling, use less veterinary services, and use more retained ownership. Not applicable (N/A) means the practice was not used previously (at any level) and still not used.

Percent of Operations that Did More or Less of the Following Management Practices Because of Low Prices for Weaned Calves, 1995-1996



7. Changes in environmental and grazing management practices

a. Percent of operations where, during the last 5 years, concerns or regulations about environmental quality led to changes in the following environmental management practices:

Environmental Management Practices	Percent Operations	Standard Error
Grazing management plan	7.2	(±0.9)
Control access of cattle to flowing water sources	8.7	(±1.7)
Control access of cattle to timber	2.3	(±0.6)
Record keeping relative to natural resource uses	3.3	(±0.6)

B. Calving and Breeding

1. Reproductive technologies

One method of increasing production efficiency may be to take advantage of reproductive technologies.
- *Estrus synchronization* can result in a shorter calving season and allows efficient use of artificial insemination.
- *Artificial insemination* permits producers to take advantage of top quality genetics and data on the progeny of selected bulls to predict specific improvements in attributes like gain, milk production, birth weight, etc.
- *Palpation for pregnancy* allows the producer to more effectively manage open cows in terms of nutrition and culling.
- *Pelvic measurements* have been used, especially on heifers, to select for animals that may have fewer problems calving. Decreasing dystocia problems can lead to increased calf survival, better calf gains, and more timely rebreeding of cows and heifers.
- *Body condition scoring*, along with nutritional management, can result in more timely resumption of cycling of cows and heifers following calving and, thus, shorter calving seasons. Cows in proper body condition have also been shown to have more vigorous calves at birth.
- Bulls that pass a *semen evaluation* are more likely to be fertile, resulting in an improved conception rate in cows and heifers. In addition, use of bulls that have passed a semen evaluation may allow the number of females per bull to be increased in breeding pastures without adversely affecting conception rate or calving distribution.

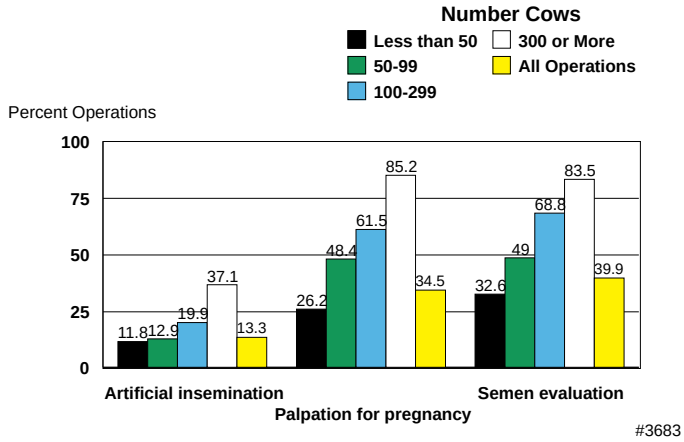
a. Percent of operations that used the following reproductive technologies by herd size:

Reproductive Technology	Percent Operations, Number Cows: Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
Estrus synchronization	10.3	(±2.5)	13.8	(±3.6)	16.7	(±2.7)	31.8	(±5.7)	11.9	(±1.9)
Artificial insemination	11.8	(±2.5)	12.9	(±2.5)	19.9	(±3.1)	37.1	(±6.1)	13.3	(±1.9)
Palpation for pregnancy	26.2	(±3.1)	48.4	(±4.0)	61.5	(±3.7)	85.2	(±4.9)	34.5	(±2.4)
Pelvic measurement	4.0	(±1.2)	6.8	(±1.6)	15.0	(±2.5)	32.9	(±6.1)	6.1	(±1.0)
Body condition scoring	19.8	(±2.6)	26.1	(±3.1)	37.9	(±3.8)	48.9	(±6.3)	23.3	(±2.0)
Semen evaluation	32.6	(±3.4)	49.0	(±3.8)	68.8	(±3.5)	83.5	(±4.1)	39.9	(±2.6)
Any of the above	50.1	(±3.8)	72.0	(±3.5)	80.5	(±3.2)	96.0	(±2.5)	57.5	(±2.8)

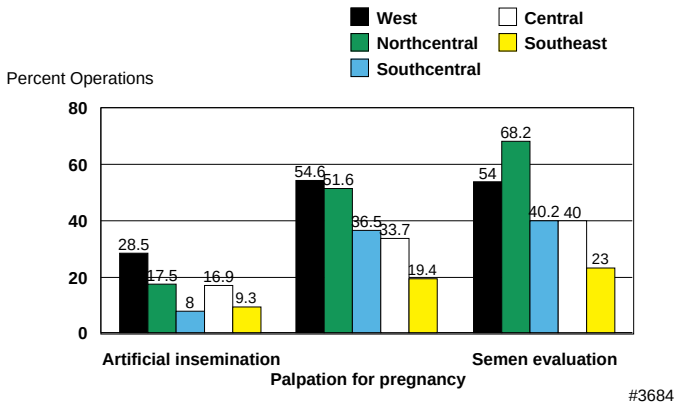
The most frequently cited reproductive technology used by cow-calf operations was semen evaluation with 39.9 percent of operations reporting some use. Only about one-third (34.5 percent) of operations used palpation for pregnancy, while 23.3 percent used some body condition scoring. Each of the other reproductive technologies listed were used by less than 15 percent of cow-calf operations. The largest size herds (300 or more cows) made use of more of the technologies listed. For each technique listed, large herds had the highest use rate. Overall, while only 57.5 percent of all operations reported using one or more of the reproductive technologies listed, 96 percent of the largest herds reported using at least one technique.

Percent of Operations that Used the Following Reproductive Technologies

By Herd Size:



By Region:



b. Percent of operations that used the following reproductive technologies by region:

Reproductive Technology	Percent Operations Region West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error
Estrus synchronization	21.1	(±5.9)	14.5	(±3.3)	7.8	(±4.1)	19.3	(±5.5)	6.7	(±2.0)
Artificial insemination	28.5	(±6.4)	17.5	(±3.7)	8.0	(±4.1)	16.9	(±4.9)	9.3	(±2.6)
Palpation for pregnancy	54.6	(±5.7)	51.6	(±4.0)	36.5	(±5.9)	33.7	(±4.4)	19.4	(±3.8)
Pelvic measurement	13.7	(±2.5)	12.8	(±2.5)	2.4	(±0.7)	4.8	(±1.6)	5.3	(±2.7)
Body condition scoring	37.3	(±5.2)	31.2	(±4.4)	16.2	(±3.4)	37.7	(±5.7)	12.1	(±3.4)
Semen evaluation	54.0	(±6.4)	68.2	(±4.3)	40.2	(±6.4)	40.0	(±4.7)	23.0	(±4.3)
Any of the above	77.7	(±7.4)	77.3	(±4.1)	58.3	(±6.4)	67.1	(±6.1)	35.4	(±4.9)

There was some indication of regional differences in use of reproductive technologies in cow-calf herds. In general, operations in the Southcentral and Southeast were least likely to use any of the reproductive technologies listed. Only 35.4 percent of operations in the Southeast used any of the listed techniques. The West and Northcentral regions had the highest percentages using any of the technologies.

c. For operations that did not use a specific reproductive technology, percent of operations by reason for not using it:

Reproductive Technology	Percent Operations Does Not Work	Labor; Time	Lack of Facilities	Cost	Too difficult; Complicated	Other	Total
Estrus synchronization	2.4	36.0	7.8	13.5	19.5	20.8	100.0
Standard Error	(±0.6)	(±2.8)	(±1.6)	(±2.3)	(±2.5)	(±2.7)	
Artificial insemination	3.0	38.8	7.3	12.5	19.6	18.8	100.0
Standard Error	(±1.2)	(±2.9)	(±1.3)	(±2.0)	(±2.7)	(±2.8)	
Palpation for pregnancy	0.3	33.9	11.1	18.7	14.4	21.6	100.0
Standard Error	(±0.2)	(±3.7)	(±2.7)	(±3.1)	(±2.5)	(±3.2)	
Pelvic measurement	2.5	32.8	6.4	14.5	19.2	24.6	100.0
Standard Error	(±0.8)	(±2.8)	(±1.3)	(±2.3)	(±2.5)	(±2.8)	
Body condition scoring	2.4	32.2	3.9	8.3	22.6	30.6	100.0
Standard Error	(±0.8)	(±3.1)	(±0.9)	(±1.9)	(±2.9)	(±3.6)	
Semen evaluation	0.5	26.5	6.8	16.8	20.3	29.1	100.0
Standard Error	(±0.2)	(±3.4)	(±1.9)	(±3.0)	(±3.5)	(±3.9)	

For most operations that did not use the reproductive management techniques, labor was the critical factor. Approximately one-third of producers cited labor as the reason for non-use in each of the technique categories. Roughly one-fifth of the producers said that the techniques were too complicated or difficult to perform. With the exceptions of semen evaluation and palpation, the categories of *labor* and *complicated or difficult to perform* together accounted for over 50 percent of the non-use of each of the techniques.

C. Health Management

1. Castration

Castration of calves not destined for breeding has been advocated. While bull calves may have improved gains and feed efficiency without the need for growth promoting implants, they can be difficult to handle in feeding programs and can cause physical injury to each other as they become more aggressive. This can result in significant bruising and loss of quality of the beef product. Castration later in life is thought to be more stressful for the animals and raises concern for humane treatment.

a. Percent of operations that castrated any male calves born in 1996 before sale by herd size:

Percent Operations									
Number Cows									
Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
69.8	(±4.0)	83.6	(±3.1)	88.6	(±2.9)	97.8	(±2.1)	74.5	(±3.0)

Most operations (74.5 percent) castrated male calves prior to sale. Therefore, 25.5 percent of operations did not castrate male calves prior to sale. Although some of the operations not castrating prior to sale could have been selling breeding bulls, it is unlikely that all of these operations were offering breeding bulls for sale. As herd size increased, the percentage of operations castrating male calves increased to a maximum of 97.8 percent of operations with 300 or more cows castrating some bull calves.

b. Percent of operations that castrated any male calves born in 1996 before sale by region:

Percent Operations									
Region									
West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error
89.2	(±7.7)	95.8	(±2.6)	63.6	(±6.4)	82.8	(±5.7)	65.0	(±6.4)

Operations in the Southcentral and Southeast were less likely to castrate calves before sale than those in other regions.

c. For operations that castrated male calves born in 1996 before sale, percent of operations by average age (in days) when male calves were castrated:

Average Age (Days)	Percent Operations	Standard Error
0 - 31	39.0	(±3.1)
32 - 61	20.7	(±2.5)
62 - 92	16.0	(±2.4)
93 - 122	8.0	(±1.4)
123 or more	16.3	(±2.1)
Total	100.0	

Most operations (59.7 percent) castrated male calves at an average age of 61 days or less. Few operations (16.3 percent) castrated calves when their average age was 123 days or more.

d. Average age in days (and operation average age) of male calves when castrated before sale:

Average Age (Days)	Standard Error	Operation Average Age (Days)	Standard Error
68.1	(±2.7)	70.9	(±4.2)

After adjusting for number of calves castrated on each operation, the average age of calves castrated was 68.1 days. The average age for all operations where calves were castrated was 70.9 days. The fact that these ages are similar would indicate that there was not a marked difference in average age at castration for large and small operations.

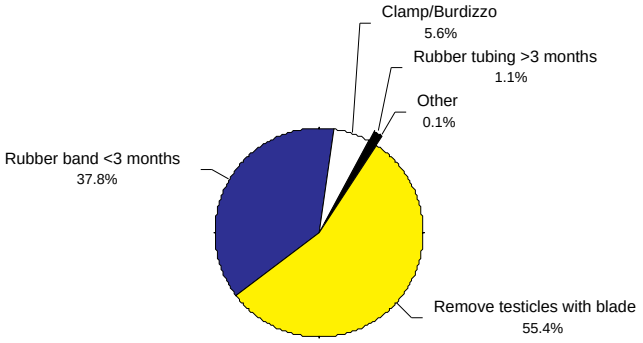
e. For operations that castrated male calves before sale, percent of operations by primary method of castration and herd size:

	Percent Operations Number Cows									
Primary Method	Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
Remove testicles with a blade	49.4	(±4.2)	64.6	(±4.3)	69.6	(±3.6)	80.5	(±4.4)	55.4	(±3.0)
Rubber band (Elastrator band) at less than 3 months of age	43.7	(±4.2)	28.9	(±4.3)	23.6	(±3.4)	10.2	(±3.3)	37.8	(±3.0)
Clamp/Burdizzo (crush cords)	5.3	(±1.5)	6.3	(±1.6)	5.8	(±1.6)	8.5	(±3.1)	5.6	(±1.0)
Rubber tubing (E-Z-E castrator) at more than 3 months of age	1.6	(±0.9)	0.1	(±0.1)	0.1	(±0.1)	0.8	(±0.8)	1.1	(±0.6)
Other	0.0	(±0.0)	0.1	(±0.1)	0.9	(±0.5)	0.0	(±0.0)	0.1	(±0.1)
Total	100.0		100.0		100.0		100.0		100.0	

The most common method of castration was to remove testicles with a blade (55.4 percent of operations). The second most common method of castration was use of rubber bands applied to the neck of the scrotum at less than 3 months of age (37.8 percent of operations). Other methods were used relatively infrequently.

There were differences in the preferred method of castration by herd size. Larger herds used a blade to remove testicles much more commonly (80.5 percent) than the smallest herds (49.4 percent). Small herds were almost equally split between using a blade to remove the testicles (49.4 percent) and using a rubber band on young calves (43.7 percent).

Percent of Operations by Primary Method of Castration



***For operations that castrated male calves before sale.** #3685

2. Weaning management

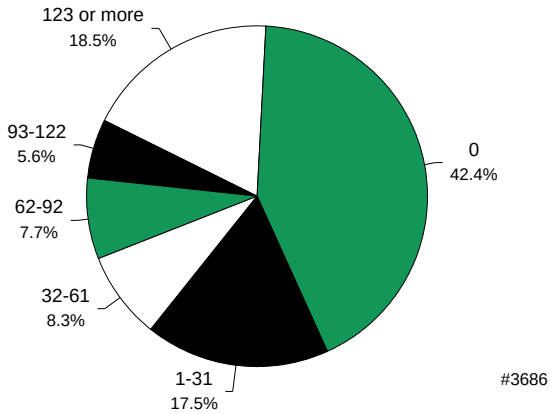
Management of calves around the time of weaning can impact their subsequent health. For optimum calf health post-weaning, many would advocate some sort of vaccination program aimed at preventing illness associated with respiratory viruses as well as a program to minimize stress on the animals as they make the transition from a milk and forage diet to a forage and concentrate based diet. This program might include holding calves for a period of time after weaning but prior to sale to allow them to become accustomed to eating from a feedbunk.

a. Percent of operations by number of days weaned calves (for purposes other than breeding) were held before they were sold by region:

	Percent Operations											
	Region											
Number Days	West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error	All Operations	Standard Error
0	25.1	(±4.2)	31.4	(±4.4)	50.9	(±6.4)	29.3	(±5.9)	53.5	(±6.5)	42.4	(±3.0)
1-31	32.8	(±6.2)	5.8	(±1.9)	26.9	(±6.1)	14.2	(±4.9)	11.4	(±3.9)	17.5	(±2.4)
32-61	6.7	(±2.6)	8.2	(±2.0)	7.8	(±4.3)	13.6	(±3.5)	5.4	(±1.6)	8.3	(±1.5)
62-92	7.3	(±1.8)	16.3	(±3.9)	1.7	(±0.7)	11.1	(±3.6)	7.5	(±2.6)	7.7	(±1.2)
93-122	5.6	(±1.6)	10.3	(±2.0)	0.8	(±0.3)	3.0	(±1.0)	10.2	(±4.6)	5.6	(±1.4)
123 or more	22.5	(±4.6)	28.0	(±3.7)	11.9	(±3.2)	28.8	(±4.6)	12.0	(±3.7)	18.5	(±1.9)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

Nearly half (42.4 percent) of operations did not hold calves after weaning for any time prior to sale. Approximately one-fifth (18.5 percent) of operations held calves for 123 days or more prior to sale, indicating that calves were placed into a stocker or backgrounding program or that ownership may have been retained all the way through the finishing period. Only 25.8 percent of operations held calves for a period of 1 to 61 days prior to sale. The Southcentral and Southeastern regions were the least likely to hold weaned calves for any length of time. Operators in the West, Northcentral, and Central regions tended to retain ownership of their calves the longest.

Percent of Operations by Number of Days Weaned Calves* Were Held Before Sold



*For purposes other than breeding.

b. Average weaning weight (lbs) over the previous 3 years by calf gender and region:

	Average Weaning Weight (lbs)											
	Region											
Gender	West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error	All Operations	Standard Error
Steers or bulls	561	(±6)	544	(±6)	510	(±7)	516	(±8)	493	(±7)	526	(±3)
Heifers	521	(±6)	504	(±6)	472	(±5)	472	(±7)	447	(±6)	484	(±3)

The average weaning weight for steers and bulls over the previous 3 years on cow-calf operations represented by the study was 526 pounds. For heifers, the 3-year average was 484 pounds. Weaning weights of steers or bulls and heifers were greater in the West and Northcentral regions, while the Southeast reported the lightest weaning weights. Variations could be due to genetic, weaning age, or environmental (such as nutrition) differences.

c. Percent (and operation average percent) of cows that weighed less at weaning than they did 1 week after calving:

Percent Cows[1]	Standard Error	Operation Average Percent Cows	Standard Error
42.4	(±2.4)	49.8	(±2.9)

Nearly half (42.4 percent) of cows lost weight between calving and weaning. The operation average percentage of cows losing weight between calving and weaning was 49.8 percent.

d. Average (and operation average) weight (in pounds) of mature beef cows at the time calves were weaned:

Average Weight (lbs.)[2]	Standard Error	Operation Average Weight (lbs.)	Standard Error
1,057	(±5)	1,016	(±9)

With the introduction of exotic breeds with larger frame sizes into breeding programs, there has been concern that the size of the average cow is increasing. In addition, there has been some concern that the carrying capacity of the operation may be negatively impacted with larger size animals and that producers may not be accounting for these changes as they plan their nutrition programs. Average weight of mature beef cows at the time of weaning was 1,057 pounds. Average of the reported weights (herd averages) for all operations was 1,016 pounds indicating a tendency for smaller operations to have slightly lighter cows at weaning.

Producers estimated reported weights for cows, therefore estimates may not have represented the true weights. Larger operations may have had more access to scales and thereby have had closer estimates of their cow weights.

1 Percent cows weighted by number of calves weaned in 1996.

2 Average weight weighted by number of calves weaned in 1996.

3. Vaccinations administered
   a. Percent of operations that used the following vaccines in the last 12 months by age group:

	Percent Operations Age Group					
Vaccine	1-21 Days	22 Days through Weaning	Weaned Replacement Heifers Through Breeding	Bred Heifers	Cows	Bulls
GENERAL (Respiratory and/or Reproductive):						
IBR (rednose, infectious bovine rhinotracheitis)	1.9	28.4	16.8	9.3	18.0	13.8
Standard Error	(±0.6)	(±2.5)	(±1.8)	(±1.5)	(±2.1)	(±2.0)
BVD (bovine viral diarrhea)	1.5	25.3	16.3	9.2	17.4	13.2
Standard Error	(±0.6)	(±2.3)	(±1.9)	(±1.5)	(±2.0)	(±1.9)
Hemophilus somnus	0.5	16.2	6.9	3.8	6.7	4.9
Standard Error	(±0.2)	(±1.6)	(±1.0)	(±0.7)	(±1.2)	(±1.1)
RESPIRATORY:						
PI3 (parainfluenza type 3)	0.9	22.8	13.1	7.0	13.7	9.7
Standard Error	(±0.3)	(±2.2)	(±1.4)	(±0.9)	(±1.6)	(±1.5)
BRSV (bovine respiratory syncitial virus)	1.3	24.5	12.1	5.8	11.4	8.4
Standard Error	(±0.5)	(±2.3)	(±1.3)	(±0.9)	(±1.5)	(±1.4)
Pasteurella	0.4	9.9	4.6	1.8	2.7	2.2
Standard Error	(±0.1)	(±1.4)	(±1.0)	(±0.4)	(±0.8)	(±0.8)
REPRODUCTIVE:						
Brucella abortus	N/A	14.7	24.7	N/A	N/A	N/A
Standard Error	N/A	(±2.1)	(±1.9)	N/A	N/A	N/A
Leptospira	N/A	9.7	18.0	13.3	28.5	20.0
Standard Error	N/A	(±1.8)	(±2.1)	(±1.7)	(±2.3)	(±2.1)
Campylobacter (vibrio)	N/A	N/A	11.0	8.9	20.1	12.8
Standard Error	N/A	N/A	(±1.4)	(±1.1)	(±1.8)	(±1.5)
Trichomoniasis	N/A	N/A	0.2	0.2	1.1	0.9
Standard Error	N/A	N/A	(±0.1)	(±0.1)	(±0.5)	(±0.5)
CLOSTRIDIAL:						
C. chauvoei (blackleg) and/or C. septicum (malignant edema)	6.8	61.9	21.7	6.6	13.9	8.3
Standard Error	(±0.9)	(±2.9)	(±2.1)	(±1.0)	(±1.7)	(±1.4)
C. perfringens C and D (enterotoxemia, overeating)	5.8	46.5	16.7	5.9	12.7	7.6
Standard Error	(±0.7)	(±2.8)	(±1.7)	(±0.9)	(±1.7)	(±1.5)
Other clostridial vaccinations	4.5	37.2	11.6	4.3	8.2	5.7
Standard Error	(±0.6)	(±2.7)	(±1.4)	(±0.7)	(±1.3)	(±1.2)
DIGESTIVE:						
Rota/Corona	1.1	0.1	0.3	3.7	4.0	N/A
Standard Error	(±0.4)	(±0.1)	(±0.1)	(±0.6)	(±0.6)	N/A
E. coli	0.7	0.2	0.4	3.4	4.7	N/A
Standard Error	(±0.3)	(±0.1)	(±0.2)	(±0.6)	(±0.6)	N/A
Salmonella	0.2	0.5	0.0	0.1	0.1	0.0
Standard Error	(±0.1)	(±0.4)	(±0.0)	(±0.0)	(±0.1)	(±0.0)
OTHER:						
Anaplasmosis	0.0	0.7	0.2	0.1	0.8	0.9
Standard Error	(±0.0)	(±0.6)	(±0.1)	(±0.1)	(±0.5)	(±0.4)
Johne's disease	0.0	0.1	N/A	N/A	N/A	N/A
Standard Error	(±0.0)	(±0.1)	N/A	N/A	N/A	N/A
Moraxella bovis (pinkeye)	1.2	8.4	4.0	0.1	5.0	4.5
Standard Error	(±0.7)	(±1.5)	(±1.1)	(±0.1)	(±1.1)	(±1.1)
Wart virus	0.0	0.2	0.3	2.5	0.1	0.0
Standard Error	(±0.0)	(±0.1)	(±0.1)	(±0.9)	(±0.0)	(±0.0)

The most commonly vaccinated age group was between 22 days of age and weaning. This age group received the most vaccinations against IBR, BVD, PI3, BRSV, and clostridial disease. Approximately 25 percent of operations vaccinated this age group against each of these diseases. Most operations used a clostridial vaccine against either blackleg and/or malignant edema (61.9 percent) or enterotoxemia (46.5 percent).

Vaccinations against reproductive diseases, such as leptospira (28.5 percent) and camplylobacter (20.1 percent) were the primary focus of the cow herd vaccination program. IBR and BVD were also used in some herds (18.0 percent and 17.4 percent, respectively). Bred heifers were generally not vaccinated as often as beef cows or heifers prior to breeding.

Vaccines against agents associated with digestive diseases (rotavirus, coronavirus, E. coli, or Salmonella) were not frequently used in any of the groups.

4. Type of vaccination

a. Percent of operations using vaccinations against specific viruses for calves through weaning by type of vaccine:

	Percent Operations										
Virus	Killed	Stand. Error	Modified Live	Stand. Error	Both Killed & Modified Live	Stand. Error	Killed or Modified Unknown	Stand. Error	Not Vaccinated Against	Stand. Error	Total
Bovine viral diarrhea (BVD)	12.0	(±1.4)	7.2	(±1.0)	3.7	(±1.6)	2.5	(±0.7)	74.6	(±2.3)	100.0
Infectious bovine rhinotracheitis (IBR)	9.5	(±1.4)	11.8	(±1.4)	4.6	(±1.7)	2.7	(±0.7)	71.4	(±2.5)	100.0
Bovine respiratory syncytial virus (BRSV)	7.8	(±1.3)	10.8	(±1.1)	3.4	(±1.5)	2.9	(±0.9)	75.1	(±2.3)	100.0

Percentages of producers that used killed versus modified live virus vaccines to protect calves against respiratory disease were similar. Slightly more producers used killed vaccines against BVD (12.0 percent) compared to modified live virus vaccines (7.2 percent).

b. For operations that used killed vaccinations against the following viruses, percent of operations that re-vaccinated within 60 days:

Virus	Percent Operations	Standard Error
Bovine viral diarrhea (BVD)	27.9	(±4.5)
Infectious bovine rhinotracheitis (IBR)	27.2	(±4.2)
Bovine respiratory syncytial virus (BRSV)	29.4	(±4.7)

When producers did use killed products for calves, less than 30 percent followed manufacturers' recommendations for boostering the primary vaccination.

5. Calf respiratory vaccination

a. Percent of operations by number of times calves were vaccinated for respiratory disease before sale:

	Percent Operations											
	Region											
Number Times	West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error	All Operations	Standard Error
0	49.5	(±6.5)	40.1	(±4.1)	73.0	(±6.0)	54.6	(±5.7)	78.2	(±4.8)	64.3	(±2.6)
1	28.0	(±5.1)	37.2	(±4.5)	22.1	(±5.9)	27.7	(±4.7)	11.8	(±3.1)	22.8	(±2.3)
2	20.0	(±3.7)	20.2	(±3.5)	4.4	(±2.2)	17.7	(±4.8)	9.8	(±4.0)	12.2	(±1.8)
3 or more	2.5	(±0.8)	2.5	(±0.8)	0.5	(±0.2)	0.0	(±0.0)	0.2	(±0.1)	0.7	(±0.1)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

A vaccination program for respiratory diseases can improve calf health prior to and after weaning. Nearly two-thirds (64.3 percent) of operations did not vaccinate calves for respiratory diseases prior to sale. Nearly one-fourth (22.8 percent) of producers vaccinated calves once for respiratory diseases prior to sale. Relatively few producers (12.9 percent) vaccinated calves two or more times prior to sale. Lack of vaccination is only partly explained by producers who sold calves immediately at weaning. Just over 80 (80.7) percent of producers who did not hold weaned calves for any length of time prior to sale were not vaccinating calves for respiratory disease. However, over one-half (51.3 percent) of producers that did hold calves for a period of time after weaning were also not vaccinating calves for respiratory disease. (Not shown.)

Producers in the Northcentral region were more likely to vaccinate calves for respiratory disease, while calves from the Southeast were the least likely to have been vaccinated.

b. For operations that vaccinated calves for respiratory disease at least once, percent of operations that vaccinated calves for respiratory disease by age group:

Age Group	Percent Operations	Standard Error
From birth up to 30 days prior to weaning	41.9	(±4.2)
30 to 14 days prior to weaning	28.4	(±3.9)
Less than 14 days prior to weaning	4.7	(±1.1)
At weaning	36.0	(±4.1)
After weaning but before sale	19.6	(±3.0)

Effectiveness of vaccination at weaning is reduced because of stress and immune suppression associated with this event. Among the 35.7 percent of operations that were vaccinating calves for respiratory disease prior to sale, the largest percentage were doing so at least 30 days prior to weaning (41.9 percent). The next most common time for vaccinating calves was at weaning (36.0 percent of operations) followed by the period from 14 to 30 days prior to weaning (28.4 percent of operations). (Note that these percentages do not sum to 100 percent since an operation could answer in multiple categories if they vaccinated calves more than once prior to sale.)

6. Brucellosis vaccination

Brucellosis vaccination has been a mainstay of the program to eradicate the disease from the U.S. As the goal of eradication gets closer, the disease risk in some areas of the country could be considered to be minimal. In fact, at some point in the future access to foreign markets may require that brucellosis vaccination be discontinued.

a. Percent of operations by brucellosis vaccination practices for heifers at the time of the Beef '97 interview and 5 years previous:

	Percent Operations			
Practice	At Time of Beef '97 Interview	Standard Error	5 Years Previous	Standard Error
Did not vaccinate for brucellosis	57.7	(±2.6)	49.4	(±2.8)
Vaccinated ALL heifers	19.3	(±2.3)	29.1	(±2.7)
Vaccinated only heifers kept for breeding	19.8	(±1.7)	18.4	(±1.6)
Vaccinated only heifers sold for breeding	0.7	(±0.6)	1.1	(±0.6)
Vaccinated all heifers intended for breeding	2.5	(±0.5)	2.0	(±0.3)
Total	100.0		100.0	

More producers were not vaccinating for brucellosis at the time of the interview (57.7 percent) compared to 5 years previously (49.4 percent). In addition, fewer operations were vaccinating all breeding and feeder heifers (19.3 percent compared to 29.1 percent).

b. For operations that practiced beef heifer vaccination for brucellosis at the time of the Beef '97 interview, percent of operations by importance of reasons for vaccinating beef heifers for brucellosis:

	Percent Operations								
	Importance								
Reason for Vaccination	Very Important	Stand. Error	Somewhat Important	Stand. Error	Not Important	Stand. Error	No Opinion	Stand. Error	Total
Tradition, habit	28.9	(±4.0)	31.2	(±3.7)	30.1	(±3.0)	9.8	(±3.1)	100.0
Reduce risk of disease	76.9	(±3.0)	16.9	(±2.4)	4.4	(±1.6)	1.8	(±1.3)	100.0
Required for interstate movement of owned cattle	31.9	(±3.3)	18.6	(±3.3)	42.0	(±3.9)	7.5	(±1.9)	100.0
Increased value of females sold	44.5	(±4.1)	27.5	(±3.8)	23.5	(±3.2)	4.5	(±1.1)	100.0

For operations that were vaccinating for brucellosis, most (93.8 percent) felt that reducing risk of the disease was very important or somewhat important to that decision. Nearly three-fourths (72.0 percent) felt that increased value of the females sold was very important or somewhat important to their decision.

c. Percent of operations by "belief" that brucellosis vaccination practice affects the sales price of heifers sold by region:

	Percent Operations											
	Region											
Belief	West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error	All Operations	Standard Error
No effect	34.1	(±5.8)	47.3	(±5.1)	60.2	(±6.7)	60.8	(±6.7)	84.8	(±4.0)	63.6	(±3.0)
Increases price	61.5	(±6.5)	51.6	(±5.1)	39.7	(±6.7)	39.2	(±6.7)	15.2	(±4.0)	35.9	(±3.0)
Decreases price	4.4	(±3.0)	1.1	(±0.8)	0.1	(±0.1)	0.0	(±0.0)	0.0	(±0.0)	0.5	(±0.3)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

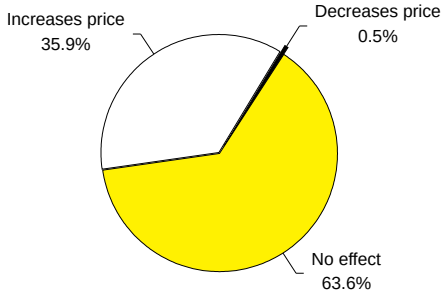
Overall, more producers (63.6 percent) felt that brucellosis vaccination did not affect sales price of heifers sold. Slightly over one-third (35.9 percent) of producers felt that the impact on price was positive. Perceived impact of brucellosis vaccination on price was not uniform across all regions. In the West and Northcentral regions, more producers felt that vaccination tended to increase sales price. In all other regions, more producers felt that there was no effect on price. The Southeast region had the smallest percentage of producers (15.2 percent) that felt there was a positive impact on price of heifers sold. Note: the relatively large standard errors on the percent of operations believing in a price decrease, due to the small number of respondents in this category.

d. For operations that believed vaccinating for brucellosis affects the sales price of heifers sold, operation average estimated change in value (dollars per head) for heifers sold:

Change	Operation Average (Dollars per head)	Standard Error
Increase price	$45.09	(±$5.28)
Decrease price	-$28.57	(±$8.00)
Net price change	$44.03	(±$5.21)

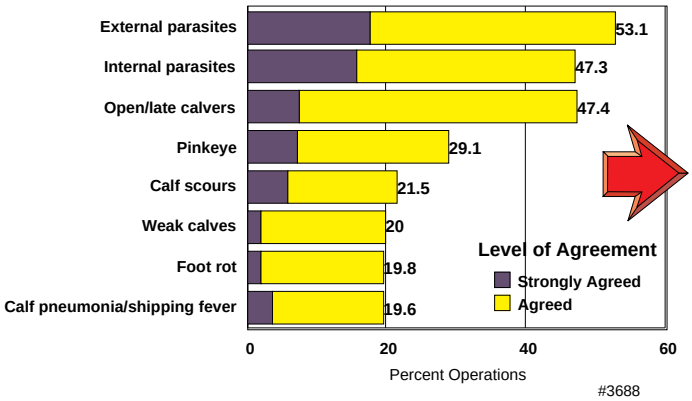
For the producers that did feel there was positive impact on price from vaccinating heifers for brucellosis, the average additional value per head was estimated at $45.09.

Percent of Operations by Belief that Brucellosis Vaccination Practice Affects Sales Price of Heifers Sold



#3687

Percent of Operations that Agreed the Following Health Conditions "Had a Significant Economic Impact on the Cow-calf Operation in the Last 12 Months"



#3688

7. Economic impact of selected health conditions

a. Percent of operations by level of agreement with the statement that the specified health condition "had a significant economic impact on the cow-calf operation in the last 12 months, including the cost of prevention, cost of treatment, and lost production":

	Percent Operations Level of Agreement										
Health Conditions	Strongly Agree	Standard Error	Agree	Standard Error	Disagree	Standard Error	Strongly Disagree	Standard Error	No Opinion	Standard Error	Total
PARASITES:											
Internal parasites	15.9	(±2.2)	31.4	(±2.5)	39.9	(±3.0)	6.7	(±1.6)	6.1	(±1.5)	100.0
External parasites (flies, lice, ticks, grubs)	17.7	(±2.3)	35.4	(±2.4)	36.2	(±3.0)	5.7	(±1.6)	5.0	(±1.5)	100.0
DIGESTIVE:											
Calf scours	5.9	(±1.1)	15.6	(±1.5)	53.2	(±2.9)	15.8	(±2.6)	9.5	(±1.8)	100.0
Bloat/colic/ulcers (abomasal/stomach)	0.5	(±0.1)	6.2	(±1.1)	59.7	(±2.9)	20.3	(±2.7)	13.3	(±2.0)	100.0
Coccidiosis	2.5	(±0.7)	8.3	(±1.0)	55.9	(±3.0)	18.7	(±2.7)	14.6	(±2.1)	100.0
REPRODUCTIVE:											
Open/late calvers	7.6	(±1.0)	39.8	(±2.9)	38.6	(±2.9)	8.1	(±2.0)	5.9	(±1.5)	100.0
Abortion	3.5	(±0.8)	12.1	(±1.7)	56.4	(±2.9)	18.0	(±2.6)	10.0	(±1.8)	100.0
Weak calves	2.1	(±0.5)	17.9	(±2.0)	55.4	(±2.9)	16.8	(±2.5)	7.8	(±1.5)	100.0
RESPIRATORY:											
Calf pneumonia/shipping fever	3.7	(±0.6)	15.9	(±1.8)	54.7	(±2.9)	15.3	(±2.4)	10.4	(±1.9)	100.0
Cow asthma	0.4	(±0.1)	2.8	(±0.6)	57.2	(±3.0)	19.3	(±2.5)	20.3	(±2.2)	100.0
PLANT-RELATED:											
Any plant-related toxicities	2.0	(±0.7)	6.9	(±1.2)	56.9	(±2.9)	20.8	(±2.6)	13.4	(±1.9)	100.0
OTHER:											
Pinkeye	7.3	(±1.5)	21.8	(±2.0)	48.4	(±2.9)	14.1	(±2.4)	8.4	(±1.8)	100.0
Foot rot	2.1	(±0.6)	17.7	(±1.7)	54.2	(±2.9)	16.0	(±2.5)	10.0	(±1.8)	100.0
White muscle disease (selenium/vitamin E deficiency)	0.6	(±0.2)	2.2	(±0.5)	52.1	(±2.9)	18.9	(±2.7)	26.2	(±2.4)	100.0
Copper deficiency	0.5	(±0.2)	4.3	(±0.9)	48.5	(±2.9)	17.6	(±2.6)	29.1	(±2.5)	100.0
Anaplasmosis	0.8	(±0.3)	4.5	(±1.2)	51.7	(±2.9)	17.3	(±2.4)	25.7	(±2.4)	100.0
Grass tetany	3.2	(±0.7)	10.8	(±1.4)	55.4	(±2.9)	15.5	(±2.4)	15.1	(±2.1)	100.0

When asked about diseases or conditions that may have a significant economic impact on their cow-calf operation, the largest percentage of producers (53.1 percent) agreed that external parasites had a significant impact in the last 12 months. Open (non-pregnant) and late-calving cows (47.4 percent of operations) and internal parasites (47.3 percent of operations) were also thought to have had a significant economic impact. Calf problems included calf scours (21.5 percent), weak calves (20.0 percent), and calf pneumonia or shipping fever (19.6 percent).

8. Problem diseases for the U.S. beef cattle industry

a. Percent of operations by level of agreement with the statement that the specified disease "is a significant problem for the U. S. beef cattle industry":

	Percent Operations										
	Level of Agreement										
Disease	Strongly Agree	Standard Error	Agree	Standard Error	Disagree	Standard Error	Strongly Disagree	Standard Error	No Opinion	Standard Error	Total
Tuberculosis	6.6	(±1.4)	20.1	(±2.4)	36.7	(±2.8)	5.3	(±1.5)	31.3	(±2.8)	100.0
Brucellosis	10.9	(±1.5)	32.9	(±2.6)	30.4	(±2.7)	5.4	(±1.5)	20.4	(±2.3)	100.0
Trichomoniasis	3.3	(±0.7)	12.9	(±1.9)	22.3	(±2.4)	3.4	(±1.0)	58.1	(±2.8)	100.0
Johne's disease (M. paratuberculosis)	1.5	(±0.6)	12.8	(±1.9)	18.8	(±2.1)	3.2	(±0.9)	63.7	(±2.7)	100.0
Bovine leukosis virus infection (BLV)	2.2	(±0.7)	11.6	(±1.6)	18.7	(±2.2)	3.0	(±0.9)	64.5	(±2.6)	100.0

Less than half of cow-calf producers felt that any of the listed diseases were a significant threat for the U.S. beef cattle industry. Brucellosis had the most support (43.8 percent of operations) of any of the conditions. Other diseases were either not perceived to be as much of a threat or producers were unfamiliar with the disease condition. Over half of the producers had no opinion about Trichomoniasis, Johne's disease, and bovine leukosis virus (BLV). Other evidence would suggest that, at least for Johne's disease, much of this is based on lack of knowledge of the disease (see D.15.a. on page 32).

D. Disease Control

1. Vaccination of cattle brought onto the operation

When considering disease control programs, many producers and veterinarians think primarily about vaccinating. Yet there are many other management practices that can be used to minimize both disease occurrence and the risk of introducing new diseases onto operations.

a. For operations that brought cattle onto the operation in the last 3 years, percent of operations that normally required animals to be vaccinated against the following diseases before bringing them onto the operation:

Vaccination	Percent Operations	Standard Error
Brucellosis (female cattle)	28.1	(±2.9)
Bovine viral diarrhea (BVD)	13.1	(±1.9)
Infectious bovine rhinotracheitis (IBR)	13.2	(±2.0)
Leptospirosis	13.7	(±1.7)

Less than one-third (28.1 percent) of producers that brought cattle onto the operation in the previous 3 years usually required vaccination of females for brucellosis. Approximately 13 percent of operations adding new animals in the previous 3 years usually required vaccination for bovine viral diarrhea (BVD), infectious bovine rhinotracheitis (IBR), or leptospirosis. All of these diseases are capable of causing significant reproductive losses in the herd. In all cases, new animals that are not vaccinated could be carrying these disease agents when introduced to the herd if not tested to be negative.

b. For operations that brought cattle onto the operation in the last 3 years, percent of operations that normally required animals to be tested for the following diseases before bringing them onto the operation:

Vaccination	Percent Operations	Standard Error
Brucellosis (for animals 2 years of age or older)	38.9	(±3.3)
Johne's disease (M. paratuberculosis)	0.2	(±0.1)
Bovine viral diarrhea (BVD)	1.0	(±0.3)
Bovine tuberculosis (TB)	3.8	(±0.9)
Anything else	0.6	(±0.2)

Another method of assessing the status of animals to be added to the herd is to test the animals for evidence of recent infection with various disease agents.

The only disease that a significant percentage of producers tested for prior to adding new animals is brucellosis (38.9 percent). This practice may be because of interstate movement requirements rather than a conscious decision on the part of the producer to test for the disease and thus minimize risk. Relatively few producers tested for any of the other listed diseases indicating a relative lack of concern or lack of knowledge about these disease agents and the risks that they may pose. Some of the lack of concern in the case of BVD could stem from an active immunization program in the herd, however producers may not recognize the potential risks associated with introduction of cattle persistently infected with BVD virus. Again, lack of testing for Johne's disease (0.2 percent) is likely a reflection of producers' lack of knowledge about Johne's disease (see D.15.a. on page 32).

2. Distance to captive animals

a. Percent of operations by minimum distance between the operation's cattle and the following captive animal types (or herds) at any time during the year prior to the interview:

	Percent Operations Animal Type					
Minimum Distance (Miles)	Captive Cervidae (i.e., Elk/Deer)	Standard Error	Captive Bison	Standard Error	Cattle of Mexican Origin	Standard Error
0.0 - 0.9	3.2	(±0.9)	1.2	(±0.3)	1.4	(±0.4)
1.0 - 4.9	5.6	(±1.6)	3.0	(±0.7)	2.1	(±0.5)
5.0 - 24.9	13.8	(±2.1)	12.1	(±1.7)	4.7	(±1.1)
25.0 or more	8.1	(±1.3)	7.3	(±1.1)	2.3	(±0.6)
Unknown	69.3	(±2.7)	76.4	(±2.1)	89.5	(±1.4)
Total	100.0		100.0		100.0	

Most operations were unaware how far it was to the nearest herd of captive cervidae (deer or elk), captive bison, or cattle of Mexican origin. In many cases this lack of knowledge may have been because the distances were long.

b. Operation average minimum distance between the operation's cattle and the following captive animal types during the year prior to the interview:

Animal Type	Operation Average Minimum Distance (Miles)	Standard Error
Captive cervidae (i.e., elk/deer)	21.1	(±2.9)
Captive bison	25.1	(±3.5)
Cattle of Mexican origin	22.2	(±4.2)

3. Frequency of wildlife sightings

a. Percent of operations by frequency of seeing the following wildlife species within one mile of the cattle on the operation during the winter and spring of the last 3 years:

	Percent Operations							
	Wildlife Specie							
Frequency	Wild Deer	Standard Error	Wild Elk	Standard Error	Wild Bison	Standard Error	Wild Pig	Standard Error
Frequently: more than 4 times per month	69.9	(±2.6)	1.7	(±0.4)	0.0	(±0.0)	5.4	(±1.5)
Occasionally: about 1-4 times per month	15.2	(±2.1)	0.9	(±0.3)	0.0	(±0.0)	1.8	(±0.4)
Rarely: less than once per month	9.7	(±1.7)	1.2	(±0.2)	0.2	(±0.1)	6.5	(±1.6)
Never	5.2	(±1.1)	96.2	(±0.5)	99.8	(±0.1)	86.3	(±2.1)
Total	100.0		100.0		100.0		100.0	

Concern has been raised about the potential for transmission of disease between cattle and wildlife populations. Deer were commonly seen within one mile of cattle on cow-calf operations. All of the other wildlife species listed were seen near cattle much less frequently.

4. Access to dairy cattle

a. Percent of operations where beef cattle had direct access to dairy cattle by region:

Percent Operations											
Region											
West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error	All Operations	Standard Error
4.6	(±1.3)	11.2	(±3.6)	3.1	(±1.7)	4.3	(±1.6)	1.1	(±0.5)	3.9	(±0.8)

In most cases beef and dairy operations were separate. Beef cattle had direct access to dairy cattle on only 3.9 percent of cow-calf operations.

b. For operations where beef cattle had direct access to dairy cattle, percent of operations by type of contact with dairy cattle:

Type of Contact	Percent Operations	Standard Error
Nose-to-nose contact through a fence	82.6	(±8.5)
Shared pasture	48.9	(±9.9)
Shared water source	56.9	(±10.1)

For those operations where the beef cattle did have direct access to dairy cattle, this access was most commonly nose-to-nose contact through a fence (82.6 percent of operations). Beef and dairy cattle shared a pasture in slightly less than half (48.9 percent) of the instances where they had direct access.

5. Type of grazing used

a. Percent of operations by type of grazing used during the year prior to the Beef '97 interview, and, if used, percent of operations where the operation's cattle were commingled with cattle from other operations:

Type of Grazing	Percent Operations	Standard Error	Percent Operations Where Cattle Were Commingled	Standard Error
Grazed on public lands	4.6	(±0.6)	22.9	(±4.5)
Grazed in a grazing association	1.0	(±0.2)	69.3	(±9.2)
Grazed on leased, private lands	38.1	(±2.5)	16.9	(±3.5)
Grazed on own land	96.0	(±1.0)	9.3	(±1.7)

Commingling cattle from different herds can lead to the introduction of new disease agents to beef herds unless efforts are undertaken to coordinate the health care and prevention activities in all herds that are commingled.

Most operations (96.0 percent) grazed cattle on land that was owned by the operation. On 9.3 percent of these operations, cattle from other herds were commingled with those belonging to the operation. The next most common source of grazed forage was through leased private lands (38.1 percent of operations). In 16.9 percent of cases, animals from multiple herds were commingled. Although beef cattle were more frequently commingled with other herds in grazing associations and on public lands, relatively few operations made use of these types of grazing arrangements.

b. Percent of operations by type of grazing used during the year prior to the Beef '97 interview and herd size:

	Percent Operations Number Cows							
Type of Grazing	Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error
Grazed on public lands	1.4	(±0.5)	6.5	(±1.5)	18.0	(±2.9)	36.4	(±5.4)
Grazed in a grazing association	0.1	(±0.1)	1.6	(±0.8)	4.7	(±1.3)	11.0	(±3.5)
Grazed on leased, private lands	30.6	(±3.2)	49.1	(±3.9)	68.0	(±3.5)	68.0	(±5.9)
Grazed on own land	95.8	(±1.3)	96.1	(±1.2)	97.3	(±1.0)	95.5	(±2.2)

Regardless of size of herd, most operations made use of some grazing on land owned by the operation. Frequency of use of other types of grazed forages was related to herd size with larger herds using each of the other sources of grazed forages more frequently than smaller herds.

c. Percent of operations by type of grazing used during the year prior to the Beef '97 interview and region:

	Percent Operations									
	Region									
Type of Grazing	West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error
Grazed on public lands	32.8	(±4.4)	9.7	(±2.1)	0.1	(±0.1)	0.0	(±0.0)	1.1	(±1.1)
Grazed in a grazing association	7.1	(±1.8)	2.7	(±1.0)	0.1	(±0.1)	0.0	(±0.0)	0.0	(±0.0)
Grazed on leased, private lands	49.8	(±6.4)	63.0	(±4.8)	41.0	(±5.3)	45.3	(±6.1)	16.1	(±3.4)
Grazed on own land	85.4	(±7.9)	98.8	(±0.6)	94.1	(±1.6)	98.4	(±0.7)	98.2	(±0.9)

Use of grazing on public lands and grazing associations were most common in the western region. Grazing on leased private lands was most common in the Northcentral region. Relatively few herds in the Southeast made use of grazed forages other than on lands owned by the operation. This fact is likely a reflection of the smaller average herd size in the Southeast making it easier to satisfy the forage needs of the herd on owned lands rather than needing to find outside sources.

6. Distance to grazing areas

a. Percent of operations by average number of miles the herd was moved to grazing areas that were not contiguous with the operation and region:

	Percent Operations											
	Region											
Distance (Miles)	West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error	All Operations	Standard Error
0 (not moved)	51.4	(±6.3)	32.6	(±4.7)	71.3	(±5.1)	58.2	(±6.1)	81.9	(±3.9)	64.9	(±2.4)
0.1 - 0.9	4.2	(±2.4)	7.5	(±3.0)	2.9	(±1.6)	8.3	(±3.5)	5.7	(±2.6)	5.6	(±1.2)
1.0 - 3.9	9.3	(±2.9)	20.4	(±3.7)	7.6	(±1.9)	10.9	(±2.4)	6.3	(±2.5)	9.7	(±1.2)
4.0 - 9.9	8.0	(±2.0)	19.5	(±4.0)	6.1	(±1.3)	10.6	(±2.4)	2.4	(±0.8)	7.8	(±0.9)
10 or more	27.1	(±4.3)	20.0	(±3.5)	12.1	(±4.6)	12.0	(±5.3)	3.7	(±2.2)	12.0	(±1.9)
	100.0		100.0		100.0		100.0		100.0		100.0	

b. For operations that moved cattle for grazing, operation average number of miles the herd was moved by region:

	Operation Average (Miles)											
	Region											
West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error	All Operations	Standard Error
25.6	(±3.5)	20.7	(±7.8)	9.4	(±1.7)	5.8	(±1.1)	5.7	(±2.4)	12.8	(±2.1)

Although only 12 percent of operations moved herds 10 or more miles (Table 6.a.), some herds moved a considerable distance (e.g., up to 400 miles), especially in the West and Northcentral regions, which caused the average distance herds moved to be quite high.

7. Carcass disposal

a. Of operations where beef cattle or calves died in 1996, percent of operations (and percent of beef cattle and calves that died[1]) using the following carcass disposal methods:

Disposal Method	Percent Operations	Standard Error	Percent Beef Cattle & Calf Deaths	Standard Error
Buried on the operation	39.6	(±2.7)	33.5	(±2.5)
Landfill	4.6	(±1.0)	4.9	(±1.0)
Renderer	24.7	(±2.3)	20.0	(±2.1)
Burned	33.1	(±2.6)	34.6	(±2.5)
Other	0.7	(±0.2)	0.8	(±0.4)
No disposal method	8.6	(±2.2)	6.2	(±2.1)
Total			100.0	

The manner in which dead animals are disposed of on the operation can impact the availability of disease agents for transmission to other susceptible animals in the herd. Burial on the operation was used to dispose of dead cattle and calves on 39.6 percent of operations. One-third (33.1 percent) of operations reported burning some of the carcasses of dead animals. About one-quarter (24.7 percent) of operations sent some carcasses to the renderer. Other disposal methods were used relatively infrequently. Approximately one-third of dead calves and cattle were disposed of by burning (34.6 percent) and burial (33.5 percent) each. Renderers were used to dispose of 20.0 percent of carcasses from cow-calf operations. (Note, the percentage of operations using each of the disposal methods does not sum to 100 percent since an operation could use more than one means of disposal.)

1 Includes number of stillbirths, weaned calf deaths, and breeding cattle deaths.

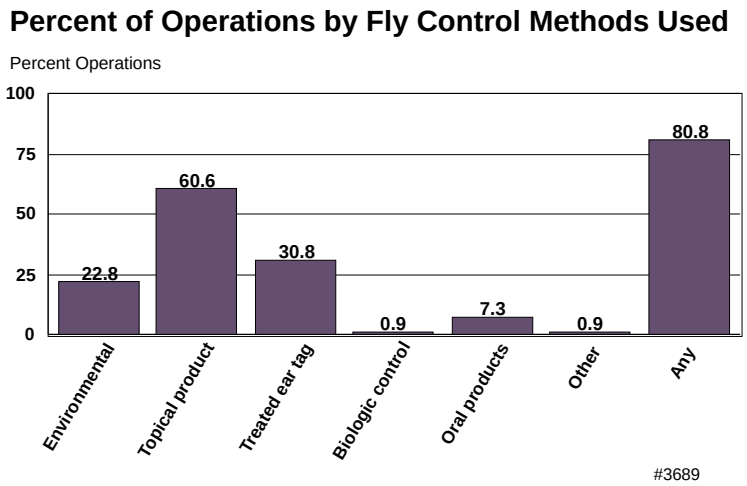
8. Fly control

a. Percent of operations by fly control methods used during the year prior to the interview:

Fly Control Method	Percent Operations	Standard Error
Environmental fly control (sprays, foggers, strips)	22.8	(±2.4)
Topical products (dustbags, dips, sprays, backrubs)	60.6	(±2.8)
Treated ear tags	30.8	(±2.6)
Biologic control (predators)	0.9	(±0.3)
Oral products	7.3	(±1.4)
Other	0.9	(±0.5)
Any of the above	80.8	(±2.4)

Flies can cause significant reductions in cattle productivity. In addition, heel fly larvae can impact hide quality when cattle grubs form breathing holes in the skin of the back.

A large percentage of operations (80.8 percent) used some form of fly control. Topical products were most common (60.6 percent of operations) followed by treated ear tags (30.8 percent) and environmental control (22.8 percent).



9. Rodent control

a. Percent of operations by rodent control methods routinely used during the year prior to the interview:

Rodent Control Method	Percent Operations	Standard Error
Chemicals/bait	38.6	(±2.7)
Traps	10.9	(±1.9)
Cats	57.6	(±2.9)
Other	5.0	(±1.4)
Any of the above	74.8	(±2.5)

10. Feed storage unit accessibility

a. Percent of operations where storage units used for grain and protein supplement fed to cows prevented the following animals from accessing the feed:

Animals	Percent Operations	Standard Error
Dogs	63.2	(±2.8)
Cats	59.6	(±2.9)
Birds	57.0	(±2.9)
Rodents	43.3	(±3.1)
Any of above	75.1	(±2.4)

11. Females calving per acre

a. Percent of operations by the maximum number of females per acre at any one time in area where the majority of females calve:

Number Females per Acre	Percent Operations	Standard Error
Less than 0.5	44.4	(±2.9)
0.5 - 0.9	18.5	(±2.1)
1.0 - 4.9	27.3	(±2.6)
5.0 - 9.9	4.2	(±0.6)
10.0 - 19.9	2.0	(±0.4)
20.0 or more	3.6	(±0.9)
Total	100.0	

Density of animals in the calving area can give some indication of potential infection pressure of disease agents for calves. Another part of the picture is how quickly young calves are removed from the calving area (see D.12.c. and D.12.d. on the next page). For 62.9 percent of operations, peak density of females in the calving area was less than one female per acre.

12. Selected breeding and calving management practices used at the time of the Beef '97 interview

Percent of operations by the following management practices used:

Management Practice	Percent Operations	Standard Error
a. Embryo transfer	1.8	(±0.4)
If embryo transfer used, Holstein cows or heifers were recipients	39.4	(±10.8)
b. During the calving season, frequency of using the calving area to hold sick cows:		
Frequently (once or more per month)	6.4	(±1.6)
Occasionally (less than five times in 6 months)	7.5	(±1.4)
Rarely (once or less in 6 months)	28.6	(±2.5)
Never	57.5	(±2.9)
Total	100.0	
c. Separate cow-calf pairs from pregnant cows:	19.8	(±1.8)

d. For operations where cow-calf pairs were separated from pregnant cows, operation average number of days after calving that cow-calf pairs were separated from pregnant cows:

Operation Average (Days)	Standard Error
8.3	(±1.0)

A variety of other management practices on the cow-calf operation could be a source of new disease agents or facilitate transmission of disease agents within the herd. Very few cow-calf operations (1.8 percent) made use of any embryo transfer, though in 39.4 percent of these instances, Holstein cows or heifers were used as recipients indicating that these animals were likely brought onto the operation. Calving areas were rarely used to hold sick animals on cow-calf operations. Overall 86.1 percent of operations never used the calving area to hold sick animals or did so two times per year or less. Cow-calf pairs were separated from pregnant cows on only 19.8 percent of operations. In some cases herd size may not warrant separate calving pastures. Also over half of cow-calf producers had no set calving season indicating that the whole herd would probably be managed as a unit regardless of stage of the production cycle.

13. Travel to fairs or shows

a. Percent of operations where any cattle from the operation left for fairs or shows and returned to the premises during the last year:

Percent Operations	Standard Error
5.8	(±0.9)

14. Manure handling

a. Percent of operations (and percent of beef cows on those operations) where the following methods were used to dispose of manure:

Manure Disposal Method	Percent Operations	Standard Error	Percent Beef Cows	Standard Error
Drag or harrow pastures	43.0	(±3.0)	44.2	(±2.2)
Hauled and spread onto land used for grazing or forage production for the operation	25.5	(±2.4)	34.1	(±2.0)
Hauled and spread onto other land	21.9	(±1.9)	25.4	(±1.6)
Other	2.5	(±1.2)	1.7	(±0.4)
No disposal	34.7	(±2.8)	32.4	(±2.0)

b. Frequency of using equipment for manure handling that was also used to handle feed fed to heifers less than 12 months of age:

Management Practice	Percent Operations	Standard Error
Regularly (at least weekly)	3.2	(±0.5)
Occasionally (less than weekly)	9.2	(±1.4)
Never	87.6	(±1.5)
Total	100.0	

15. Familiarity with Johne's disease

a. Percent of operations by degree of familiarity with Johne's disease in cattle before the time of the Beef '97 interview and herd size:

	Percent Operations Number Cows									
Degree of Familiarity	Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
Hadn't heard of it before	73.1	(±3.3)	65.6	(±3.4)	56.1	(±3.8)	59.1	(±6.2)	69.9	(±2.5)
Recognized the name, not much else	20.1	(±3.1)	23.8	(±2.9)	33.1	(±3.7)	33.6	(±6.2)	22.3	(±2.3)
Knew some basics	4.6	(±1.4)	8.7	(±1.9)	6.1	(±1.5)	2.5	(±1.2)	5.4	(±1.1)
Fairly knowledgeable	2.2	(±0.8)	1.9	(±0.7)	4.7	(±1.6)	4.8	(±2.2)	2.4	(±0.6)
Total	100.0		100.0		100.0		100.0		100.0	

Most producers (over 90 percent), regardless of herd size, knew very little about Johne's disease. This finding indicates a significant need for education of beef producers regarding this disease. This situation may be just one example of an overall need to educate beef producers about many of the infectious diseases and the potential for control aside from vaccination.

16. Opinions on U.S. outbreak preparedness

a. Percent of operations by level of agreement with the statement that "the United States is well prepared to handle outbreaks of livestock diseases currently not found in this country, such as foot and mouth disease and rinderpest", and herd size:

	Percent Operations									
	Number Cows									
Level of Agreement	Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
Strongly agree	10.4	(±2.5)	12.5	(±2.5)	11.0	(±2.3)	10.5	(±3.1)	10.8	(±1.9)
Agree	50.4	(±4.0)	47.6	(±4.0)	52.8	(±3.9)	53.4	(±6.1)	50.3	(±3.0)
Disagree	13.0	(±2.6)	18.7	(±2.9)	11.3	(±2.0)	11.1	(±3.5)	13.6	(±1.9)
Strongly disagree	3.0	(±1.2)	6.3	(±3.2)	9.4	(±2.9)	6.5	(±2.4)	4.3	(±1.0)
No opinion	23.2	(±3.3)	14.9	(±2.7)	15.5	(±2.8)	18.5	(±5.2)	21.0	(±2.5)
Total	100.0		100.0		100.0		100.0		100.0	

b. Percent of operations by level of agreement with the statement that "the United States is well prepared to handle outbreaks of livestock diseases currently not found in this country, such as foot and mouth disease and rinderpest", and region:

	Percent Operations											
	Region											
Level of Agreement	West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error	All Operations	Standard Error
Strongly agree	8.4	(±2.1)	9.4	(±3.1)	16.0	(±5.3)	12.1	(±3.7)	6.5	(±2.3)	10.8	(±1.9)
Agree	63.3	(±5.3)	56.6	(±4.9)	48.3	(±6.5)	40.7	(±5.8)	52.1	(±6.2)	50.3	(±3.0)
Disagree	10.0	(±2.6)	9.6	(±2.3)	22.7	(±5.8)	14.2	(±3.2)	7.5	(±2.2)	13.6	(±1.9)
Strongly disagree	7.9	(±3.0)	5.6	(±2.1)	4.5	(±2.7)	5.5	(±2.9)	1.5	(±0.6)	4.3	(±1.0)
No opinion	10.4	(±3.0)	18.8	(±3.8)	8.5	(±2.2)	27.5	(±5.7)	32.4	(±6.3)	21.0	(±2.5)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

E. Feed Management

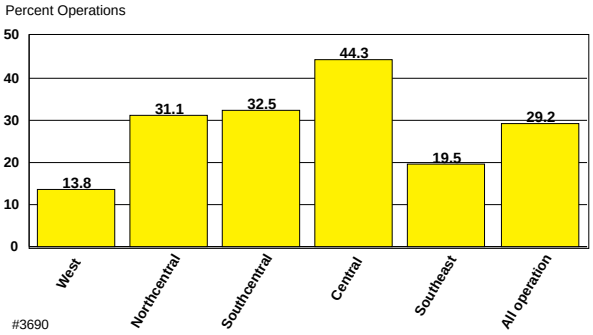
1. Creep feeding

a. Percent of operations where unweaned calves had access to creep feed in 1996 by region:

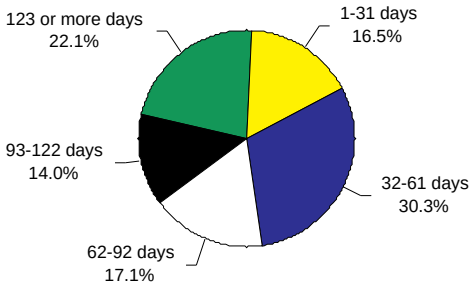
Percent Operations											
Region											
West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error	All Operations	Standard Error
13.8	(±7.5)	31.1	(±4.8)	32.5	(±6.2)	44.3	(±5.6)	19.5	(±4.0)	29.2	(±2.6)

Nearly one-third (29.2 percent) of cow-calf operations used creep feeding in 1996. Creep feeding was most common in the Central region and least common in the West and Southeast. Low use in the West is likely a reflection of extensively managed cattle operations and the difficulty in keeping feeders stocked during the summer grazing period.

Percent of Operations Where Unweaned Calves Had Access to Creep Feed in 1996 by Region



Percent of Operations by Average Number of Days Unweaned Calves Had Access to Creep Feed



*** For operations where unweaned calves had access to creep fed in 1996.** **#3691**

b. For operations where unweaned calves had access to creep feed in 1996, percent of operations by average number of days they had access:

Number Days	Percent Operations	Standard Error
1 - 31	16.5	(±4.5)
32 - 61	30.3	(±5.2)
62 - 92	17.1	(±3.4)
93 - 122	14.0	(±2.9)
123 or more	22.1	(±4.3)
Total	100.0	

The largest percent (30.3 percent) of operations reported using creep feeding from 32 to 61 days. Roughly equal percentages of operations reported creep feeding for each of the other intervals listed.

F. Marketing

1. Marketing calves for feeding

a. Percent of operations that marketed 1996 weaned calves for feeding within 60 days of weaning by region:

Percent Operations											
Region											
West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error	All Operations	Standard Error
58.8	(±7.2)	45.9	(±5.0)	79.7	(±3.6)	54.5	(±5.9)	67.2	(±6.4)	64.5	(±2.7)

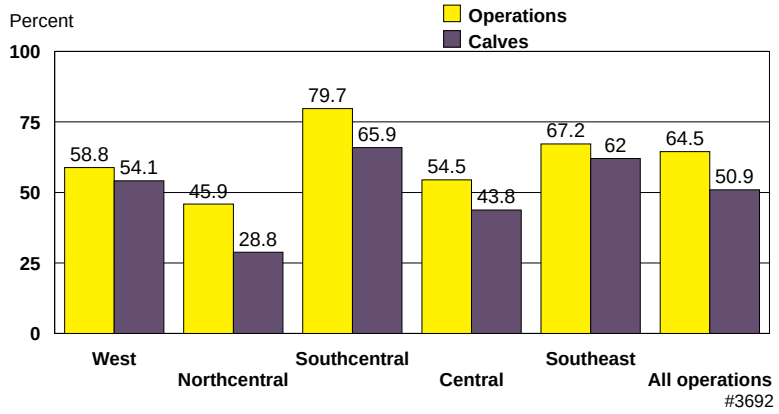
Nearly two-thirds (64.5 percent) of producers marketed calves for feeding within 60 days of weaning. Regional differences are shown.

i. Of calves weaned in 1996, percent marketed for feeding within 60 days of weaning by region:

Percent Calves											
Region											
West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error	All Operations	Standard Error
54.1	(±4.8)	28.8	(±3.4)	65.9	(±3.3)	43.8	(±4.5)	62.0	(±4.2)	50.9	(±1.9)

Slightly over half (50.9 percent) of the calves marketed in 1996 were marketed within 60 days of weaning. This finding was similar across all regions with the exception of the Northcentral region where only 28.8 percent of calves were marketed in that time frame. While nearly two-thirds of *operations* marketed calves within 60 days of weaning (see F.1.a.), only one-half of the *calves* were marketed during this time period. This finding implies that larger operations were retaining calves longer.

Percent of Operations (and Percent of Calves Marketed) that Marketed 1996 Weaned Calves Within 60 Days of Weaning by Region



b. Percent of operations that marketed 1996 weaned calves for feeding within 60 days of weaning by herd size:

Percent Operations							
Number Cows							
Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error
65.5	(±3.6)	65.1	(±3.5)	57.6	(±3.7)	64.7	(±6.1)

c. For operations that marketed calves for feeding within 60 days of weaning, percent of operations that shipped these calves the following distances to the first point of delivery:

Distance (Miles)	Percent Operations	Standard Error
Less than 50	81.2	(±2.9)
50 - 99	12.0	(±2.3)
100 - 499	5.2	(±1.3)
500 or more	1.9	(±0.5)
Unknown	2.9	(±1.8)

Most operations (81.2 percent) shipped calves less than 50 miles to the first point of delivery. Very few operations shipped calves extensive distances for sale.

i. Percent of calves marketed for feeding within 60 days of weaning by distance shipped to the first point of delivery:

Distance (Miles)	Percent Calves	Standard Error
Less than 50	64.9	(±3.3)
50 - 99	17.3	(±3.4)
100 - 499	10.3	(±1.8)
500 or more	5.9	(±1.1)
Unknown	1.6	(±0.6)
Total	100.0	

Approximately two-thirds (64.9 percent) of calves were shipped less than 50 miles to the first point of delivery. This information taken with that in F.1.b. above would indicate that larger operations tended to ship calves farther to the first point of delivery, not surprising given the remoteness of some of the large cow-calf operations.

d. In 1996, for calves marketed for feeding within 60 days of weaning, operation average price received per hundred weight by gender of calves:

Gender of Calves	Operation Average Price/cwt (Dollars)	Standard Error
Steers	58.00	(±1.03)
Bulls	52.14	(±2.15)
Heifers	52.80	(±0.92)

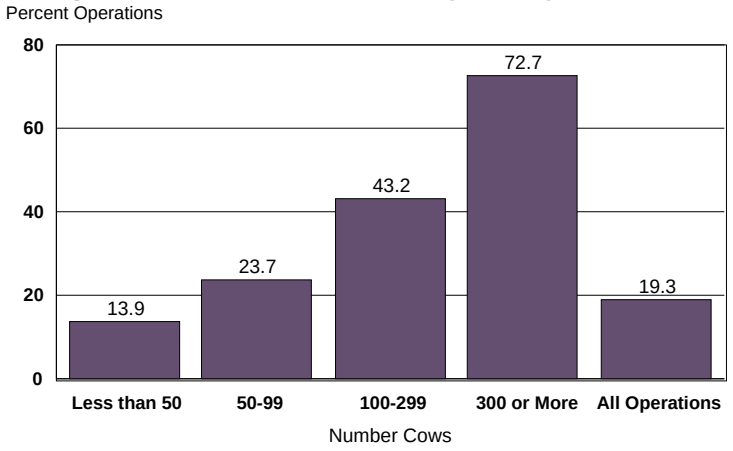
A $5.86 discount per cwt for bull calves equates to an average $30.82 difference per herd between selling bull calves and steers.

e. For operations that marketed calves for feeding within 60 days of weaning, percent of operations that usually provided buyers with information about the operation's calf health program by herd size:

Percent Operations									
Number Cows									
Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
13.9	(±2.3)	23.7	(±3.6)	43.2	(±5.1)	72.7	(±6.7)	19.3	(±1.9)

Calf health programs can add value to calves when communicated to potential buyers. The first step in recouping the investment in calf health is to advertise. Only 19.3 percent of operations selling calves within 60 days of weaning provided buyers with information on their calf health program. This finding was strongly related to herd size with the smallest herds least likely to provide any information (13.9 percent) compared to the largest herds (72.7 percent).

Percent of Operations that Usually Provided Buyers with Information About the Operation's Calf Health Program by Herd Size



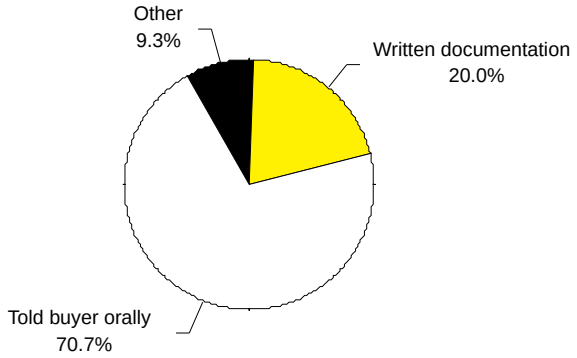
*For operations that marketed calves for feeding within 60 days of weaning. $3693

i. For operations that marketed calves for feeding within 60 days of weaning, and that usually provided buyers with information about the operation's calf health program, percent of operations by the method the information was conveyed and herd size:

	Percent Operations									
	Number Cows									
Method	Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
Written documentation	16.4	(±5.3)	23.7	(±7.0)	27.4	(±6.4)	13.2	(±5.4)	20.0	(±3.5)
Told buyer orally	70.7	(±7.3)	72.2	(±7.1)	68.5	(±6.6)	73.6	(±7.3)	70.7	(±4.3)
Other	12.9	(±5.9)	4.1	(±2.4)	4.1	(±2.2)	13.2	(±5.7)	9.3	(±3.2)
Total	100.0		100.0		100.0		100.0		100.0	

The method of communicating the calf health program to the buyer may influence how the information is received. Telling the buyer orally at the time of sale may not have as much impact as written documentation and it will be more difficult for this information to become part of the longer term record on the calves being sold. For those operations that communicated information about the calf health program, most (70.7 percent) did so by telling the buyer orally. Only 20.0 percent of these producers (approximately 4 percent of all producers) provided some written documentation of the calf health program. Although the mid-size herds showed a larger percentage using written documentation, the large standard errors in all herd sizes make comparisons difficult.

Percent of Operations by Method Information About the Operation's Calf Health Program was Conveyed to Buyers

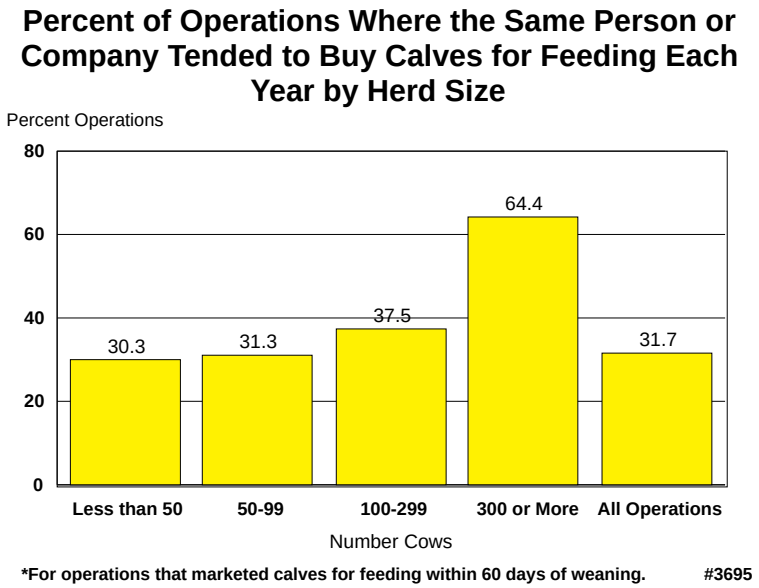


#3694

*For operations that marketed calves for feeding within 60 days of weaning and that usually provided buyers with information about the operation's calf health program.

f. For operations that marketed calves for feeding within 60 days of weaning, percent of operations where the same person or company tended to buy calves marketed for feeding each year by herd size:

Percent Operations									
Number Cows									
Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
30.3	(±4.4)	31.3	(±4.3)	37.5	(±5.0)	64.4	(±7.0)	31.7	(±3.3)



Larger operations tend to have more repeat buyers than smaller operations, possibly because they are better able to sort calves into groups and have full loads.

2. Marketing calves for breeding

a. Percent of operations that sold or planned to sell any of the calves weaned in 1996 for breeding purposes:

Percent Operations	Standard Error
13.1	(±2.1)

b. For operations that sold or planned to sell calves weaned in 1996 for breeding purposes, percent of operations selling bulls and percent of operations selling heifers for breeding purposes:

Breeding Calves	Percent Operations	Standard Error
Bulls	75.7	(±5.3)
Heifers	72.1	(±7.8)

3. Cull cows

a. Percent of operations that sold cull cows for slaughter in 1996 (and cows culled as a percent of January 1, 1997, cow inventory) by herd size**:**

	Percent Operations									
	Number Cows									
Percent	Less Than 50	Standard Error	50-99	Standard Error	100-299	Standard Error	300 or More	Standard Error	All Operations	Standard Error
Operations	49.1	(±4.0)	75.1	(±3.5)	89.3	(±2.2)	94.9	(±2.7)	58.3	(±3.0)
Cows culled	13.7	(±1.7)	8.9	(±1.0)	9.6	(±0.7)	10.1	(±1.0)	10.8	(±0.6)

As herd size increased, a greater percentage of operations sold cull cows. However, the actual percentages of cows culled did not vary significantly among operation sizes or region (see F.3.b.)

b. Percent of operations that sold cull cows for slaughter in 1996 (and cows culled as a percent of January 1, 1997 cow inventory) by region:

	Percent Operations											
	Region											
Percent	West	Standard Error	North-central	Standard Error	South-central	Standard Error	Central	Standard Error	Southeast	Standard Error	All Operations	Standard Error
Operations	68.2	(±7.1)	64.7	(±4.8)	51.5	(±6.2)	65.3	(±5.9)	53.8	(±6.4)	58.3	(±3.0)
Cows culled	11.3	(±0.9)	8.0	(±0.5)	14.6	(±1.8)	9.3	(±0.9)	9.8	(±1.7)	10.8	(±0.6)

c. Of the cows culled in 1996, percent known or assumed to be pregnant:

Percent Cows Culled	Standard Error
42.7	(±3.0)

d. Percent of cull cows sold for slaughter by distance to the first point of delivery:

Distance (Miles)	Percent Cows	Standard Error
Less than 50	64.1	(±3.7)
50 - 99	25.1	(±3.9)
100 - 499	10.1	(±1.6)
500 or more	0.2	(±0.1)
Unknown	0.5	(±0.2)
Total	100.0	

Section II: Sample Profile

A. Responding operations

1. Total cattle and calves on hand, January 1, 1997:	Number Responding Operations
Less than 50	233
50 - 99	260
100 - 399	527
400 or more	170
Total	1,190

2. Total beef cows on hand January 1, 1997:	
Less than 50	470
50 - 99	294
100 - 299	330
300 or more	96
Total	1,190

3. Total operations by region:	
West	261
Northcentral	215
Southcentral	256
Central	196
Southeast	262
Total	1,190

Section III: U.S. Inventory of Beef Cows and Number of Operations Estimates[1]

Region	State	Number Beef Cows, January 1, 1997 (Thousand Head)		Operations with Beef Cows, 1996 (Thousands)	
West:					
	California	820		15.0	
	Colorado	826		9.5	
	Montana	1,570		11.7	
	New Mexico	533		6.5	
	Oregon	607		16.8	
	Wyoming	794		4.9	
	Total	5,150		64.4	
Northcentral:					
	Kansas	1,489		30.0	
	Nebraska	1,932		22.0	
	North Dakota	940		12.4	
	South Dakota	1,660		18.0	
	Total	6,021		82.4	
Southcentral:					
	Oklahoma	1,965		54.0	
	Texas	5,460		133.0	
	Total	7,425		187.0	
Central:					
	Arkansas	954		26.0	
	Illinois	460		17.8	
	Iowa	1,030		28.0	
	Missouri	2,075		64.0	
	Total	4,519		135.8	
Southeast:					
	Alabama	829		32.0	
	Florida	1,072		18.0	
	Georgia	692		25.0	
	Kentucky	1,160		45.0	
	Mississippi	682		29.0	
	Tennessee	1,085		54.0	
	Virginia	740		26.0	
	Total	6,260		229.0	
Total (23 states):		29,375	(85.7% of U.S.)	698.6	(77.6% of U.S.)
Total U.S. (50 states):		34,280		900.7	

1 Source: USDA, National Agricultural Statistics Service. Cattle. January 31, 1997.

Expected Products
and Related Study Objectives

1. Support global trade by estimating the prevalence of important animal pathogens.

- Johne's disease (interpretive summary), *expected fall 1998.*
- Bovine leukosis virus and Salmonella (info sheets), *expected summer 1998.*

2. Support efforts of the industry to supply quality products.

- Part I: Reference of 1997 Beef Cow-Calf Management Practices, June 1997.
- Part II: Reference of 1997 Beef Cow-Calf Health and Health Management Practices, July 1997.
- Information Sources for Cow-Calf Herds (info sheet), July 1997
- Implants (info sheet), *expected February 1998*
- Calving management (info sheet), *expected February 1998.*
- Quality assurance, *expected summer 1998.*
- Injection sites (info sheet), *expected summer 1998.*

3. Support the efforts of APHIS to achieve a high level of emergency preparedness.

- Part I: Reference of 1997 Beef Cow-Calf Management Practices, June 1997.
- Part II: Reference of 1997 Beef Cow-Calf Health and Health Management Practices, July 1997.
- ***Part III: Reference of 1997 Beef Cow-Calf Production Management and Disease Control, Jan. 1998.***

4. Describe trends in animal health.

- Part IV: Changes in Beef Cow-Calf Management Practices, *expected February 1998.*

5. Support disease control efforts.

- Vaccinations (info sheet), *expected summer 1998.*
- Johnes disease (interpretive summary), *expected fall 1998.*
- Bovine leukosis virus (BLV) and Salmonella (info sheets), *expected summer 1998.*
- ***Part III: Reference of 1997 Beef Cow-Calf Production Management and Disease Control, Jan. 1998.***

6. Support efforts of the beef industry to become more efficient.

- Part I: Reference of 1997 Beef Cow-Calf Management Practices, June 1997.
- Identification in Beef Cow-Calf Herds (info sheet), July 1997
- ***Part III: Reference of 1997 Beef Cow-Calf Production Management and Disease Control, Jan. 1998.***

Centers for Epidemiology and Animal Health
USDA:APHIS:VS, attn. NAHMS
555 South Howes
Fort Collins, CO 80521
Telephone: (970) 490-8000
Internet: NAHMS_INFO@aphis.usda.gov
Web Page: http//www.aphis.usda.gov/vs/ceah/cahm

N247.198