



United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

Veterinary
Services

National
Animal Health
Monitoring
System

February 2010



Beef 2007–08

Part IV: Reference of Beef Cow-calf Management Practices in the United States, 2007–08



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#523.0210

Cover photo courtesy of Geni Wren, "Bovine Veterinarian" Magazine

Items of Note

The Beef 2007–08 study marks the first time in 10 years that the National Animal Health Monitoring System has taken an in-depth look at the U.S. beef cow-calf industry. In this report, you'll find the latest information on the animal health and management practices of one of the Nation's most important livestock industries.

Calf Management and Health

Many preconditioning programs incorporate recommendations for preventive health management such as vaccination, deworming, nutrition, and handling practices. One frequent recommendation is to hold calves for a period of time after weaning to allow them to become accustomed to drinking out of water tanks and eating out of feeders. Another recommendation aimed at reducing the likelihood of adverse health events among young calves is to avoid combining the stresses of weaning, mixing, and transportation. In 2007, about one-half of beef cow-calf operations (49.8 percent) that sold calves for purposes other than breeding sold them immediately at the time of weaning. In addition, 6 of 10 operations (60.6 percent) did not vaccinate beef calves for respiratory disease from birth to sale, and 30.9 percent of calves were on these operations.

Cow Culling and Health

Reproductive efficiency remains a critical factor for beef cow-calf profitability. Forced culling due to reproductive status still accounts for a high percentage of cows leaving the herd. For cows sold for purposes other than breeding in 2007, 33.0 percent were sold due to pregnancy status (open or aborted), and another 32.1 percent were sold because of age or bad teeth. Such forced culling eliminates some of the flexibility needed to improve production efficiency traits through genetic selection. In addition to culling losses, 1.5 percent of weaned or older beef breeding cattle died or were lost in 2007.

General Vaccination Practices

Vaccinating cattle for some disease agents is relatively common on cow-calf operations. Almost 7 of 10 operations (68.9 percent) vaccinated any beef cattle or calves in 2007; however, vaccination is by no means ubiquitous on U.S. cow-calf operations. Smaller operations are least likely to vaccinate their animals, which leaves a segment of the beef cattle population susceptible to a number of preventable diseases.

Antimicrobial Use

Antimicrobials are a valuable tool for managing the health of animals. Interest in how antimicrobials are used on livestock and poultry operations has increased due to concerns about how such use might, if at all, affect public health. Data on the extent and reasons for antimicrobial use on cow-calf operations will be useful in the development of risk assessments and as information sources for policymakers. In 2007, more than two of three cow-calf operations (68.0 percent) used oral or injectable antibiotics to treat disease in any cattle or calves. A higher percentage of unweaned calves (7.2 percent) and replacement heifers (6.0 percent) were treated at least once with oral or injectable antibiotics for any diseases or disorders than mature cows (1.9 percent).

Producer Opinions of Outbreak Preparedness

Recent global events have heightened awareness and concern about the level of U.S. preparedness for dealing with animal disease outbreaks, especially exotic outbreaks of high potential consequence to U.S. cattle producers. Overall, 60.7 percent of producers felt that the United States is well prepared to deal with an incursion of exotic animal disease. The United States continues to develop the North American Veterinary Stockpile—which stocks the materials needed to respond to catastrophic animal disease outbreaks—and conducts exercises to test and refine the Nation's animal disease response system.

Selected Highlights of Beef 2007–08 Part IV

For the operations that sold weaned calves intended for purposes other than breeding during 2007, about one-half (49.8 percent) sold them immediately at the time of weaning.

For cows sold for purposes other than breeding in 2007, 33.0 percent were sold due to pregnancy status (open or aborted), and 32.1 percent were sold because of age or bad teeth.

Almost 7 of 10 operations (68.9 percent) vaccinated any beef cattle or calves in 2007.

Overall, 60.6 percent of operations did not vaccinate beef calves for respiratory disease from birth to sale, and 30.9 percent of calves were on these operations.

A higher percentage of operations in the Central region (67.9 percent) and the West region (56.4 percent) vaccinated any cattle or calves against BVD compared with operations in the Southeast region (28.9 percent).

Nearly 6 of 10 operations (57.2 percent) believed that removing calves that tested positive for persistent infection with BVD virus affected the health of the remaining cattle in the herd.

Of operations that believed removing calves that tested positive for persistent infection with BVDV affected the health of the remaining cattle in the herd, the majority expected improved reproductive efficiency, reduced sickness and treatment costs, and reduced death loss (89.7, 96.9, and 95.7 percent of operations, respectively).

Approximately 1 of 20 operations (5.7 percent) did any fecal testing during the previous 3 years to evaluate parasite burden.

More than two of three operations (68.0 percent) used oral or injectable antibiotics to treat disease in any cattle or calves.

A higher percentage of unweaned calves (7.2 percent) and replacement heifers (6.0 percent) were treated at least once with oral or injectable antibiotics for any diseases or disorders than mature cows (1.9 percent).

Nine of 10 of operations (90.0 percent) dewormed any cattle or calves at least occasionally. A regular schedule was the primary factor used to determine when to deworm cattle and calves on 85.1 percent of operations.

Of calves born alive in 2007, 3.6 percent died or were lost prior to weaning.

Overall, 1.5 percent of weaned or older beef breeding cattle died or were lost in 2007.

Acknowledgments

This report was a cooperative effort between two U.S. Department of Agriculture (USDA) agencies: the National Agricultural Statistics Service (NASS) and the Animal and Plant Health Inspection Service (APHIS).

We want to thank the NASS enumerators, State and Federal veterinary medical officers (VMOs), and animal health technicians (AHTs) who visited the operations and collected data for the Beef 2007–08 study. Their hard work and dedication to USDA's National Animal Health Monitoring System (NAHMS) were invaluable. The roles of the producers, area veterinarians in charge, NAHMS coordinators, VMOs, AHTs, and NASS enumerators were critical in providing quality data for the Beef 2007–08 reports. Recognition also goes to the personnel at the USDA–APHIS–Veterinary Services' Centers for Epidemiology and Animal Health for their efforts in generating and distributing this and other reports from the Beef 2007–08 study.

Additional biological sampling and testing for the Beef 2007–08 study were afforded by the generous contributions of collaborators, including:

- USDA–APHIS, National Veterinary Services Laboratories
- USDA–ARS, Beltsville Agricultural Research Center
 - Bovine Functional Genomics Laboratory
 - Environmental Microbial Safety Laboratory
- USDA–ARS, Russell Research Center
 - Bacterial Epidemiology and Antimicrobial Resistance Research Unit
- USDA–ARS, National Animal Disease Center
 - Virus and Prion Diseases of Livestock Research Unit
- IDEXX Laboratories

All participants are to be commended, particularly the producers whose voluntary efforts made the Beef 2007–08 study possible.



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Suggested bibliographic citation for this report:

USDA. 2010. Beef 2007–08, Part IV: Reference of Beef Cow-calf Management Practices in the United States, 2007–08.

USDA:APHIS:VS, CEAH. Fort Collins, CO
#523.0210

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Feedback

Feedback, comments, and suggestions regarding Beef 2007–08 study reports are welcomed. Please forward correspondence via email at:

NAHMS@aphis.usda.gov, or you may submit feedback via online survey at:

<http://nahms.aphis.usda.gov> (Click on “FEEDBACK on NAHMS reports.”)

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Introduction

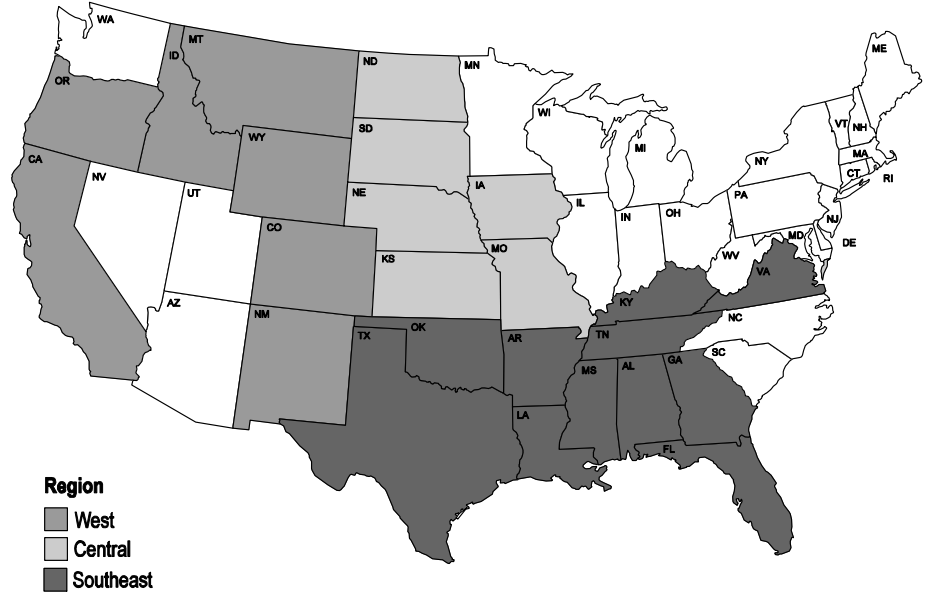
The National Animal Health Monitoring System (NAHMS) is a nonregulatory program of the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service. NAHMS is designed to help meet the Nation's animal health information needs and has collected data on cattle health and management practices on cow-calf operations via two previous studies.

The NAHMS 1992–93 Cow-calf Health and Productivity Audit (CHAPA) provided the first national information on the health and management of cattle on cow-calf operations in the United States. While the study was in progress, the media began to report on the incidence of “mystery calf disease” throughout the United States. Such reports stimulated requests from stakeholders for information on the occurrence of this “new” disease. The CHAPA study became one vehicle that provided estimates of the frequency of occurrence and geographic distribution of the disease.

Information from the NAHMS Beef '97 study helped the U.S. beef industry identify educational needs and prioritize research efforts on such timely topics as antibiotic usage and Johne's disease, as well as potential foodborne pathogens, including *Salmonella*. Data from the Beef '97 study were also critical in designing the enhanced surveillance plan for bovine spongiform encephalopathy (BSE).

The Beef 2007–08 study was conducted in 24 States (see map on next page) with the largest beef cow populations and provides participants, stakeholders, and the industry as a whole with valuable information representing 79.6 percent of U.S. beef-cow operations and 87.8 percent of U.S. beef cows. Part IV: Reference of Beef Cow-calf Management Practices in the United States, 2007–08 is the fourth in a series of reports containing national information from the NAHMS Beef 2007–08 study. This report provides information collected from 567 cow-calf operations by veterinary medical officers from January 14 through March 31, 2008.

NAHMS Beef 2007-08 Participating States



Terms Used in This Report

Animal average: The average value for all animals. The single reported value for each operation multiplied by the number of animals on that operation is summed over all operations and divided by the number of animals on all operations. This way, the result is adjusted for the number of animals on each operation. For an example, see average weight in pounds in table a., p 5.

Beef cow: Female bovine that has calved at least once.

Beef heifer: Female bovine that has not yet calved.

Born alive: Calves born alive and surviving at least 2 hours following birth.

BVD genotype Type 1 or Type 2: A grouping of BVD virus based on genetic makeup; may be of either biotype, cytopathic or noncytopathic.

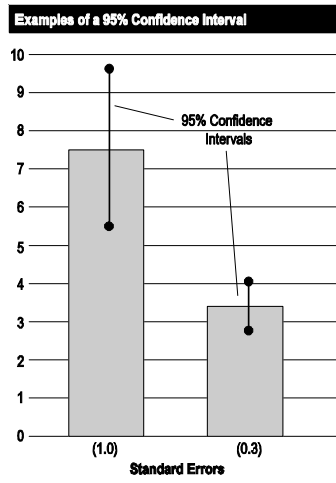
Forward contract: A way for cattle sellers and buyers to contract for a price on their livestock ahead of an expected sale date. A forward pricing contract is a legal, binding commitment between a buyer and a seller. The contract guarantees a price for a specified amount and quality of product to be delivered at a certain time to a place specified in the contract.

Herd size: Herd size is based on October 1, 2007, cow inventory. If there were no cows on October 1, 2007, then July 1, 2007, cow inventory was used.

Operation: Premises with at least one beef cow on October 1, 2007, or July 1, 2007.

Operation average: The average value for all operations. A single value for each operation is summed over all operations reporting divided by the number of operations reporting. For example, operation average weight at weaning (see table a., p 5) is calculated by summing weaning weights over all operations divided by the number of operations.

Population estimates: The estimates in this report make inference to all operations in the target population (see Methodology, p 127). Data from operations responding to the survey are weighted to reflect their probability of selection during sampling and to account for any survey nonresponse.



Precision of population estimates: Estimates in this report are provided with a measure of precision called the standard error. A 95-percent confidence interval can be created with bounds equal to the estimate plus or minus two standard errors. If the only error is sampling error, the confidence intervals created in this manner will contain the true population mean 95 out of 100 times. In the example to the left, an estimate of 7.5 with a standard error of 1.0 results in limits 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 limits of 2.8 and 4.0. Alternatively, the 90-percent confidence interval would be created by multiplying the standard error by 1.65 instead of 2. Most estimates in this report are rounded to the nearest tenth. If rounded to 0, the standard error was reported (0.0). If there were no reports of the event, no standard error was reported (--).

Regions:

West: California, Colorado, Idaho, Montana, New Mexico, Oregon, Wyoming

Central: Iowa, Kansas, Missouri, Nebraska, North Dakota, South Dakota

Southeast: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, Texas, Virginia (Note: previous reports divided this region into two separate regions.)

Sample profile: Information that describes characteristics of the operations from which Beef 2007–08 data were collected.

Section I: Population Estimates

A. Herd Management and Sales Practices

1. Cow weight when calves are weaned

Producers were asked to estimate the average weight of their mature beef cows at the time their calves were weaned. For this report, mature beef cows were 5 years of age or older. The weight and/or body condition of cows at the time their calves are weaned are frequently used to gauge the nutritional needs of cows and can be related to the cows' future reproductive success.

a. Average weight in pounds (and operation average weight in pounds) of mature beef cows (5 years of age or older) at the time their calves were weaned in 2007:

Average Weight (lb)*	Standard Error	Operation Average Weight (lb)	Standard Error
1,147	(7)	1,085	(10)

*Weighted by number of calves weaned in 2007.

Mature-cow weight can affect the carrying capacity of beef operations. Large cows have greater nutritional needs than small cows. Over time, the weight of mature beef cows tends to increase as cows are selected for other production traits. The average weight of mature beef cows on operations with 200 or more beef cows was higher (1,168 pounds) than on operations with 1 to 49 beef cows (1,065 pounds).

b. Operation average weight in pounds of mature beef cows (5 years of age or older) at the time their calves were weaned in 2007, by herd size:

Operation Average Weight (lb)									
Herd Size (Number of Beef Cows)									
1-49		50-99		100-199		200 or More		All Operations	
Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error
1,065	(14)	1,119	(23)	1,127	(19)	1,168	(11)	1,085	(10)

At the time their calves were weaned, mature beef cows in the Southeast region weighed less on average than mature beef cows in the West and Central regions. This difference might be a reflection of the predominant breeds in the regions or attempts by producers to control cow maintenance costs by keeping cows smaller.

c. Operation average weight in pounds of mature beef cows (5 years of age or older) at the time their calves were weaned in 2007, by region:

Operation Average Weight (lb)					
Region					
West		Central		Southeast	
Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error
1,145	(23)	1,182	(13)	1,041	(14)

A higher percentage of operations with 1 to 49 beef cows than operations with 200 or more beef cows reported an average mature-cow weight at the time calves were weaned of less than 1,100 pounds (51.7 and 18.4 percent, respectively). [Note: this difference might be due to the lighter average cow weights in the Southeast region where herd sizes are usually smaller.] Conversely, a lower percentage of operations with 1 to 49 beef cows than operations with 200 or more beef cows reported an average mature-cow weight between 1,100 and 1,299 pounds (39.8 and 61.7 percent, respectively). The percentage of operations in which the average mature-cow weight was above 1,300 pounds was similar across herd sizes.

d. Percentage of operations by average weight in pounds of mature beef cows (5 years of age or older) at the time their calves were weaned in 2007, and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Average Weight (lb)	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Less than 1,100	51.7	(4.6)	30.8	(6.2)	34.3	(6.4)	18.4	(3.3)	45.0	(3.3)
1,100 to 1,299	39.8	(4.5)	52.3	(6.4)	48.9	(5.9)	61.7	(4.7)	43.8	(3.3)
1,300 or more	8.5	(2.1)	16.9	(4.2)	16.8	(3.4)	19.9	(3.6)	11.2	(1.6)
Total	100.0		100.0		100.0		100.0		100.0	

The Southeast region had the highest percentage of operations (56.7 percent) in which the average mature-cow weight was less than 1,100 pounds and the lowest percentage of operations (5.6 percent) in which the average mature-cow weight was 1,300 pounds or more.

e. Percentage of operations by average weight in pounds of mature beef cows (5 years of age or older) at the time their calves were weaned in 2007, and by region:

Percent Operations						
Region						
Average Weight (lb)	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Less than 1,100	26.2	(8.3)	20.3	(4.7)	56.7	(4.6)
1,100 to 1,299	56.2	(9.1)	55.9	(5.2)	37.7	(4.5)
1,300 or more	17.6	(4.4)	23.8	(4.1)	5.6	(1.8)
Total	100.0		100.0		100.0	

2. Marketing

As expected, a high percentage of operations (94.7 percent) sold some beef cattle or weaned calves in 2007. The types of animals and how they are marketed in a given year depends on many factors, including current market price, availability of feedstuffs, need for cash flow/income, and the availability of animals of a particular class (e.g., cull animals).

a. Percentage of operations that sold any beef cattle or weaned calves in 2007, by herd size:

Percent Operations									
Herd Size (Number of Beef Cows)									
1-49		50-99		100-199		200 or More		All Operations	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
92.9	(2.2)	98.4	(1.0)	98.6	(1.0)	100.0	(0.0)	94.7	(1.5)

The percentage of operations that sold any beef cattle or weaned calves in 2007 was similar across regions.

b. Percentage of operations that sold any beef cattle or weaned calves in 2007, by region:

Percent Operations					
Region					
West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
81.5	(6.7)	96.6	(1.8)	95.8	(2.0)

3. Cattle classes sold

Overall, 7 of 10 operations sold weaned or older steers, and about 6 of 10 operations sold cull heifers or cull cows. A higher percentage operations with 200 or more beef cows sold weaned or older steers compared with operations with 1 to 49 beef cows. A lower percentage of operations with 1 to 49 beef cows sold weaned or older heifers for purposes other than breeding compared with operations with 50 or more beef cows. A lower percentage of operations with 1 to 49 beef cows sold cows for purposes other than breeding compared with operations with 100 or more beef cows. A lower percentage of operations with 1 to 49 beef cows sold bulls for purposes other than breeding compared with operations with 50 or more beef cows.

a. Percentage of operations that sold the following classes of beef cattle and weaned calves, by herd size:

Cattle Class	Percent Operations									
	Herd Size (Number of Beef Cows)									
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Steers (weaned or older)	64.9	(4.3)	85.5	(4.0)	83.1	(6.0)	91.5	(3.6)	71.3	(3.1)
Heifers (weaned or older) for breeding stock	29.6	(4.2)	17.1	(4.1)	38.4	(6.3)	30.7	(5.1)	28.4	(3.0)
Heifers (weaned or older) for purposes other than breeding (culls, whether for feeding or slaughter)	51.3	(4.6)	76.6	(4.7)	80.0	(4.1)	74.3	(5.2)	59.3	(3.4)
Cows for breeding stock	10.0	(2.5)	12.2	(3.7)	8.8	(2.8)	16.1	(3.3)	10.6	(1.8)
Cows for purposes other than breeding (culls, whether for feeding or slaughter)	53.8	(4.5)	77.2	(5.9)	82.3	(6.0)	92.7	(3.4)	62.3	(3.3)
Bulls (weaned or older) for breeding stock	13.2	(3.0)	18.2	(4.6)	13.8	(3.3)	15.3	(3.9)	14.2	(2.2)
Bulls (weaned or older) for purposes other than breeding (culls, whether for feeding or slaughter)	29.6	(4.0)	53.0	(6.1)	66.4	(5.3)	82.0	(4.2)	39.5	(3.1)

In the Central region, 89.0 percent of operations sold weaned or older steers in 2007, and 77.6 percent sold heifers for nonbreeding purposes. In the Southeast region, 65.0 percent of operations sold weaned or older steers, and 52.2 percent sold heifers for nonbreeding purposes.

b. Percentage of operations that sold the following classes of beef cattle or weaned calves, by region:

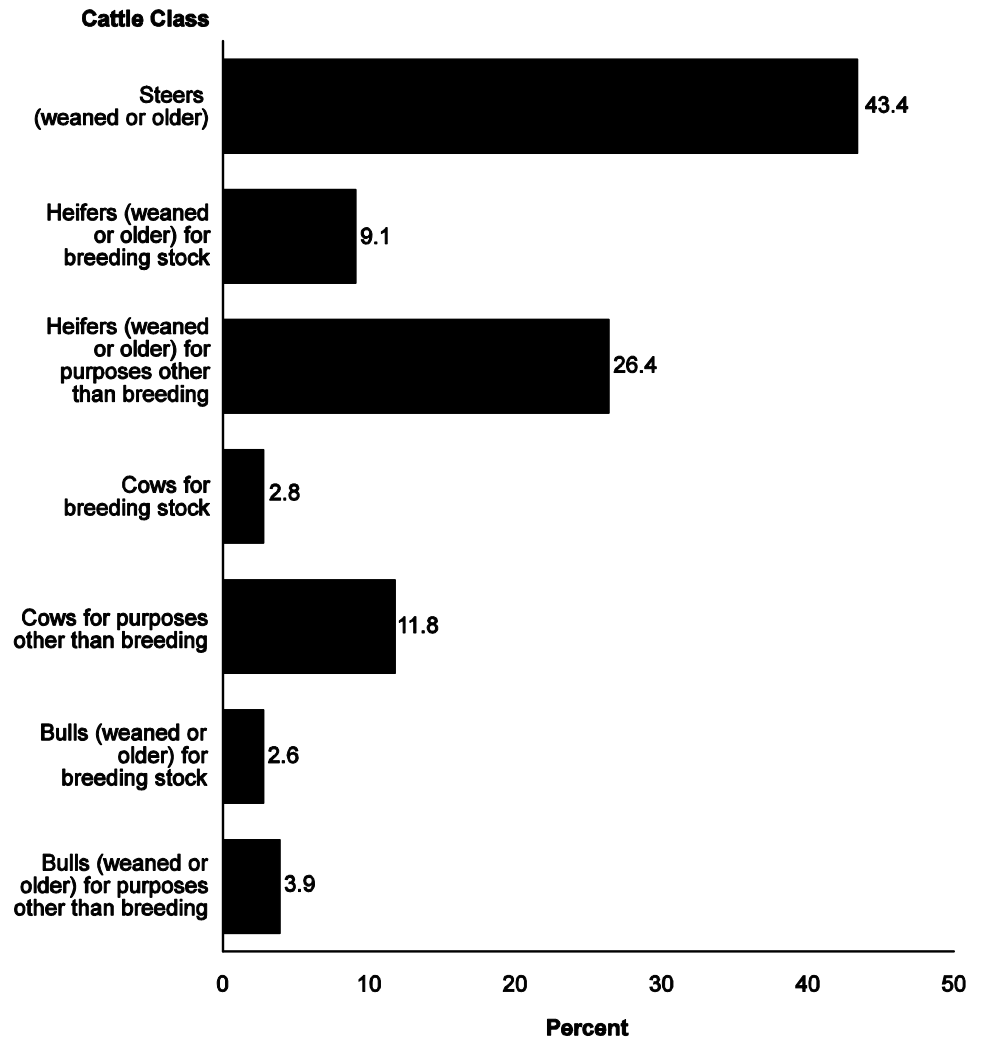
Cattle Class	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Steers (weaned or older)	69.9	(7.1)	89.0	(3.3)	65.0	(4.4)
Heifers (weaned or older) for breeding stock	16.4	(4.9)	19.9	(4.2)	33.2	(4.3)
Heifers (weaned or older) for purposes other than breeding (culls, whether for feeding or slaughter)	61.7	(7.3)	77.6	(4.4)	52.2	(4.6)
Cows for breeding stock	6.5	(2.2)	14.2	(3.8)	9.7	(2.3)
Cows for purposes other than breeding (culls, whether for feeding or slaughter)	56.5	(7.6)	73.0	(4.8)	59.1	(4.5)
Bulls (weaned or older) for breeding stock	8.4	(3.1)	16.4	(3.8)	14.1	(3.0)
Bulls (weaned or older) for purposes other than breeding (culls, whether for feeding or slaughter)	37.3	(6.7)	41.6	(4.6)	39.1	(4.3)

Of all beef cattle or weaned calves sold in 2007, 43.4 percent were weaned steers. Weaned or older steers accounted for the highest percentage of any class of cattle sold in 2007, followed by heifers for purposes other than breeding (26.4 percent), and cows for purposes other than breeding (11.8 percent).

c. Percentage of beef cattle or weaned calves sold in 2007, by cattle class and by herd size:

Percent Beef Cattle or Weaned Calves Sold										
Herd Size (Number of Beef Cows)										
Cattle Class	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Steers (weaned or older)	38.8	(2.1)	38.7	(2.8)	46.3	(3.2)	47.3	(0.9)	43.4	(1.1)
Heifers (weaned or older) for breeding stock	11.2	(2.7)	7.1	(2.0)	8.0	(1.4)	9.4	(1.8)	9.1	(1.1)
Heifers (weaned or older) for purposes other than breeding (culls, whether for feeding or slaughter)	25.5	(2.5)	27.1	(2.4)	27.2	(1.7)	26.2	(2.0)	26.4	(1.1)
Cows for breeding stock	2.6	(0.9)	4.9	(2.2)	1.9	(0.9)	2.4	(0.5)	2.8	(0.5)
Cows for purposes other than breeding (culls, whether for feeding or slaughter)	12.2	(1.4)	12.6	(1.4)	10.7	(1.3)	11.8	(0.7)	11.8	(0.6)
Bulls (weaned or older) for breeding stock	3.1	(1.3)	4.4	(1.5)	1.9	(0.8)	1.6	(0.5)	2.6	(0.5)
Bulls (weaned or older) for purposes other than breeding (culls, whether for feeding or slaughter)	6.6	(1.4)	5.2	(1.5)	4.0	(2.1)	1.3	(0.1)	3.9	(0.6)
Total	100.0		100.0		100.0		100.0		100.0	

Percentage of Beef Cattle or Weaned Calves Sold in 2007, by Cattle Class



4. Primary method of sale

Nearly two-thirds of operations (60.7 percent) used an auction market as the primary method of sale for weaned steers in 2007. About one of five operations (18.4 percent) used an auction market as the primary method of sale for weaned heifers intended for breeding stock in 2007. The majority of operations (71.6 percent) did not sell any weaned heifers for breeding stock.

a. Percentage of operations by primary method of sale for **weaned steers** or **weaned heifers intended for breeding stock** in 2007:

Primary Method of Sale	Weaned Steers		Weaned Heifers for Breeding Stock	
	Percent	Std. Error	Percent	Std. Error
Auction	60.7	(3.2)	18.4	(2.8)
Direct (video/ Internet auction)	1.1	(0.2)	0.2	(0.1)
Direct (private treaty)	6.8	(1.3)	7.2	(1.5)
Consignment	0.5	(0.4)	1.9	(0.8)
Forward contract	0.3	(0.1)	0.0	(0.0)
Carcass basis	0.9	(0.5)	0.1	(0.1)
Other	1.0	(0.5)	0.6	(0.6)
None sold	28.7	(3.1)	71.6	(3.0)
Total	100.0		100.0	

Over one-half of operations (51.1 percent) used an auction as their primary method of sale for weaned or older heifers intended for purposes other than breeding. The methods used to sell these heifers were similar to those used to sell weaned steers (see previous table).

b. Percentage of operations by primary method of sale for **weaned or older heifers intended for purposes other than breeding** (culls, whether for feeding or slaughter) in 2007:

Primary Method of Sale	Percent Operations	Standard Error
Auction	51.1	(3.4)
Direct (video/Internet auction)	0.5	(0.1)
Direct (private treaty)	5.1	(1.1)
Consignment	0.1	(0.1)
Forward contract	0.3	(0.1)
Carcass basis	0.8	(0.5)
Other	1.4	(0.6)
None sold	40.7	(3.4)
Total	100.0	

The majority of operations did not sell any cows or bulls in 2007 intended for breeding stock. When operations did sell cows or bulls intended for breeding stock, similar percentages used an auction market or direct private treaty as their primary method of sale.

c. Percentage of operations by primary method of sale for **cows and bulls intended for breeding stock** in 2007:

Primary Method of Sale	Percent Operations			
	Cows		Bulls	
	Percent	Standard Error	Percent	Standard Error
Auction	5.2	(1.3)	5.2	(1.5)
Direct (video/Internet auction)	0.0	(0.0)	0.0	(0.0)
Direct (private treaty)	4.3	(1.1)	7.5	(0.4)
Consignment	0.4	(0.4)	0.9	(0.6)
Forward contract	0.0	(--)	0.0	(--)
Carcass basis	0.0	(--)	0.0	(--)
Other	0.7	(0.7)	0.6	(0.6)
None sold	89.4	(1.8)	85.8	(2.2)
Total	100.0		100.0	

About 6 of 10 operations (58.3 percent) used an auction as the primary method of sale for **cows** intended for purposes other than breeding. Nearly 4 of 10 operations (37.4 percent) used an auction as the primary method of sale for **bulls** intended for purposes other than breeding.

d. Percentage of operations by primary method of sale for **cows and bulls intended for purposes other than breeding** (culls, whether for feeding or slaughter) in 2007:

Primary Method of Sale	Percent Operations			
	Cows		Bulls	
	Percent	Standard Error	Percent	Standard Error
Auction	58.3	(3.3)	37.4	(3.1)
Direct (video/Internet auction)	0.0	(0.0)	0.0	(0.0)
Direct (private treaty)	0.7	(0.4)	0.6	(0.3)
Consignment	0.2	(0.1)	0.0	(0.0)
Forward contract	0.0	(0.0)	0.0	(0.0)
Carcass basis	1.4	(0.8)	0.1	(0.0)
Other	1.7	(1.0)	1.4	(0.9)
None sold	37.7	(3.3)	60.5	(3.1)
Total	100.0		100.0	

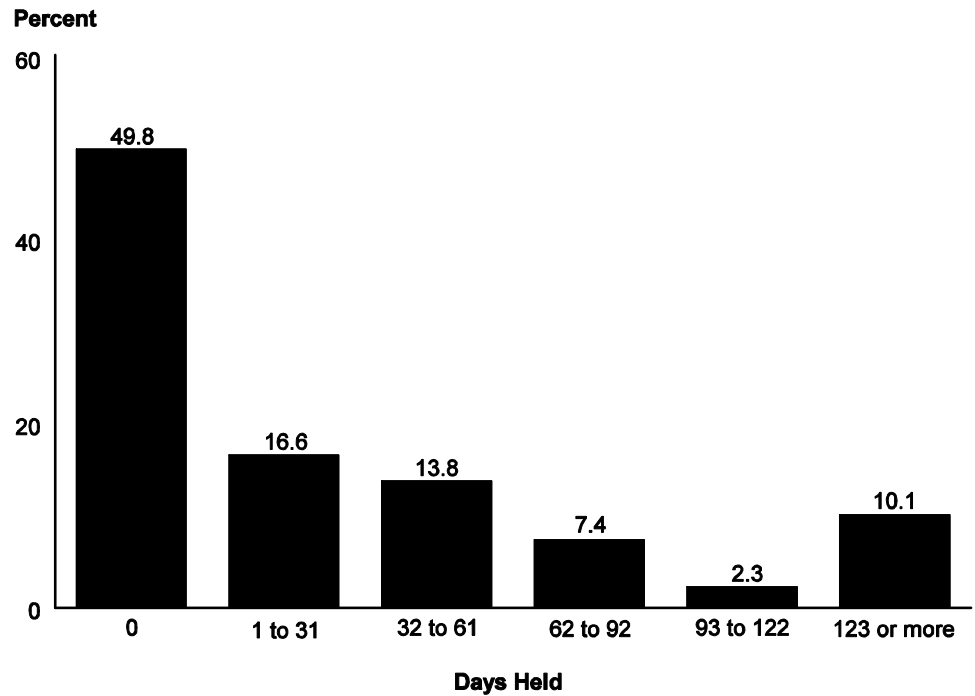
5. Weaning-to-sale interval

Many preconditioning programs incorporate a period of time in which weaned calves are held on the operation prior to sale. The length of this holding period varies with different preconditioning programs. Keeping calves on the operation during weaning eliminates the added stress of transportation and provides an opportunity to acclimate calves to eating from a feedbunk and drinking from a tank or other water sources. For operations that sold weaned calves for purposes other than breeding in 2007, a higher percentage of operations with 1 to 49 beef cows did not hold weaned calves compared with operations with 100 or more beef cows.

a. For operations that sold weaned calves intended for purposes other than breeding during 2007, percentage of operations by number of days weaned calves were held before leaving the operation, and by herd size:

Days Held	Percent Operations									
	Herd Size (Number of Beef Cows)									
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
0	56.0	(4.7)	44.8	(6.0)	27.0	(6.1)	34.0	(5.4)	49.8	(3.3)
1 to 31	15.4	(3.7)	19.9	(5.3)	21.2	(5.0)	12.4	(3.4)	16.6	(2.7)
32 to 61	12.2	(2.7)	12.8	(4.1)	25.6	(5.7)	16.0	(3.9)	13.8	(2.0)
62 to 92	5.6	(2.0)	10.4	(4.0)	12.4	(3.2)	9.1	(2.4)	7.4	(1.6)
93 to 122	1.0	(0.8)	3.9	(1.8)	4.7	(2.2)	8.1	(2.5)	2.3	(0.7)
123 or more	9.8	(2.6)	8.2	(2.7)	9.1	(2.7)	20.4	(3.9)	10.1	(1.8)
Total	100.0		100.0		100.0		100.0		100.0	

For Operations that Sold Weaned Calves Intended for Purposes Other than Breeding During 2007, Percentage of Operations by Number of Days Weaned Calves were Held Before Leaving the Operation



Of operations that sold weaned calves intended for purposes other than breeding in 2007, a higher percentage in the Southeast region (60.9 percent) did not hold weaned calves compared with operations in the West and Central regions (35.9 and 26.0 percent, respectively). Only 4.5 percent of operations in the Southeast region held weaned calves for 123 days or more.

b. For operations that sold weaned calves intended for purposes other than breeding during 2007, percentage of operations by number of days weaned calves were held before leaving the operation, and by region:

Days Held	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
0	35.9	(6.7)	26.0	(4.8)	60.9	(4.5)
1 to 31	16.7	(5.7)	14.5	(3.6)	17.4	(3.7)
32 to 61	9.0	(3.7)	23.8	(4.5)	10.5	(2.4)
62 to 92	7.4	(3.6)	13.3	(3.6)	5.1	(1.8)
93 to 122	2.0	(1.1)	4.0	(1.1)	1.6	(0.9)
123 or more	29.0	(5.1)	18.4	(4.1)	4.5	(2.2)
Total	100.0		100.0		100.0	

6. Average cow weight at time of sale

The average weight of cows intended for purposes other than breeding that were sold in 2007 was similar across herd sizes.

a. Average weight in pounds of cows intended for purposes other than breeding that were sold in 2007, by herd size:

Average Weight (lb)									
Herd Size (Number of Beef Cows)									
1-49		50-99		100-199		200 or More		All Operations	
Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error
1,091	(24)	1,145	(40)	1,145	(28)	1,151	(17)	1,133	(12)

The percentages of operations in each average-weight category for cows intended for purposes other than breeding that were sold in 2007 did not differ substantially across herd sizes.

b. Percentage of operations by average weight in pounds of cows intended for purposes other than breeding that were sold in 2007, and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Average Weight (lb)	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Less than 1,000	28.2	(4.9)	23.2	(5.8)	17.4	(4.6)	11.8	(3.7)	24.6	(3.2)
1,000 to 1,149	33.7	(6.3)	28.0	(5.9)	29.9	(5.4)	34.3	(5.1)	32.2	(4.0)
1,150 to 1,299	22.2	(5.5)	19.7	(4.9)	29.5	(5.7)	31.8	(4.8)	23.4	(3.6)
1,300 or more	15.9	(4.3)	29.1	(6.2)	23.2	(4.4)	22.1	(3.8)	19.8	(3.0)
Total	100.0		100.0		100.0		100.0		100.0	

Just 12.1 percent of operations in the Southeast region sold cows intended for purposes other than breeding that weighed an average of 1,300 pounds or more in 2007. In comparison, 32.8 percent of operations in the West region and 32.9 percent in the Central region sold cows that weighed an average of 1,300 pounds or more.

c. Percentage of operations by average weight in pounds of cows intended for purposes other than breeding that were sold in 2007, and by region:

Average Weight (lb)	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Less than 1,000	13.0	(8.9)	12.8	(4.1)	31.6	(4.7)
1,000 to 1,149	39.1	(8.4)	25.2	(4.7)	34.6	(5.9)
1,150 to 1,299	15.1	(4.0)	29.1	(4.7)	21.7	(5.2)
1,300 or more	32.8	(7.4)	32.9	(5.5)	12.1	(3.7)
Total	100.0		100.0		100.0	

7. Reasons for culling cows

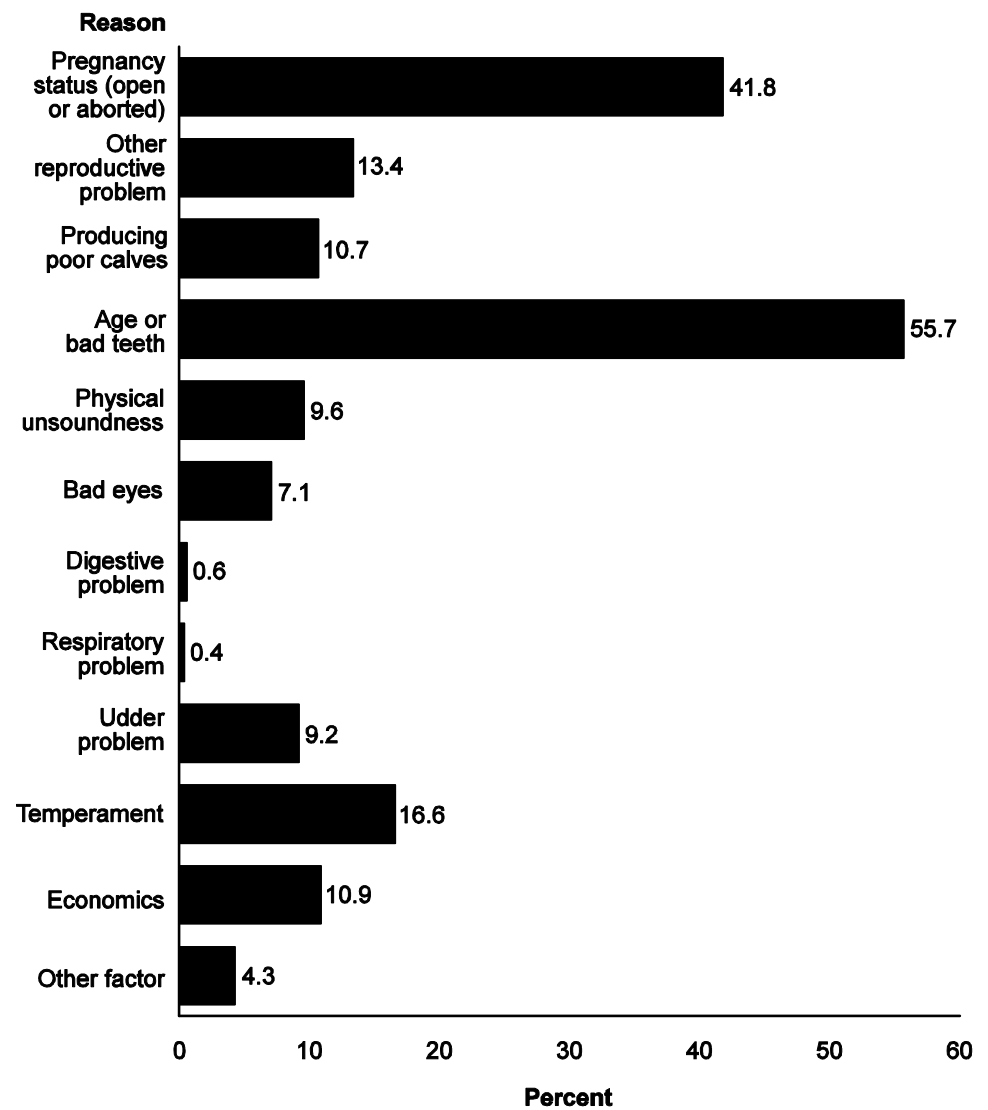
Cows leave operations for a variety of reasons. In some cases, culling can be viewed as elective when based on production characteristics of the cow. In other cases, culling is not elective when it is due to disease or physical unsoundness. The relative proportion of elective and nonelective culling can facilitate or limit progress in selecting animals that best contribute to operation profitability.

Nearly two of three operations (62.3 percent) sold cows for purposes other than breeding (see table a., p 9). The highest percentages of these operations sold cows (culls) because of age or bad teeth, and pregnancy status (55.7 and 41.8 percent of operations, respectively). The percentage of operations that sold at least one cull cow in 2007 because of pregnancy status ranged from 25.0 percent of operations with 1 to 49 beef cows to 83.6 percent of operations with 200 or more beef cows. In general, the percentage of operations that sold at least one cull cow in 2007 for physical unsoundness, bad eyes, udder problems, or producing a poor calf increased as herd size increased.

a. For operations that sold at least one cow intended for purposes other than breeding (culls) in 2007, percentage of operations by reason for sale and by herd size:

Reason	Percent Operations									
	Herd Size (Number of Beef Cows)									
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Pregnancy status (open or aborted)	25.0	(5.3)	61.4	(6.5)	66.1	(5.5)	83.6	(3.9)	41.8	(3.7)
Other reproductive problem	12.5	(4.4)	9.9	(3.8)	25.3	(5.0)	11.4	(2.9)	13.4	(2.8)
Producing poor calves	7.8	(2.8)	8.5	(4.1)	18.8	(4.8)	26.4	(4.7)	10.7	(2.0)
Age or bad teeth	50.2	(6.5)	62.8	(6.5)	64.0	(5.5)	67.9	(4.7)	55.7	(4.3)
Physical unsoundness (e.g., injury or lameness)	5.4	(2.6)	8.9	(3.4)	18.1	(4.0)	31.6	(4.7)	9.6	(1.8)
Bad eyes	5.3	(2.4)	6.5	(3.6)	8.8	(2.9)	20.2	(4.3)	7.1	(1.7)
Digestive problem	0.3	(0.3)	0.0	(--)	3.1	(1.9)	1.2	(0.8)	0.6	(0.3)
Respiratory problem	0.0	(--)	0.0	(--)	1.2	(0.8)	3.3	(1.7)	0.4	(0.2)
Udder problem	3.9	(2.3)	13.8	(4.7)	14.6	(4.8)	30.0	(4.8)	9.2	(1.8)
Temperament	14.8	(4.9)	15.0	(4.5)	22.5	(5.4)	26.0	(4.8)	16.6	(3.1)
Economics (drought, herd reduction, market conditions)	15.2	(4.7)	3.5	(2.7)	3.2	(1.6)	8.1	(2.4)	10.9	(2.9)
Other factor	3.9	(2.4)	6.9	(3.8)	4.4	(2.0)	1.0	(0.5)	4.3	(1.7)

For Operations that Sold at Least One Cow Intended for Purposes Other than Breeding (Culls) in 2007, Percentage of Operations by Reason for Sale



In general, the percentages of operations by reasons for selling at least one cull cow in 2007 did not differ substantially across regions. However, in the Southeast region, 32.1 percent of operations culled cows because of pregnancy status compared with 54.0 percent in the West region and 59.6 percent in the Central region.

b. For operations that sold at least one cow intended for purposes other than breeding (culls) in 2007, percentage of operations by reason for sale and by region:

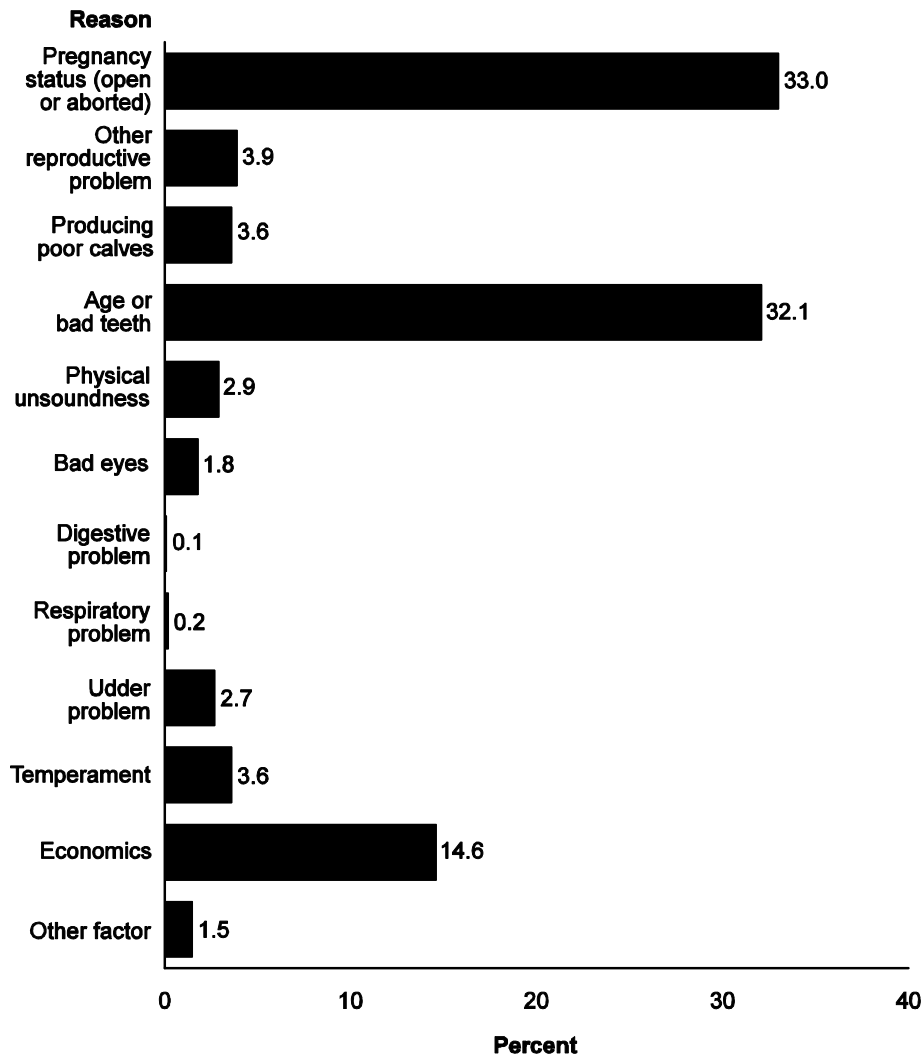
Reason	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Pregnancy status (open or aborted)	54.0	(8.9)	59.6	(5.7)	32.1	(5.0)
Other reproductive problem	16.9	(6.6)	20.4	(4.6)	9.8	(3.9)
Producing poor calves	8.6	(2.4)	7.1	(2.5)	12.6	(3.0)
Age or bad teeth	47.7	(8.2)	59.6	(5.8)	55.0	(6.2)
Physical unsoundness (e.g., injury or lameness)	15.1	(3.4)	15.1	(3.9)	6.4	(2.2)
Bad eyes	21.3	(9.2)	6.5	(3.0)	5.5	(1.8)
Digestive problem	0.2	(0.2)	1.0	(0.6)	0.6	(0.4)
Respiratory problem	1.1	(0.6)	1.0	(0.5)	0.0	(0.0)
Udder problem	9.4	(2.5)	10.9	(2.3)	8.4	(2.7)
Temperament	12.5	(4.6)	17.4	(3.6)	16.9	(4.7)
Economics (drought, herd reduction, market conditions)	5.8	(2.9)	4.5	(2.0)	14.5	(4.5)
Other factor	6.1	(2.5)	2.6	(1.3)	4.9	(2.5)

The highest percentages of cows were culled for pregnancy status (33.0 percent), age or bad teeth (32.1 percent), and economics (14.6 percent). A higher percentage of cull cows on operations with 50 or more beef cows were sold because of pregnancy status than on operations with 1 to 49 beef cows. Of cull cows sold on operations with 1 to 49 beef cows, about one of three (32.9 percent) were sold for economic reasons. In comparison, approximately 1 of 20 cull cows on operations with 50 to 99 and 200 or more beef cows (5.8 and 5.7 percent, respectively) were sold for economic reasons.

c. For cows sold for purposes other than breeding (culls) in 2007, percentage of cows sold, by reason for sale and by herd size:

Reason	Percent Cows									
	Herd Size (Number of Beef Cows)									
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Pregnancy status (open or aborted)	14.9	(4.0)	34.8	(5.2)	31.6	(4.3)	47.0	(3.4)	33.0	(2.4)
Other reproductive problem	4.8	(2.2)	1.9	(0.8)	7.0	(1.9)	2.7	(1.0)	3.9	(0.8)
Producing poor calves	2.8	(1.1)	2.8	(1.3)	5.1	(1.7)	3.7	(0.7)	3.6	(0.6)
Age or bad teeth	33.2	(6.5)	36.9	(6.2)	31.0	(4.5)	29.0	(3.0)	32.1	(2.5)
Physical unsoundness (e.g., injury or lameness)	1.3	(0.6)	3.6	(2.1)	3.6	(1.0)	3.4	(0.5)	2.9	(0.5)
Bad eyes	1.3	(0.6)	3.3	(2.2)	1.1	(0.4)	1.7	(0.4)	1.8	(0.5)
Digestive problem	0.1	(0.1)	0.0	(--)	0.4	(0.2)	0.2	(0.1)	0.1	(0.1)
Respiratory problem	0.0	(--)	0.0	(--)	0.1	(0.1)	0.5	(0.3)	0.2	(0.1)
Udder problem	1.5	(0.9)	3.3	(1.2)	2.2	(0.8)	3.5	(0.6)	2.7	(0.4)
Temperament	3.9	(1.4)	6.6	(2.3)	2.4	(0.6)	2.2	(0.5)	3.6	(0.7)
Economics (drought, herd reduction, market conditions)	32.9	(8.7)	5.8	(5.4)	14.0	(8.0)	5.7	(1.6)	14.6	(3.5)
Other factor	3.3	(2.4)	1.0	(0.6)	1.5	(0.7)	0.4	(0.2)	1.5	(0.7)
Total	100.0		100.0		100.0		100.0		100.0	

**Percentage of Cows Sold for Purposes Other than Breeding (Culls),
by Reason for Sale**



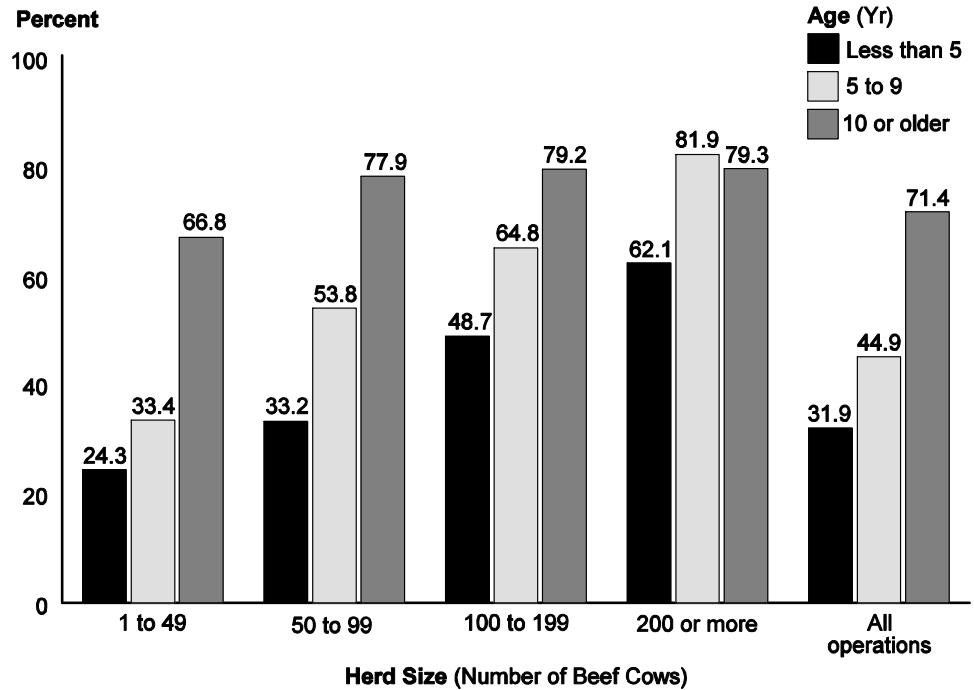
8. Age of cows at culling

For operations that sold at least one cull cow in 2007, a higher percentage of operations with 200 or more beef cows sold at least one cull cow less than 5 years of age and 5 to 9 years of age, compared with operations with fewer than 100 beef cows. A similar percentage of operations across herd sizes sold at least one cow 10 years of age or older.

a. For operations that sold at least one cow intended for purposes other than breeding (culls) in 2007, percentage of operations by age of cows at time of sale and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Age (yr)	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Less than 5	24.3	(5.8)	33.2	(6.4)	48.7	(5.9)	62.1	(5.5)	31.9	(3.9)
5 to 9	33.4	(5.7)	53.8	(6.7)	64.8	(5.9)	81.9	(4.3)	44.9	(3.9)
10 or older	66.8	(5.9)	77.9	(5.7)	79.2	(4.3)	79.3	(4.5)	71.4	(3.8)

For Operations that Sold at Least One Cow Intended for Purposes Other than Breeding (Culls) in 2007, Percentage of Operations by Age of Cows at Time of Sale and by Herd Size



For operations that sold at least one cull cow in 2007, a higher percentage of operations in the West region (73.6 percent) sold at least one cull cow 5 to 9 years of age compared with operations in the Southeast region (35.4 percent). Regionally, percentages of operations that sold cows less than 5 years of age and 10 years of age or older did not differ substantially.

b. For operations that sold at least one cow for purposes other than breeding (culls) in 2007, percentage of operations by age of cows at time of sale and by region:

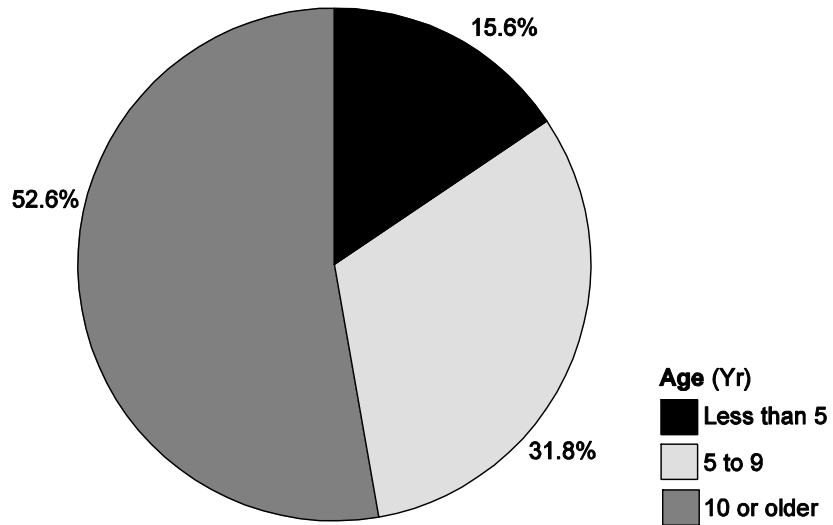
Age (yr)	Percent Operations					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Less than 5	46.7	(7.6)	38.4	(5.3)	27.0	(5.6)
5 to 9	73.6	(7.5)	57.5	(5.8)	35.4	(5.3)
10 or older	75.6	(7.7)	75.8	(4.6)	68.9	(5.5)

For operations that sold at least one cow in 2007 for purposes other than breeding (culls), over one-half of cows that were culled (52.6 percent) were 10 years of age or older. The percentages of cows culled in each age category were similar across herd sizes.

c. For operations that sold at least one cow for purposes other than breeding (culls) in 2007, percentage of cows by age of cows at time of sale and by herd size:

Percent Cows										
Herd Size (Number of Beef Cows)										
	1-49		50-99		100-199		200 or More		All Operations	
Age (yr)	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.
Less than 5	15.3	(4.7)	10.6	(3.0)	13.6	(2.2)	20.0	(2.0)	15.6	(1.7)
5 to 9	27.3	(5.4)	31.7	(4.9)	31.9	(4.6)	35.2	(2.5)	31.8	(2.2)
10 or older	57.4	(7.8)	57.7	(5.0)	54.5	(5.3)	44.8	(3.4)	52.6	(2.8)
Total	100.0		100.0		100.0		100.0		100.0	

Percentage of Cows Sold for Purposes other than Breeding (Culls) in 2007, by Age of Cows at time of Sale



The percentages of cows sold for purposes other than breeding (culls) in each age category were similar across regions.

d. Percentage of cows sold for purposes other than breeding (culls) in 2007, by age of cows at time of sale and by region:

Age (yr)	Percent Cows					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Less than 5	19.8	(3.1)	17.6	(1.7)	12.7	(3.0)
5 to 9	37.6	(4.3)	32.1	(2.8)	29.2	(3.7)
10 or older	42.6	(6.0)	50.3	(3.4)	58.1	(4.8)
Total	100.0		100.0		100.0	

B. Vaccination and Testing Practices

1. General vaccination practices

Vaccination is one management option for controlling the introduction or spread of infectious disease. Overall, almost 7 of 10 operations (68.9 percent) vaccinated any beef cattle or calves in 2007. A lower percentage of operations with 1 to 49 beef cows than operations with 50 or more beef cows vaccinated any beef cattle or calves.

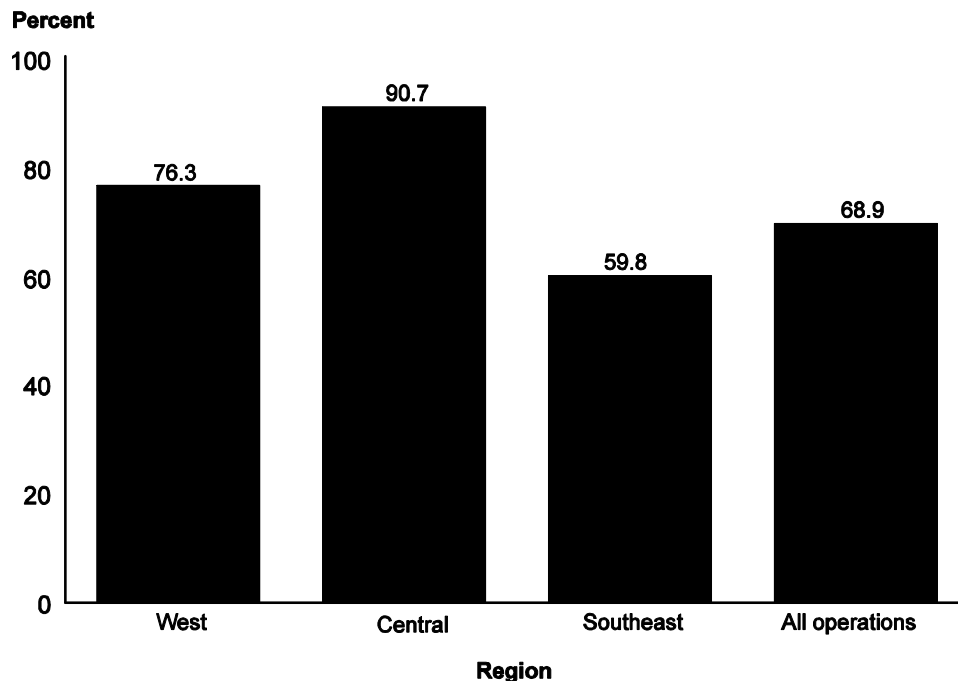
a. Percentage of operations that vaccinated any beef cattle or calves in 2007, by herd size:

Percent Operations									
Herd Size (Number of Beef Cows)									
1-49		50-99		100-199		200 or More		All Operations	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
59.4	(4.5)	86.6	(4.7)	95.9	(2.2)	92.1	(3.0)	68.9	(3.3)

A higher percentage of operations in the Central region (90.7 percent) vaccinated any beef cattle or calves in 2007 compared with operations in the Southeast region (59.8 percent).

b. Percentage of operations that vaccinated any beef cattle or calves in 2007, by region:

Percent Operations					
Region					
West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
76.3	(8.0)	90.7	(3.3)	59.8	(4.6)

Percentage of Operations that Vaccinated Any Beef Cattle or Calves in 2007, by Region

Calves 1 to 21 days of age were vaccinated with a 2- or 4-way clostridial vaccine or a *Cl. perfringens* type C and D toxoid on 8.1 and 6.3 percent of operations, respectively. A low percentage of operations vaccinated calves 1 to 21 days of age for any other pathogens.

Almost 6 of 10 operations (57.7 percent) gave a 2- or 4-way clostridial vaccine to calves 22 days of age through weaning. Similar percentages of operations gave vaccinations for infectious bovine rhinotracheitis (IBR) and bovine viral diarrhea (BVD) to calves 22 days of age through weaning (29.6 and 33.1 percent of operations, respectively). Also, similar percentages of operations gave vaccinations for parainfluenza 3 virus (PI3V) and bovine respiratory syncytial virus (BRSV) to calves 22 days of age through weaning (26.6 and 25.4 percent of operations, respectively). This pattern of vaccination is probably due to the fact that vaccines for IBR, BVD, PI3V, and BRSV are commonly packaged together in one injection.

A relatively low percentage of operations gave vaccinations for *Brucella abortus* to calves 22 days of age through weaning and weaned replacements through breeding (6.4 and 14.8 percent of operations, respectively). Similar percentages of operations gave vaccinations for IBR, BVD, PI3V, BRSV, and *Leptospira* to weaned replacement heifers through breeding.

About 3 of 10 operations vaccinated cows for *Leptospira* and BVD (31.7 and 28.1 percent, respectively), and about 1 of 4 operations vaccinated cows for IBR (24.6 percent). About 2 of 10 operations vaccinated cows for PI3V, BRSV, and *Campylobacter* (22.6, 21.1, and 19.0 percent, respectively). Vaccination percentages for bulls were similar to those for cows.

c. Percentage of operations by type of vaccine used for any beef cattle or calves in 2007, and by cattle class:

Vaccine Type	Percent Operations					
	Cattle Class					
	Calves 1-21 Days	Calves 22 Days Through Weaning	Weaned Replace- ment Heifers Through Breeding	Bred Replace- ment Heifers Through Calving	Cows	Bulls
	Percent (Std. Err.)	Percent (Std. Err.)	Percent (Std. Err.)	Percent (Std. Err.)	Percent (Std. Err.)	Percent (Std. Err.)
General (respiratory and/or reproductive)						
Infectious bovine rhinotracheitis, rednose (IBR)	2.1 (0.7)	29.6 (2.6)	19.4 (2.0)	11.9 (1.5)	24.6 (2.4)	18.2 (2.0)
Bovine viral diarrhea (BVD)	3.0 (0.9)	33.1 (2.8)	25.1 (2.4)	13.7 (1.7)	28.1 (2.6)	24.3 (2.5)
<i>Histophilus somni</i>	0.4 (0.1)	16.6 (1.9)	9.3 (1.4)	5.3 (1.0)	7.9 (1.4)	5.5 (1.1)
Respiratory						
Parainfluenza 3 virus (PI3V)	2.0 (0.7)	26.6 (2.4)	19.3 (2.0)	11.1 (1.5)	22.6 (2.3)	17.6 (2.0)
Bovine respiratory syncytial virus (BRSV)	2.0 (0.8)	25.4 (2.3)	18.1 (2.0)	9.7 (1.4)	21.1 (2.2)	16.2 (2.0)
<i>Pasteurella/ Mannheimia</i>	1.2 (0.5)	12.6 (1.5)	5.9 (1.0)	3.0 (0.7)	4.5 (0.9)	3.1 (0.8)

c. (continued) Percentage of operations by type of vaccine used for any beef cattle or calves in 2007, and by cattle class:

Vaccine Type	Percent Operations					
	Cattle Class					
	Calves 1-21 Days	Calves 22 Days Through Weaning	Weaned Replace- ment Heifers Through Breeding	Bred Replace- ment Heifers Through Calving	Cows	Bulls
	Percent (Std. Err.)	Percent (Std. Err.)	Percent (Std. Err.)	Percent (Std. Err.)	Percent (Std. Err.)	Percent (Std. Err.)
Reproductive						
<i>Brucella abortus</i>	NA	6.4 (1.9)	14.8 (2.0)	2.8 (0.8)	1.0 (0.4)	NA
<i>Leptospira</i>	NA	10.5 (2.0)	19.9 (2.3)	15.1 (1.9)	31.7 (2.8)	21.2 (2.3)
<i>Campylobacter (vibrio)</i>	NA	NA	12.6 (1.7)	10.0 (1.5)	19.0 (2.0)	13.3 (1.7)
<i>Trichostrongylus axei</i>	NA	NA	0.7 (0.3)	0.9 (0.3)	1.0 (0.3)	0.7 (0.3)
<i>Neospora</i>	NA	NA	NA	0.4 (0.2)	0.3 (0.2)	NA
Clostridial						
<i>Clostridium chauvoei</i> (blackleg) and/or <i>Cl. septicum</i> (malignant edema) and/or <i>Cl. novyi</i> and/or <i>Cl. sordellii</i> (2- or 4-way)	8.1 (1.4)	57.7 (3.4)	24.8 (2.6)	8.1 (1.3)	14.5 (2.0)	10.1 (1.6)
<i>Cl. perfringens</i> C and D (enterotoxemia, overeating)	6.3 (1.2)	33.8 (3.0)	12.2 (1.8)	6.7 (1.2)	11.6 (1.8)	8.2 (1.5)
<i>Cl. tetani</i> (tetanus)	1.8 (0.6)	17.6 (2.5)	4.7 (1.1)	2.1 (0.7)	5.7 (1.4)	3.6 (1.0)
Digestive						
Rota/Corona	0.9 (0.5)	0.2 (0.2)	1.3 (0.6)	4.8 (0.9)	5.3 (0.9)	NA
<i>E. coli</i>	0.5 (0.2)	0.7 (0.5)	0.9 (0.4)	4.9 (0.9)	5.5 (1.0)	NA
<i>Salmonella</i>	0.4 (0.2)	0.0 (0.0)	0.1 (0.1)	0.5 (0.3)	0.3 (0.2)	0.0 (0.0)
Other						
<i>Anaplasma</i>	0.0 (--)	0.0 (0.0)	0.1 (0.1)	0.0 (--)	0.2 (0.2)	0.3 (0.3)
Johne's	0.0 (--)	0.0 (--)	NA	NA	NA	NA
<i>Moraxella bovis</i> (pinkeye)	1.3 (0.7)	10.7 (1.7)	4.9 (1.1)	3.0 (0.9)	4.7 (1.1)	4.9 (1.1)
Wart virus	0.0 (0.0)	0.0 (--)	0.8 (0.6)	0.1 (0.1)	0.2 (0.2)	0.0 (--)
Any of the above	11.7 (1.7)	62.3 (3.4)	36.7 (3.0)	24.2 (2.4)	39.6 (3.1)	31.5 (2.9)

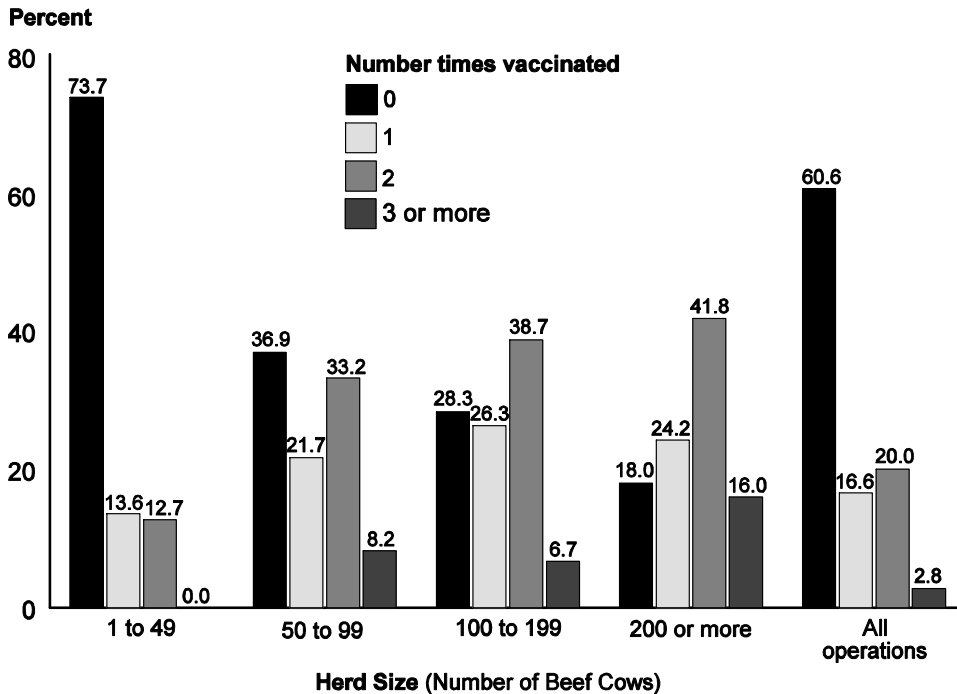
2. Calf respiratory disease vaccination

Vaccinating calves against respiratory disease is one way to reduce the occurrence of bovine respiratory disease (BRD) complex or shipping fever. Some preconditioning programs call for vaccinating calves a specified number of times within 30 to 14 days of weaning. A higher percentage of operations with 1 to 49 beef cows than operations with 50 or more beef cows did not vaccinate calves against respiratory disease from birth to sale. A higher percentage of operations with 50 or more beef cows vaccinated calves 2 or more times from birth and sale compared with operations with 1 to 49 beef cows.

a. Percentage of operations by number of times calves were typically vaccinated against respiratory disease from birth to sale, and by herd size:

Number of Times Vaccinated	Percent Operations									
	Herd Size (Number of Beef Cows)									
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
0	73.7	(3.7)	36.9	(6.2)	28.3	(6.4)	18.0	(4.4)	60.6	(3.0)
1	13.6	(2.7)	21.7	(5.1)	26.3	(4.6)	24.2	(4.0)	16.6	(2.2)
2	12.7	(2.7)	33.2	(5.4)	38.7	(5.7)	41.8	(5.0)	20.0	(2.2)
3 or more	0.0	(0.0)	8.2	(3.5)	6.7	(2.2)	16.0	(3.6)	2.8	(0.7)
Total	100.0		100.0		100.0		100.0		100.0	

Percentage of Operations by Number of Times Calves were Typically Vaccinated Against Respiratory Disease from Birth to Sale, and by Herd Size



A higher percentage of operations in the Central region vaccinated calves against respiratory disease than operations in the Southeast region (66.9 and 26.7 percent, respectively).

b. Percentage of operations by number of times calves were typically vaccinated against respiratory disease from birth to sale, and by region:

	Percent Operations					
	Region					
	West		Central		Southeast	
Number of Times Vaccinated	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
0	42.5	(7.8)	33.1	(5.1)	73.3	(3.6)
1	26.1	(7.0)	30.1	(4.6)	10.3	(2.4)
2	28.9	(6.0)	30.7	(4.3)	14.8	(2.8)
3 or more	2.5	(0.9)	6.1	(1.8)	1.6	(0.7)
Total	100.0		100.0		100.0	

On operations with 1 to 49 beef cows, 63.9 percent of calves were **not** vaccinated against respiratory disease before being sold. On operations with 200 or more beef cows, 50.0 percent of calves were vaccinated twice against respiratory disease before being sold, and 17.3 percent were vaccinated 3 or more times.

c. Percentage of calves by number of times calves were typically vaccinated against respiratory disease from birth to sale, and by herd size:

Percent Calves										
Herd Size (Number of Beef Cows)										
Number of Times Vaccinated	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
0	63.9	(5.1)	31.7	(5.6)	27.4	(6.3)	11.9	(3.5)	30.9	(2.6)
1	19.3	(3.9)	21.8	(5.0)	29.8	(5.1)	20.8	(3.5)	22.5	(2.1)
2	16.8	(4.1)	36.9	(5.7)	35.1	(5.4)	50.0	(5.0)	36.7	(2.8)
3 or more	0.0	(0.0)	9.6	(4.2)	7.7	(2.6)	17.3	(3.7)	9.9	(1.7)
Total	100.0		100.0		100.0		100.0		100.0	

A higher percentage of calves in the Southeast region were not vaccinated against respiratory disease (51.7 percent) compared with calves in the West and Central regions (13.2 and 15.4 percent, respectively).

d. Percentage of calves by number of times calves were typically vaccinated against respiratory disease from birth to sale, and by region:

	Percent Calves					
	Region					
	West		Central		Southeast	
Number of Times Vaccinated	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
0	13.2	(3.1)	15.4	(2.9)	51.7	(4.8)
1	26.7	(4.9)	27.7	(3.6)	16.2	(3.0)
2	50.2	(5.7)	43.0	(4.2)	25.9	(4.6)
3 or more	9.9	(3.1)	13.9	(3.2)	6.2	(2.3)
Total	100.0		100.0		100.0	

Of the 39.4 percent of operations that vaccinated calves against respiratory disease before sale, a higher percentage with 100 or more beef cows than those with 1 to 49 beef cows vaccinated calves 30 to 14 days before weaning. The percentages of operations that vaccinated calves against respiratory disease were similar across herd sizes and all other time periods relative to weaning and sale.

e. For operations that vaccinated calves against respiratory disease before sale, percentage of operations by when calves were vaccinated and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
	1-49		50-99		100-199		200 or More		All Operations	
Vaccinated . . .	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
After weaning but before sale	27.4	(6.7)	24.9	(6.0)	39.5	(6.3)	27.6	(4.6)	28.9	(3.7)
At weaning	30.2	(6.7)	47.6	(7.4)	40.8	(6.1)	44.6	(5.3)	38.1	(4.0)
Less than 14 days prior to weaning	10.3	(4.2)	12.1	(4.8)	11.9	(3.8)	11.3	(3.3)	11.2	(2.4)
30 to 14 days prior to weaning	12.9	(4.7)	24.9	(6.0)	36.1	(6.0)	39.0	(5.0)	22.8	(3.0)
From birth through 31 days prior to weaning	51.4	(7.7)	51.4	(7.4)	40.8	(5.7)	53.2	(5.3)	49.8	(4.2)

For operations that vaccinated calves against respiratory disease before sale, a higher percentage of operations in the West region than in the Southeast region vaccinated calves 30 to 14 days prior to weaning (41.1 and 12.0 percent, respectively).

f. For operations that vaccinated calves against respiratory disease before sale, percentage of operations by when calves were vaccinated and by region:

	Percent Operations					
	Region					
	West		Central		Southeast	
Vaccinated . . .	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
After weaning but before sale	10.8	(4.6)	28.5	(5.0)	34.2	(6.7)
At weaning	29.6	(7.4)	42.4	(5.7)	36.4	(6.5)
Less than 14 days prior to weaning	10.8	(4.6)	12.6	(3.4)	9.9	(4.1)
30 to 14 days prior to weaning	41.1	(9.3)	28.7	(4.5)	12.0	(3.9)
From birth through 31 days prior to weaning	55.6	(9.1)	43.9	(5.6)	53.7	(7.1)

3. Needle usage

The use of the same needle to inject multiple animals in a herd can transmit specific diseases and result in beef quality issues. For example, diseases such as anaplasmosis can be transmitted when a needle contaminated with blood is used on multiple animals. Also, if a needle becomes dull or develops a burr from repeated use it can cause muscle lesions, decreasing beef quality. The average number of cows vaccinated with the same needle increased as herd size increased, ranging from an average of 7.8 cows on operations with 1 to 49 beef cows to an average of 40.7 cows on operations with 200 or more beef cows.

a. Average number of cows vaccinated with the same needle, by herd size:

Average Number									
Herd Size (Number of Beef Cows)									
1-49		50-99		100-199		200 or More		All Operations	
Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error
7.8	(0.8)	18.4	(1.9)	24.6	(3.2)	40.7	(10.0)	15.4	(1.3)



Photo courtesy of Geni Wren, "Bovine Veterinarian" Magazine

The average number of cows vaccinated with the same needle was higher in the Central region than in the Southeast region (20.4 and 12.0 cows, respectively).

b. Average number of cows vaccinated with the same needle, by region:

Average Number					
Region					
West		Central		Southeast	
Average	Std. Error	Average	Std. Error	Average	Std. Error
19.6	(2.9)	20.4	(1.6)	12.0	(1.3)

A higher percentage of operations with 200 or more beef cows than operations with 1 to 49 beef cows used the same needle to vaccinate more than 1 cow (99.9 and 81.7 percent of operations, respectively).

c. For operations that vaccinated cows, percentage of operations that used the same needle to vaccinate more than one cow, by herd size:

Percent Operations									
Herd Size (Number of Beef Cows)									
1-49		50-99		100-199		200 or More		All Operations	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
81.7	(6.1)	98.9	(1.1)	97.4	(2.5)	99.9	(0.1)	89.4	(3.5)

The percentage of operations that used the same needle on more than one cow but cleaned and/or disinfected the needle between animals was not substantially different across herd sizes.

d. For operations that used the same needle on more than one cow, percentage of operations that cleaned and/or disinfected the needle between animals, by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
	1-49		50-99		100-199		200 or More		All Operations	
Needle was . . .	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Cleaned between animals	22.1	(6.2)	18.0	(5.1)	10.8	(4.9)	6.9	(2.5)	17.8	(3.4)
Disinfected between animals	16.9	(5.4)	16.4	(5.0)	11.1	(4.9)	6.7	(3.5)	14.9	(3.1)
Cleaned and disinfected between animals	15.1	(5.2)	12.1	(4.5)	9.9	(4.8)	3.0	(1.4)	12.4	(2.9)

4. Clostridial vaccination practices

The use of any injectable product can result in beef quality issues when injections are administered in muscle. Historically, clostridial vaccinations have caused concern to advocates of beef quality assurance programs because of the muscle damage associated with some of these products. About two-thirds of all operations (66.9 percent) gave any clostridial vaccinations to any beef cows or calves. Compared with operations with 50 or more beef cows, a lower percentage of operations with 1 to 49 beef cows gave any clostridial vaccinations to any beef cows or calves.

a. Percentage of operations that gave any clostridial vaccinations (such as for blackleg) to any beef cows or calves in 2007, by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Cows	19.5	(3.4)	44.6	(6.2)	49.6	(6.0)	48.7	(5.1)	27.9	(2.8)
Calves	56.5	(4.5)	83.3	(5.0)	95.2	(2.3)	91.2	(3.1)	66.3	(3.3)
Any cows or calves	57.2	(4.5)	84.4	(4.9)	95.2	(2.3)	91.2	(3.1)	66.9	(3.3)

A higher percentage of operations in the Central region than in the Southeast region gave any clostridial vaccinations to any beef cows or calves in 2007 (88.1 and 57.8 percent, respectively).

b. Percentage of operations that gave any clostridial vaccinations (such as for blackleg) to any beef cows or calves in 2007, by region:

	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Cows	45.6	(7.1)	31.2	(4.5)	24.3	(3.7)
Calves	76.3	(7.4)	87.4	(3.7)	57.0	(4.6)
Any cows or calves	76.3	(7.4)	88.1	(3.7)	57.8	(4.6)

Overall, 8 of 10 operations (80.6 percent) typically gave clostridial vaccinations to cows subcutaneously. The percentages of operations that gave any clostridial vaccinations to any cows were similar by injection route and across herd sizes.

c. For operations that gave any clostridial vaccinations to any beef **cows** in 2007, percentage of operations by typical injection route and by herd size:

Injection Route	Percent Operations									
	Herd Size (Number of Beef Cows)									
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Intramuscular	22.9	(7.8)	18.2	(7.6)	14.1	(7.4)	13.7	(4.2)	19.4	(4.4)
Subcutaneous	77.1	(7.8)	81.8	(7.6)	85.9	(7.4)	86.3	(4.2)	80.6	(4.4)
Total	100.0		100.0		100.0		100.0		100.0	

Overall, 8 of 10 operations that gave clostridial vaccinations to calves (80.6 percent) gave them subcutaneously. The percentages of operations that gave any clostridial vaccinations to any calves were similar by injection route and by herd size.

d. For operations that gave any clostridial vaccinations to any beef **calves** in 2007, percentage of operations by typical injection route and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Injection Route	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Intramuscular	22.7	(4.8)	15.8	(4.7)	13.5	(4.5)	12.8	(3.3)	19.4	(3.0)
Subcutaneous	77.3	(4.8)	84.2	(4.7)	86.5	(4.5)	87.2	(3.3)	80.6	(3.0)
Total	100.0		100.0		100.0		100.0		100.0	

The Beef Quality Assurance (BQA) programs recommend that intramuscular injections be given in the muscles of the neck. Of the 5.4 percent of operations that gave any clostridial vaccinations intramuscularly to any cows (27.9 percent that gave clostridial vaccinations to cows x 19.4 percent that gave vaccinations intramuscularly = 5.4 percent), over two of three (68.2 percent) gave the injections in the neck.

e. For operations that gave any clostridial vaccinations **intramuscularly** to any **cows** in 2007, percentage of operations by typical injection location:

Injection Location	Percent Operations	Standard Error
Neck	68.2	(11.8)
Shoulder	13.9	(7.5)
Upper rear leg/hip	17.9	(10.3)
Total	100.0	

Of the 12.9 percent of operations that administered any clostridial vaccinations intramuscularly to any calves (66.3 percent that gave clostridial vaccinations to calves x 19.4 percent that gave vaccinations intramuscularly = 12.9 percent), over 7 of 10 (70.9 percent) gave the injections in the neck.

f. For operations that gave any clostridial vaccinations **intramuscularly** to any **calves** in 2007, percentage of operations by typical injection location:

Injection Location	Percent Operations	Standard Error
Neck	70.9	(7.3)
Shoulder	14.2	(5.1)
Side or rib	0.1	(0.1)
Upper rear leg/hip	14.8	(6.0)
Total	100.0	

Of the 22.5 percent of operations that gave any clostridial vaccinations subcutaneously to any cows (27.9 percent that gave clostridial vaccinations to cows x 80.6 percent that gave vaccinations subcutaneously = 22.5 percent), 96.6 percent gave the injections in the neck. The percentages of operations by injection location were similar across herd sizes.

g. For operations that gave any clostridial vaccinations **subcutaneously** to any **cows** in 2007, percentage of operations by typical injection location and by herd size:

Injection Location	Percent Operations									
	Herd Size (Number of Beef Cows)									
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Neck	96.3	(3.6)	96.9	(3.1)	97.7	(1.9)	95.3	(2.7)	96.6	(1.9)
Shoulder	3.7	(3.6)	3.1	(3.1)	2.3	(1.9)	0.7	(0.7)	3.0	(1.9)
Side or rib	0.0	(--)	0.0	(--)	0.0	(--)	2.1	(1.9)	0.2	(0.2)
Upper rear leg/hip	0.0	(--)	0.0	(--)	0.0	(--)	1.9	(1.9)	0.2	(0.2)
Total	100.0		100.0		100.0		100.0		100.0	

Of the 53.4 percent of operations that gave any clostridial vaccinations subcutaneously to any calves (66.3 percent that gave clostridial vaccinations to calves x 80.6 percent that gave vaccinations subcutaneously = 53.4 percent), nearly 9 of 10 (86.5 percent) gave the injections in the neck. The percentages of operations by injection location were similar across herd sizes.

h. For operations that gave any clostridial vaccinations **subcutaneously** to any **calves** in 2007, percentage of operations by typical injection location and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Injection Location	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Neck	83.0	(5.4)	94.6	(3.3)	89.8	(4.2)	84.1	(5.2)	86.5	(3.2)
Shoulder	14.4	(5.1)	5.4	(3.3)	8.9	(4.1)	8.5	(3.8)	11.2	(3.1)
Side or rib	0.7	(0.7)	0.0	(--)	1.3	(0.8)	2.5	(1.7)	0.8	(0.4)
Upper rear leg/hip	1.9	(1.8)	0.0	(--)	0.0	(--)	4.9	(3.8)	1.5	(1.1)
Total	100.0		100.0		100.0		100.0		100.0	

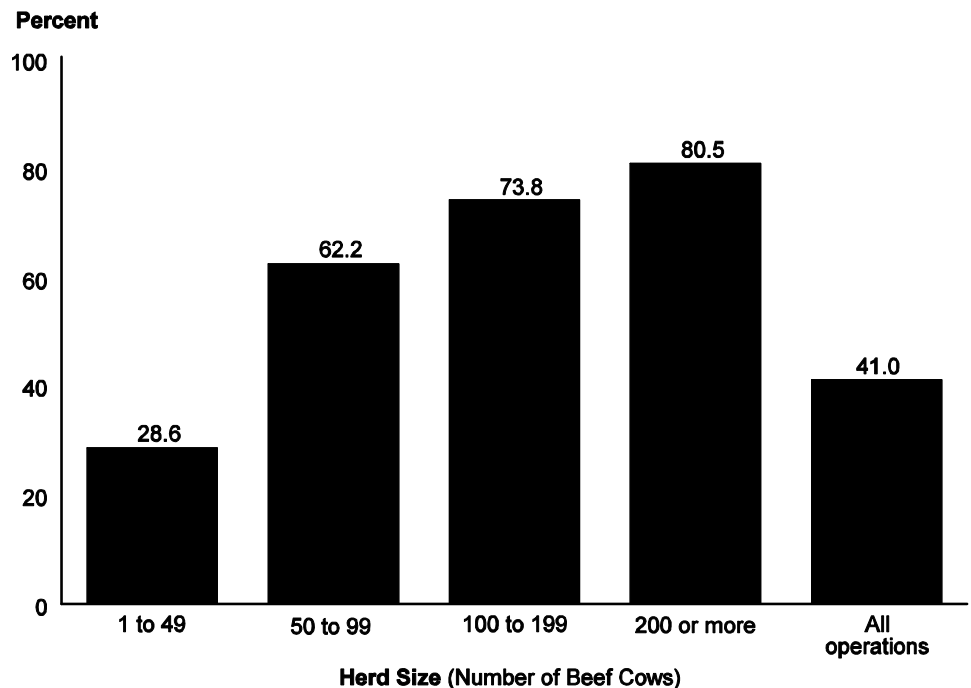
5. Bovine viral diarrhea (BVD) vaccination practices

About 4 of 10 operations (41.0 percent) vaccinated any cattle or calves against BVD in 2007. The percentage of operations that vaccinated any cattle or calves against BVD varied by herd size, ranging from 28.6 percent of operations with 1 to 49 beef cows to 80.5 percent of operations with 200 or more beef cows.

a. Percentage of operations that vaccinated any cattle or calves against BVD in 2007, by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Cattle	21.6	(3.4)	53.1	(6.3)	60.8	(5.7)	72.9	(4.7)	33.0	(2.8)
Calves	24.2	(3.6)	48.6	(6.1)	52.6	(6.0)	70.4	(4.9)	33.2	(2.8)
Any cattle or calves	28.6	(3.8)	62.2	(6.3)	73.8	(5.3)	80.5	(4.5)	41.0	(3.1)

Percentage of Operations that Vaccinated Any Cattle or Calves Against BVD in 2007, by Herd Size



A higher percentage of operations in the Central region (67.9 percent) and the West region (56.4 percent) vaccinated any cattle or calves against BVD compared with operations in the Southeast region (28.9 percent).

b. Percentage of operations that vaccinated any cattle or calves against BVD in 2007, by region:

	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Cattle	44.3	(7.0)	53.9	(5.2)	23.7	(3.4)
Calves	51.4	(87.5)	56.4	(5.2)	22.1	(3.4)
Any cattle or calves	56.4	(7.6)	67.9	(5.2)	28.9	(3.8)

Of operations that vaccinated any cattle or calves against BVD, the highest percentage (80.7 percent) vaccinated calves at 22 days of age through weaning, followed by weaned replacement heifers before breeding (61.2 percent), and bulls (59.0 percent). A higher percentage of operations with 200 or more beef cows (76.5 percent) vaccinated weaned replacement heifers before breeding compared with operations with 1 to 49 beef cows (50.5 percent). For all other listed cattle classes, the percentages of operations vaccinating were not substantially different across herd sizes.

c. For operations that vaccinated any cattle or calves against BVD in 2007, percentage of operations by cattle class vaccinated and by herd size:

Cattle Class	Percent Operations									
	Herd Size (Number of Beef Cows)									
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Calves 1 to 21 days of age	8.6	(3.9)	2.4	(2.1)	9.7	(3.6)	8.2	(2.7)	7.2	(2.1)
Calves 22 days of age through weaning	84.5	(5.5)	78.1	(6.0)	71.3	(7.7)	84.6	(4.4)	80.7	(3.4)
Weaned replacement heifers before breeding	50.5	(7.6)	69.9	(6.7)	70.2	(5.5)	76.5	(4.5)	61.2	(4.4)
Bred replacement heifers precalving	31.8	(6.6)	37.1	(6.7)	34.4	(6.0)	37.3	(5.2)	34.1	(3.8)
Cows prebreeding	46.8	(7.5)	42.6	(7.0)	39.1	(6.4)	47.2	(5.5)	44.5	(4.2)
Cows precalving	43.2	(7.4)	39.7	(6.8)	37.0	(6.2)	44.7	(5.3)	41.5	(4.1)
Bulls	66.7	(7.1)	58.0	(7.2)	50.9	(6.8)	42.5	(5.5)	59.4	(4.1)

The percentages of operations that vaccinated the listed cattle classes were not substantially different across regions.

d. For operations that vaccinated any cattle or calves against BVD in 2007, percentage of operations by cattle class vaccinated and by region:

Cattle Class	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Calves 1 to 21 days of age	4.7	(2.5)	10.7	(4.0)	4.8	(2.5)
Calves 22 days of age through weaning	90.8	(3.8)	82.4	(4.5)	76.5	(6.0)
Weaned replacement heifers before breeding	61.1	(9.5)	61.8	(5.5)	60.8	(7.5)
Bred replacement heifers precalving	47.2	(8.8)	30.4	(5.1)	33.9	(6.3)
Cows prebreeding	38.3	(8.3)	43.3	(5.5)	47.2	(7.3)
Cows precalving	53.3	(8.7)	35.0	(5.3)	44.0	(7.1)
Bulls	48.7	(8.8)	52.4	(5.6)	68.4	(6.8)

Of the 41.0 percent of operations that vaccinated any cattle or calves against BVD in 2007 (see table a., p 51), more than 8 of 10 used a vaccine that contained both type 1 and type 2 BVD virus on all cattle classes vaccinated. A higher percentage of operations used a killed virus vaccine than a modified live virus vaccine on bred replacement heifers before calving, on cows precalving, and on bulls.

e. For operations that vaccinated any cattle or calves against BVD in 2007, percentage of operations by cattle class vaccinated and by BVD vaccine type and virus genotype:

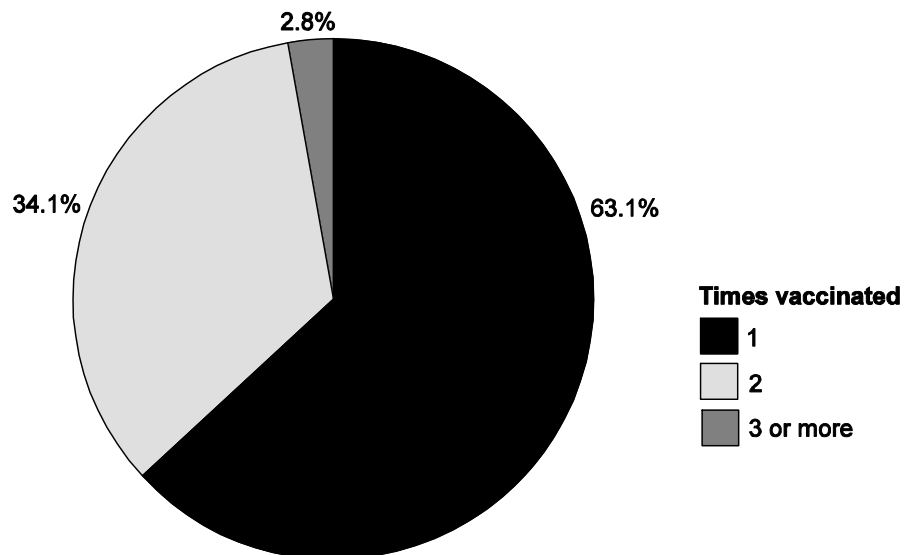
Cattle Class	Percent Operations							
	BVD Vaccine Type				Virus Genotype			
	Killed		Modified Live		Type 1 Only		Type 1 & 2	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	
Calves 1 to 21 days of age	59.2	(14.2)	40.8	(14.2)	15.5	(8.7)	84.5	(8.7)
Calves 22 days of age through weaning	54.5	(4.6)	45.5	(4.6)	16.4	(3.4)	83.6	(3.4)
Weaned replacement heifers before breeding	51.5	(5.1)	48.5	(5.1)	10.7	(3.0)	89.3	(3.0)
Bred replacement heifers precalving	70.5	(5.1)	29.5	(5.1)	13.6	(4.0)	86.4	(4.0)
Cows prebreeding	58.2	(6.0)	41.8	(6.0)	10.3	(3.6)	89.7	(3.6)
Cows precalving	71.3	(6.3)	28.7	(6.3)	13.0	(4.0)	87.0	(4.0)
Bulls	67.8	(5.4)	32.2	(5.4)	10.6	(3.0)	89.4	(3.0)

Of the 33.2 percent of operations that vaccinated any calves against BVD (see table a., p 51), more than 6 of 10 (63.1 percent) vaccinated calves at 22 days of age through weaning just once. The percentages of operations that vaccinated calves at 22 days of age through weaning were similar by number of times vaccinated and by herd size.

f. For operations that vaccinated any calves against BVD at 22 days of age through weaning in 2007, percentage of operations by number of times **calves** were vaccinated and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Number of Times Vaccinated	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
1	66.7	(8.5)	63.6	(8.9)	63.9	(6.4)	45.7	(6.0)	63.1	(4.7)
2	33.3	(8.5)	30.6	(7.7)	30.2	(5.8)	49.8	(6.1)	34.1	(4.7)
3 or more	0.0	(--)	5.8	(5.6)	5.9	(3.0)	4.5	(2.0)	2.8	(1.4)
Total	100.0		100.0		100.0		100.0		100.0	

For Operations that Vaccinated Any Calves Against BVD at 22 Days of Age Through Weaning in 2007, Percentage of Operations by Number of Times Calves Were Vaccinated



About 2 of 10 operations gave cows and bulls an annual booster vaccination (23.8 and 20.3 percent of operations, respectively). A higher percentage of operations with 50 or more cows gave booster vaccinations to cows compared with operations with 1 to 49 cows. The percentages of operations that gave booster vaccinations to bulls did not differ substantially across herd sizes.

g. Percentage of operations that gave an annual BVD booster injection to **cows** or **bulls** in 2007, by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Cattle Class	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Cows	15.9	(3.0)	37.7	(5.8)	41.9	(5.6)	54.0	(5.1)	23.8	(2.4)
Bulls	15.1	(3.0)	31.0	(5.4)	34.3	(5.4)	31.4	(4.8)	20.3	(2.3)

The percentage of operations that gave an annual booster vaccination to cows did not differ substantially across regions.

h. Percentage of operations that gave an annual BVD booster injection to **cows** or **bulls** in 2007, by region:

Percent Operations						
Region						
Cattle Class	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Cows	35.5	(6.4)	33.4	(4.5)	18.7	(3.1)
Bulls	22.6	(5.4)	26.9	(4.2)	17.6	(3.0)

Of operations that gave an annual BVD booster vaccination to cows or bulls in 2007, a higher percentage gave killed virus vaccine boosters to cows or bulls (64.4 and 69.0 percent, respectively) than gave modified live virus boosters (35.6 and 31.0 percent, respectively). A higher percentage of operations gave booster vaccines containing both Type 1 and Type 2 BVD to cows or bulls (88.3 and 86.4 percent, respectively) than gave BVD vaccine with Type 1 alone (11.7 and 13.6 percent, respectively).

i. For operations that gave an annual BVD booster injection to any cows or bulls in 2007, percentage of operations by cattle class and by BVD vaccine type and virus genotype:

Cattle Class	Percent Operations							
	BVD Vaccine Type				Virus Genotype			
	Killed		Modified Live		Type 1 Only		Type 1 & 2	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	
Cows	64.4	(4.8)	35.6	(4.8)	11.7	(3.3)	88.3	(3.3)
Bulls	69.0	(5.3)	31.0	(5.3)	13.6	(3.9)	86.4	(3.9)

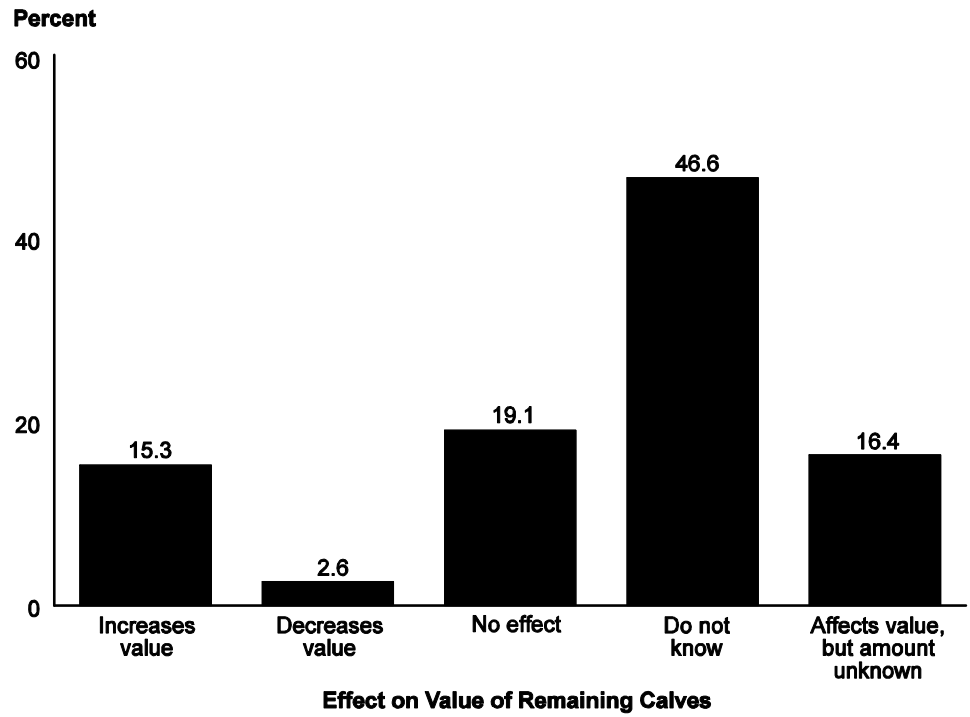
6. BVD testing practices

Animals that become persistently infected with BVD virus (BVDV) are likely to have health problems, die at an early age, and serve as a constant source of virus, possibly infecting other animals in the herd. Recently, there has been increased interest in screening animals for persistent infection with BVDV in order to facilitate disease control. About one of two operations (46.6 percent) did not know if removing persistently infected calves from the herd changed the value of the remaining calves. Similar percentages of operations believed removing persistently infected calves increased the value of the remaining calves, had no effect, or affected the value but by an unknown amount (15.3, 19.1, and 16.4 percent of operations, respectively). A small percentage of operations (2.6 percent) believed removing persistently infected calves decreased the value of the remaining calves.

a. Percentage of operations by how, according to producers, removing calves that test positive for persistent infection with BVDV affects the value of the remaining **calves** in the herd, and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Effect on Value of Remaining Calves	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Increases value	14.2	(3.1)	16.0	(4.1)	15.7	(3.4)	27.6	(4.7)	15.3	(2.3)
Decreases value	3.3	(2.0)	1.8	(1.8)	0.0	(--)	0.8	(0.7)	2.6	(1.4)
Has no effect	18.7	(3.6)	20.1	(4.9)	23.6	(6.4)	13.8	(3.3)	19.1	(2.7)
Do not know	48.8	(4.5)	46.6	(6.3)	37.3	(5.4)	32.6	(5.0)	46.6	(3.3)
Affects value, but amount unknown	15.0	(3.3)	15.5	(4.2)	23.4	(4.5)	25.2	(4.6)	16.4	(2.4)
Total	100.0		100.0		100.0		100.0		100.0	

Percentage of Operations by How, According to Producers, Removing Calves that Test Positive for Persistent Infection with BVDV Affects the Value of the Remaining Calves in the Herd



In the West region, 29.3 percent of operations believed that removing calves that tested positive for persistent infection with BVDV increased the value of the remaining calves, compared with just 12.0 percent of operations in the Southeast region. The highest percentage of operations in all three regions did not know how removing calves that tested positive for persistent infection with BVDV would affect the value of the remaining calves.

b. Percentage of operations by how, according to producers, removing calves that test positive for persistent infection with BVDV affects the value of the remaining **calves** in the herd, and by region:

	Percent Operations					
	Region					
	West		Central		Southeast	
Effect on Value of Remaining Calves	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Increases value	29.3	(5.6)	18.9	(3.8)	12.0	(3.0)
Decreases value	0.4	(0.4)	0.0	(0.0)	3.9	(2.2)
Has no effect	8.1	(2.4)	26.0	(4.8)	18.1	(3.6)
Do not know	47.1	(5.6)	39.8	(5.3)	49.0	(4.6)
Affects value, but amount unknown	15.1	(3.7)	15.3	(3.1)	17.0	(3.4)
Total	100.0		100.0		100.0	

Although the reported increase and decrease in the operation average value in dollars per head were similar, a much higher percentage of operations believed that removing calves persistently infected with BVDV would increase rather than decrease the value of the remaining calves in the herd (table a., p 59).

c. For operations that believed removing calves that tested positive for persistent infection with BVDV affected the value of the remaining calves in the herd, operation average (dollars per head) change in value:

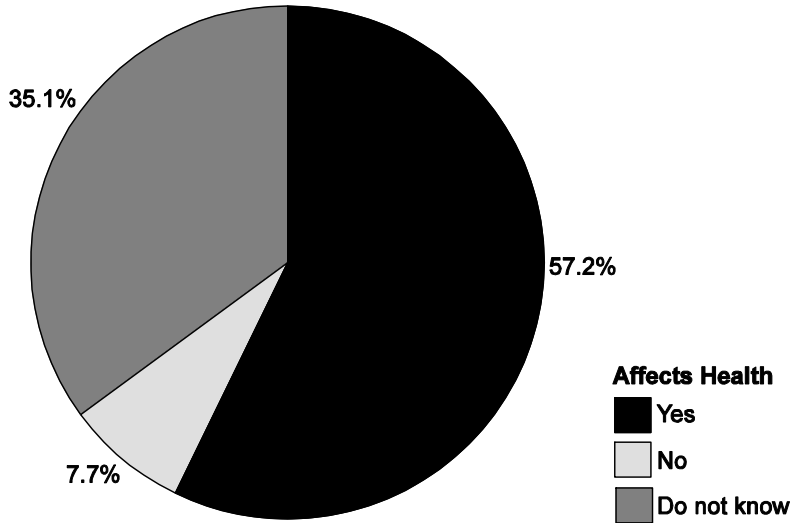
Change in Value	Operation Average (Dollars per Head)	Standard Error
Increase	32	(4.2)
Decrease	39	(7.6)

Nearly 6 of 10 operations (57.2 percent) believed that removing calves that tested positive for persistent infection with BVDV affected the health of the remaining cattle. Less than 1 of 10 operations (7.7 percent) believed that removing persistently infected calves did not affect the health of the remaining cattle. More than 3 of 10 operations (35.1 percent) did not know whether removing persistently infected calves affected the health of remaining cattle.

d. Percentage of operations by whether, according to producers, removing calves that test positive for persistent infection with BVDV affects the health of the remaining **cattle** in the herd, and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Affects Health	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Yes	53.4	(4.6)	67.9	(6.0)	57.7	(5.9)	74.1	(4.3)	57.2	(3.4)
No	7.6	(2.6)	9.6	(3.8)	7.1	(2.5)	4.2	(1.6)	7.7	(1.9)
Do not know	39.0	(4.4)	22.5	(5.2)	35.2	(6.0)	21.7	(4.1)	35.1	(3.2)
Total	100.0		100.0		100.0		100.0		100.0	

Percentage of Operations by Whether, According to Producers, Removing Calves that Test Positive for Persistent Infection with BVDV Affects the Health of the Remaining Cattle in the Herd



The majority of operations in all three regions believed that removing calves that test positive for persistent infection with BVDV affects the health of remaining cattle.

e. Percentage of operations by whether, according to producers, removing calves that test positive for persistent infection with BVDV affects the health of the remaining **cattle** in the herd, and by region:

Affects Health	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Yes	76.5	(6.5)	59.6	(5.1)	53.8	(4.6)
No	3.4	(1.5)	10.2	(3.4)	7.3	(2.5)
Do not know	20.1	(6.4)	30.2	(5.0)	38.9	(4.4)
Total	100.0		100.0		100.0	

Of operations that believed removing calves that tested positive for persistent infection with BVDV affected the health of the remaining cattle in the herd, the majority expected improved reproductive efficiency, reduced sickness and treatment costs, and reduced death loss (89.7, 96.9, and 95.7 percent of operations, respectively). Performance was the most common “other” expected health effect.

f. For operations that believed removing calves that tested positive for persistent infection with BVDV affected the health of the remaining **cattle** in the herd, percentage of operations by expected health effect and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Expected Health Effect	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Improved reproductive efficiency (fewer abortions, stillbirths)	88.1	(3.6)	95.5	(2.3)	87.1	(3.9)	91.9	(3.0)	89.7	(2.4)
Reduced sickness and/or treatment costs	95.9	(2.5)	98.5	(1.5)	99.3	(0.7)	98.9	(0.9)	96.9	(1.6)
Reduced death loss	95.3	(2.5)	98.6	(1.4)	94.5	(2.2)	93.2	(2.6)	95.7	(1.6)
Other	1.3	(0.9)	4.1	(1.9)	9.2	(4.5)	13.1	(4.7)	3.4	(0.9)

The percentages of operations that expected specific health benefits for their herd from removing calves persistently infected with BVDV were similar across regions.

g. For operations that believed removing calves that tested positive for persistent infection with BVDV affected the health of the remaining **cattle** in the herd, percentage of operations by expected health effect and by region:

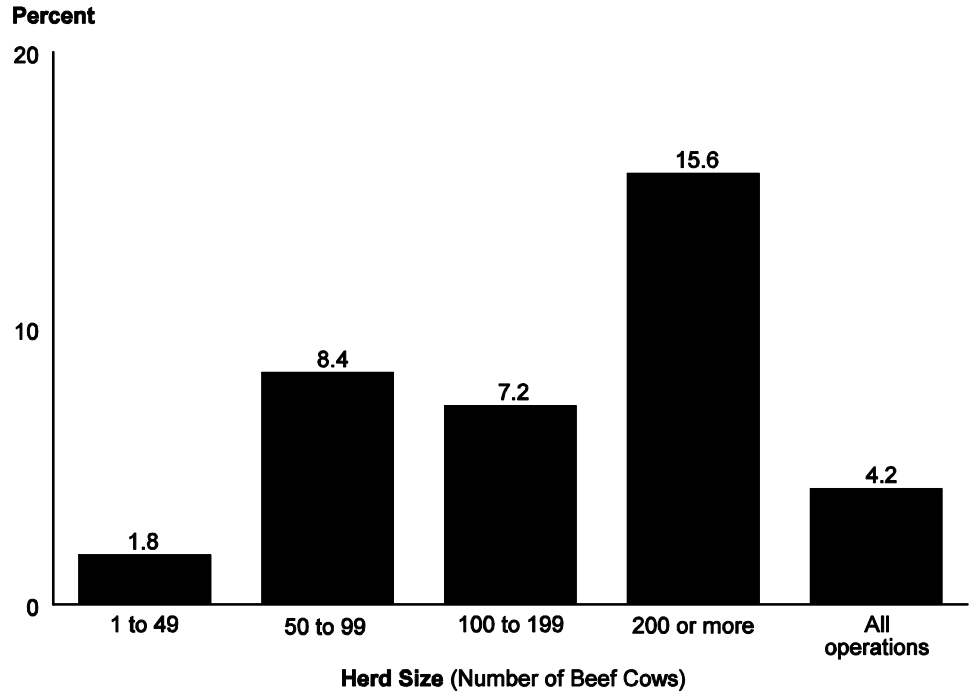
Expected Health Effect	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Improved reproductive efficiency (fewer abortions, stillbirths)	96.2	(1.8)	84.2	(5.0)	90.9	(3.2)
Reduced sickness and/or treatment costs	99.3	(0.6)	97.3	(1.9)	96.3	(2.5)
Reduced death loss	98.9	(0.7)	98.0	(1.2)	94.1	(2.6)
Other	2.1	(1.1)	5.0	(2.3)	3.0	(1.1)

The percentage of operations that tested any beef calves for persistent infection with BVDV during the previous 3 years ranged from 1.8 percent of operations with 1 to 49 cows to 15.6 percent of operations with 200 or more cows. Overall, less than 1 of 20 operations (4.2 percent) tested any beef calves for persistent infection with BVDV during the previous 3 years.

h. Percentage of operations that tested any **beef calves** for persistent infection with BVDV during the previous 3 years, by herd size:

	Percent Operations									
	Herd Size (Number of Beef Cows)									
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
	1.8	(1.2)	8.4	(3.1)	7.2	(2.2)	15.6	(4.0)	4.2	(1.0)

Percentage of Operations that Tested any Beef Calves for Persistent Infection with BVDV During the Previous 3 Years, by Herd Size



The percentage of operations that tested any beef calves for persistent infection with BVDV during the previous 3 years was similar across regions.

i. Percentage of operations that tested any **beef calves** for persistent infection with BVDV during the previous 3 years, by region:

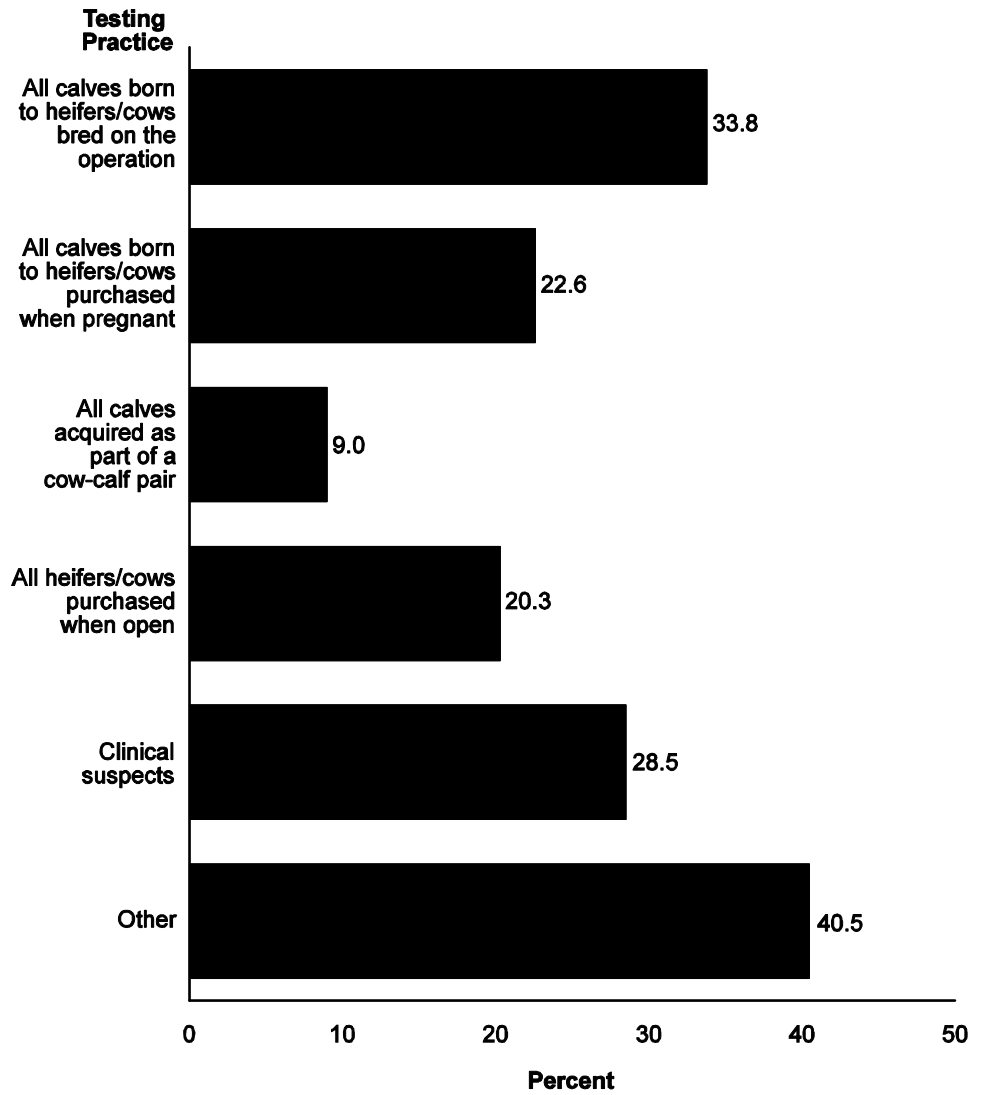
Percent Operations					
Region					
West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
7.0	(2.1)	5.1	(1.5)	3.4	(1.5)

Of operations that tested any beef calves for persistent infection with BVDV during the previous 3 years, approximately one of three (33.8 percent) tested all calves born to heifers or cows bred on the operation. More than 1 of 5 operations (22.6 percent) tested all calves born to heifers or cows purchased when pregnant, but fewer than 1 of 10 operations (9.0 percent) tested calves acquired as part of a cow-calf pair. The majority of operations (40.5 percent) reported “other” as a testing practice, which included primarily bulls and animals for show/sale.

j. For operations that tested any **beef calves** for persistent infection with BVDV during the previous 3 years and had the specified class of cattle, percentage of operations by testing practice:

Testing Practice	Percent Operations	Standard Error
All calves born to heifers/cows bred on the operation	33.8	(14.1)
All calves born to heifers/cows purchased when pregnant	22.6	(10.6)
All calves acquired as part of a cow-calf pair	9.0	(4.7)
All heifers/cows purchased when open	20.3	(10.1)
Clinical suspects	28.5	(9.6)
Other	40.5	(11.1)

For Operations that Tested any Beef Calves for Persistent Infection with BVDV During the Previous 3 Years and had the Specified Class of Cattle, Percentage of Operations by Testing Practice



Nearly three of four operations (73.5 percent) collected ear notches to test for persistent infection with BVDV.

k. For operations that tested any beef calves for persistent infection with BVDV during the previous 3 years, percentage of operations by sample type collected:

Sample Type	Percent Operations	Standard Error
Ear notch	73.5	(15.9)
Serum	35.1	(15.5)

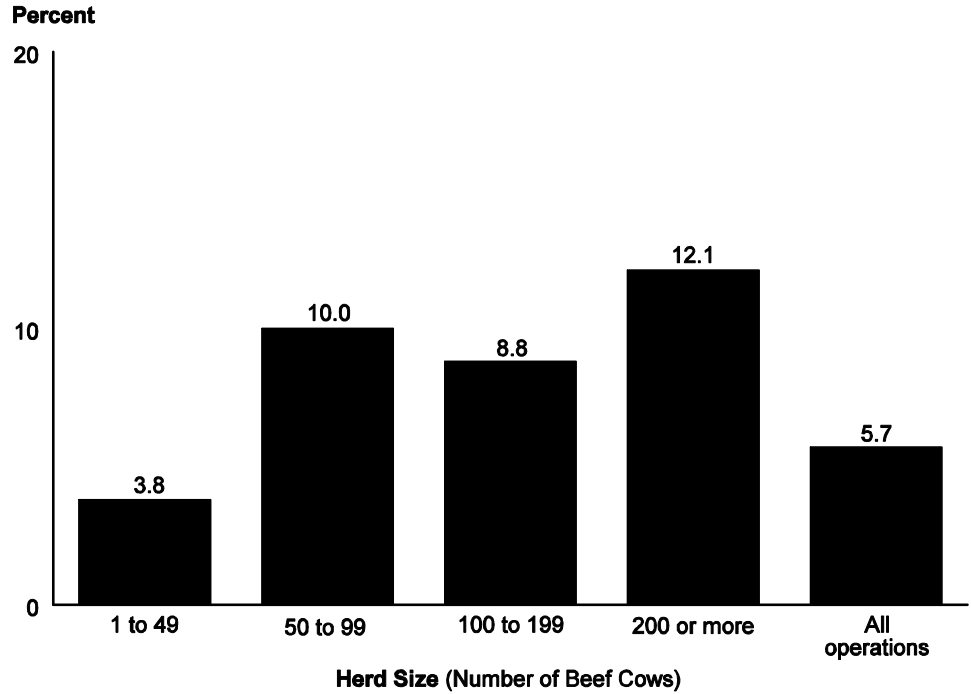
7. Parasite testing practices

Approximately 1 of 20 operations (5.7 percent) did any fecal testing to evaluate parasite burden during the previous 3 years. The percentage of operations that did fecal testing was similar across herd sizes.

a. Percentage of operations that did any fecal testing to evaluate parasite burden during the previous 3 years, by herd size:

Percent Operations									
Herd Size (Number of Beef Cows)									
1-49		50-99		100-199		200 or More		All Operations	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
3.8	(1.3)	10.0	(4.0)	8.8	(3.9)	12.1	(3.7)	5.7	(1.3)

Percentage of Operations that Did any Fecal Testing to Evaluate Parasite Burden During the Previous 3 Years, by Herd Size



The percentage of operations that did any fecal testing during the previous 3 years to evaluate parasite burden was similar across regions.

b. Percentage of operations that did any fecal testing to evaluate parasite burden during the previous 3 years, by region:

Percent Operations					
Region					
West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
5.3	(2.0)	7.7	(2.7)	5.1	(1.6)

C. Disease Control, Illness, and Deaths

1. Use of oral or injectable antibiotics for disease treatment

More than two of three operations (68.0 percent) used oral or injectable antibiotics to treat disease in any cattle or calves. Operations with 1 to 49 beef cows were less likely to use oral or injectable antibiotics to treat any cattle or calves than were operations with 50 or more beef cows. This difference could be a reflection of the decreased likelihood of disease occurrence when fewer animals are present, thereby decreasing the indication for antibiotic use for treatment.

a. Percentage of operations that used oral or injectable antibiotics to treat disease, by herd size:

Percent Operations									
Herd Size (Number of Beef Cows)									
1-49		50-99		100-199		200 or More		All Operations	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
58.2	(4.4)	89.1	(3.6)	90.8	(3.0)	92.4	(3.2)	68.0	(3.2)

The Southeast region had the highest percentage of operations that used oral or injectable antibiotics to treat disease.

b. Percentage of operations that used oral or injectable antibiotics to treat disease, by region:

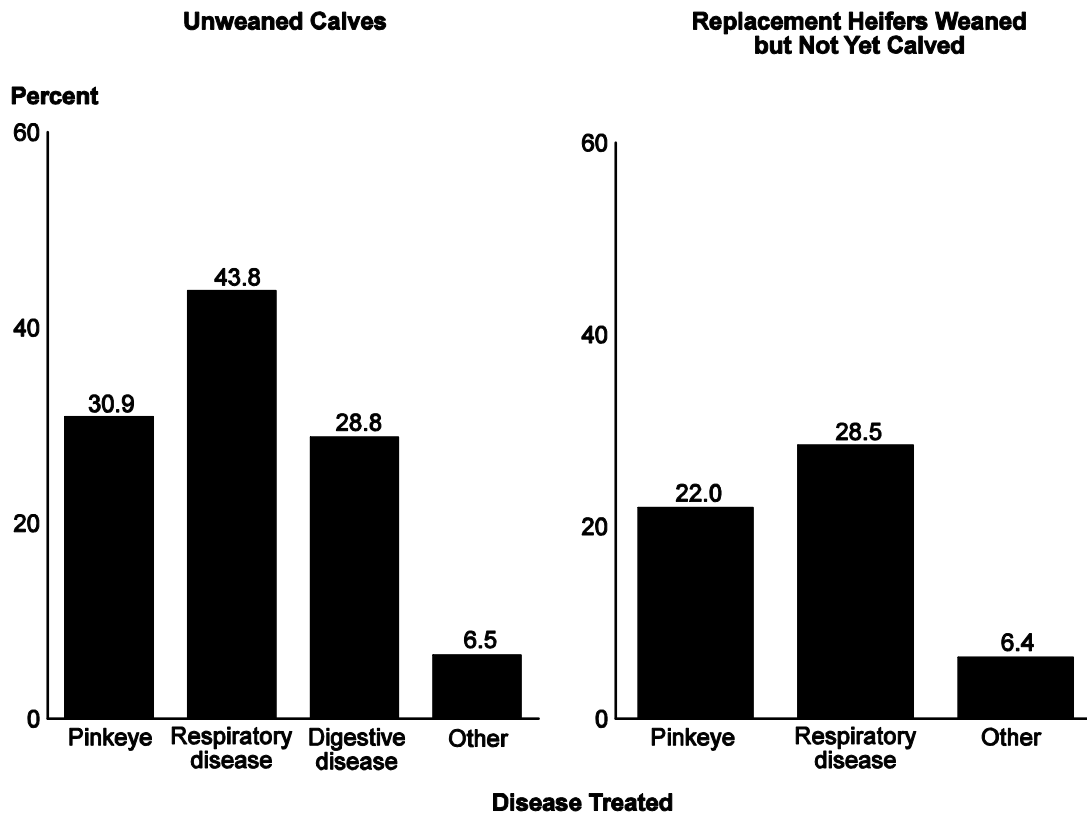
Percent Operations					
Region					
West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
76.3	(5.0)	86.1	(3.9)	60.2	(4.5)

A higher percentage of operations with 50 or more beef cows than operations with 1 to 49 beef cows used antibiotics to treat pinkeye and respiratory and digestive diseases in unweaned calves. Similarly, operations with 50 or more beef cows were more likely than operations with 1 to 49 beef cows to use oral or injectable antibiotics to treat replacement heifers for respiratory disease.

c. Percentage of operations that treated unweaned calves and replacement heifers weaned but not yet calved with oral or injectable antibiotics, by disease treated and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Disease	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Unweaned Calves										
Pinkeye	24.4	(3.7)	45.5	(6.2)	43.8	(5.8)	49.0	(5.4)	30.9	(2.9)
Respiratory disease	31.6	(4.0)	69.2	(5.8)	70.9	(6.1)	79.6	(4.2)	43.8	(3.2)
Digestive disease	20.8	(3.7)	46.5	(6.3)	41.4	(5.6)	57.8	(5.4)	28.8	(2.8)
Other	5.2	(1.7)	10.6	(3.4)	5.5	(2.0)	13.1	(3.6)	6.5	(1.3)
Replacement Heifers Weaned but not yet Calved										
Pinkeye	17.6	(3.2)	28.9	(5.4)	33.9	(5.4)	37.6	(5.3)	22.0	(2.5)
Respiratory disease	21.4	(3.5)	42.0	(6.4)	41.5	(5.7)	58.1	(5.2)	28.5	(2.8)
Other	4.0	(1.5)	11.5	(4.1)	11.0	(3.0)	14.6	(3.0)	6.4	(1.3)

Percentage of Operations that Treated Unweaned Calves and Replacement Heifers Weaned but not yet Calved with Oral or Injectable Antibiotics, by Disease Treated



A higher percentage of operations in the Central region used antibiotics to treat respiratory disease in unweaned calves compared with operations in the other two regions.

d. Percentage of operations that treated unweaned calves and replacement heifers weaned but not yet calved with oral or injectable antibiotics, by disease treated and by region:

Disease	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
	Unweaned Calves					
Pinkeye	30.2	(6.3)	44.7	(5.0)	25.8	(3.7)
Respiratory disease	39.4	(6.5)	66.9	(5.0)	35.8	(4.2)
Digestive disease	33.4	(6.1)	47.3	(5.0)	21.3	(3.6)
Other	10.3	(4.3)	8.7	(2.3)	5.1	(1.7)
	Replacement Heifers Weaned but not yet Calved					
Pinkeye	23.9	(5.7)	29.2	(4.6)	19.1	(3.2)
Respiratory disease	32.5	(6.0)	38.3	(4.9)	24.3	(3.6)
Other	6.7	(2.0)	8.9	(2.5)	5.4	(1.7)

Of operations that used oral or injectable antibiotics to treat specific diseases, the highest percentage cited the local veterinary practitioner as the primary influence when deciding which antibiotics to use.

e. For operations that used oral or injectable antibiotics to treat unweaned calves and replacement heifers weaned but not yet calved, percentage of operations by disease treated and by primary influence on decision about which antibiotics to use:

Percent Operations															
Primary Influence															
Disease	Trade Journals		Other Producers		Local Veterinary Practitioner		Consulting or Second-Opinion Veterinarian		Supplier of Antibiotics Other than Veterinarian		Other		No Other Influence		Total
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	
Unweaned Calves															
Pinkeye	0.1	(0.1)	3.1	(1.5)	63.9	(5.1)	3.0	(1.5)	13.2	(4.0)	3.9	(1.7)	12.8	(3.8)	100.0
Respiratory disease	0.1	(0.1)	4.4	(1.4)	66.1	(4.3)	4.5	(2.0)	11.2	(3.0)	2.4	(1.0)	11.3	(3.1)	100.0
Digestive disease	0.1	(0.1)	9.3	(4.9)	65.1	(5.7)	4.7	(1.9)	10.0	(3.2)	2.4	(1.1)	8.4	(3.5)	100.0
Other	0.0	(--)	3.3	(2.9)	56.3	(10.6)	5.6	(5.0)	14.1	(9.2)	1.5	(1.2)	19.2	(7.4)	100.0
Replacement Heifers Weaned but not yet Calved															
Pinkeye	0.1	(0.1)	4.4	(2.1)	62.2	(5.5)	4.0	(2.2)	12.8	(4.4)	7.6	(3.0)	8.9	(3.2)	100.0
Respiratory disease	1.1	(1.0)	9.0	(4.3)	65.2	(5.3)	4.3	(1.9)	10.8	(3.3)	2.8	(1.2)	6.8	(2.7)	100.0
Other	0.0	(--)	1.0	(0.8)	71.7	(9.6)	0.5	(0.4)	15.2	(9.2)	0.1	(0.1)	11.5	(4.5)	100.0

About 4 of 10 operations (40.2 percent) treated unweaned calves at least once with oral or injectable antibiotics.

f. Percentage of operations that treated any cattle or calves in 2007 at least once with oral or injectable antibiotics for any diseases or disorders, by cattle class:

Cattle Class	Percent Operations	Standard Error
Unweaned calves	40.2	(3.2)
Replacement heifers weaned but not yet calved	12.9	(2.0)
Cows	28.3	(2.9)

A higher percentage of younger animals (unweaned calves and replacement heifers) were treated than were mature cows.

g. Percentage of cattle or calves treated at least once with oral or injectable antibiotics for any diseases or disorders, by cattle class:

Cattle Class	Percent Animals*	Standard Error
Unweaned calves	7.2	(0.7)
Replacement heifers weaned but not yet calved	6.0	(1.3)
Cows	1.9	(0.3)

*Number of treated animals divided by inventory on October 1, 2007, for heifers and cows. For unweaned calves, the number treated was divided by the number of calves weaned or expected to be weaned in 2007.

On operations that used oral or injectable antibiotics in 2007 to treat affected/sick animals for any disease or disorder, 3.8 percent of unweaned calves were affected with respiratory disease, and most of these calves (97.0 percent) were treated with injectable antibiotics. A higher percentage of unweaned calves with respiratory disease and other disease were treated with injectable antibiotics than were treated with oral antibiotics.

h. For operations that treated any affected/sick cattle or calves in 2007 with oral or injectable antibiotics, percentage of **unweaned calves** on these operations that were affected/sick and percentage of these affected/sick calves that were treated with oral or injectable antibiotics, by disease or disorder treated:

Disease or Disorder	Percent Affected/Sick Calves Treated ² With . . .					
	Percent Affected/Sick Calves ¹		Oral Antibiotic		Injectable Antibiotic	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Respiratory	3.8	(0.6)	7.6	(2.3)	97.0	(1.5)
Diarrhea/scours or other digestive	3.5	(0.5)	60.6	(7.0)	57.4	(8.2)
Pinkeye	2.2	(0.5)	20.5	(15.7)	77.5	(15.4)
Navel infection	0.2	(0.1)	36.7	(19.9)	70.2	(21.5)
Other	0.2	(0.1)	19.3	(11.4)	94.0	(4.5)

¹Affected calves as a percentage of calves weaned or expected to be weaned during 2007.

²Treated calves as a percentage of calves affected.

On operations that used oral or injectable antibiotics in 2007 to treat affected/sick animals for any disease or disorder, 3.2 percent of replacement heifers were affected with respiratory disease, and the majority of these heifers (84.4 percent) were treated with injectable antibiotics. A higher percentage of replacement heifers with respiratory disease and lameness/footrot were treated with injectable antibiotics than were treated with oral antibiotics.

i. For operations that treated any affected/sick cattle or calves in 2007 with oral or injectable antibiotics, percentage of **replacement heifers** on these operations that were affected/sick and percentage of these affected/sick heifers that were treated with oral or injectable antibiotics, by disease or disorder treated:

Disease or Disorder	Percent Affected/Sick Heifers Treated ² With . . .					
	Percent Affected/Sick Heifers ¹		Oral Antibiotic		Injectable Antibiotic	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Respiratory	3.2	(0.7)	9.1	(4.3)	84.4	(9.1)
Diarrhea/other digestive	2.5	(1.7)	95.3	(4.1)	44.7	(32.5)
Pinkeye	2.1	(0.8)	46.7	(19.4)	53.3	(19.4)
Lameness/footrot	0.6	(0.1)	28.8	(12.3)	90.5	(5.4)
Other	0.0	(0.0)	5.6	(6.4)	100.0	(--)

¹ Affected heifers as a percentage of beef-cow replacement heifers, weaned or older, on the operations on October 1, 2007.

² Treated heifers as a percentage of heifers affected.

On operations that treated any cattle or calves with oral or injectable antibiotics, less than 1 of 100 cows was affected with any specific disease or disorder. For cows affected, a higher percentage received injectable antibiotics than oral antibiotics for all diseases and disorders.

j. For operations that treated any affected/sick cattle or calves in 2007 with oral or injectable antibiotics, percentage of **cows** on these operations that were affected/sick and percentage of these affected/sick cows that were treated with oral or injectable antibiotics, by disease or disorder treated:

Disease or Disorder	Percent Affected/Sick Cows Treated ² With . . .					
	Percent Affected/Sick Cows ¹		Oral Antibiotic		Injectable Antibiotic	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Respiratory	0.4	(0.1)	2.4	(1.6)	99.7	(0.2)
Diarrhea/other digestive	0.1	(0.0)	9.5	(5.5)	86.6	(8.1)
Pinkeye	0.9	(0.2)	14.0	(11.9)	81.3	(11.9)
Reproductive (retained placenta/uterine infection)	0.3	(0.1)	5.3	(2.8)	95.6	(3.0)
Abortion	0.0	(0.0)	13.5	(12.9)	73.0	(16.2)
Lameness/footrot	0.8	(0.1)	12.1	(4.4)	95.0	(2.7)
Other	0.1	(0.0)	0.8	(0.7)	79.9	(15.1)

¹ Affected cows as a percentage of beef cows on the operation October 1, 2007.

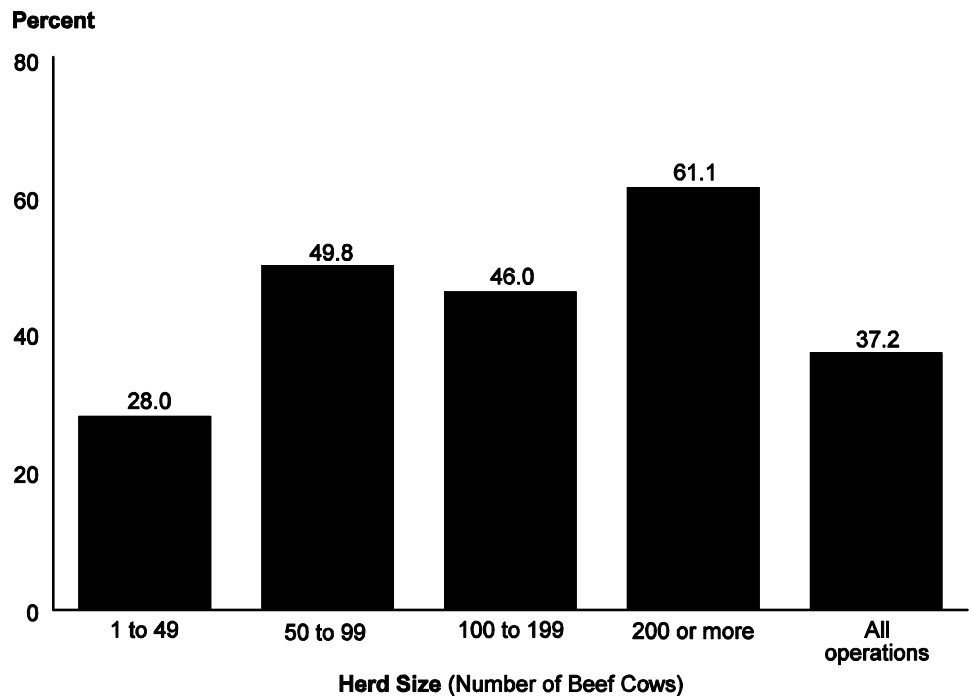
² Treated cows as a percentage of cows affected.

About 4 of 10 operations (37.2 percent) generally treated calves 7 days and older with antibiotics for diarrhea (scours). The percentage of operations that gave antibiotics to calves 7 days or older for diarrhea ranged from 28.0 percent of operations with 1 to 49 beef cows to 61.1 percent of operations with 200 or more beef cows.

k. Percentage of operations that generally treated calves 7 days and older with antibiotics for diarrhea (scours), by herd size:

Percent Operations									
Herd Size (Number of Beef Cows)									
1-49		50-99		100-199		200 or More		All Operations	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
28.0	(5.2)	49.8	(6.8)	46.0	(6.1)	61.1	(4.7)	37.2	(3.5)

Percentage of Operations that Generally Treated Calves 7 Days and Older with Antibiotics for Diarrhea (Scours), by Herd Size



The percentage of operations that generally treated calves 7 days and older with antibiotics for diarrhea did not differ substantially across regions.

I. Percentage of operations that generally treated calves 7 days and older with antibiotics for diarrhea (scours), by region:

Percent Operations					
Region					
West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
48.5	(6.2)	47.3	(5.5)	29.9	(5.0)

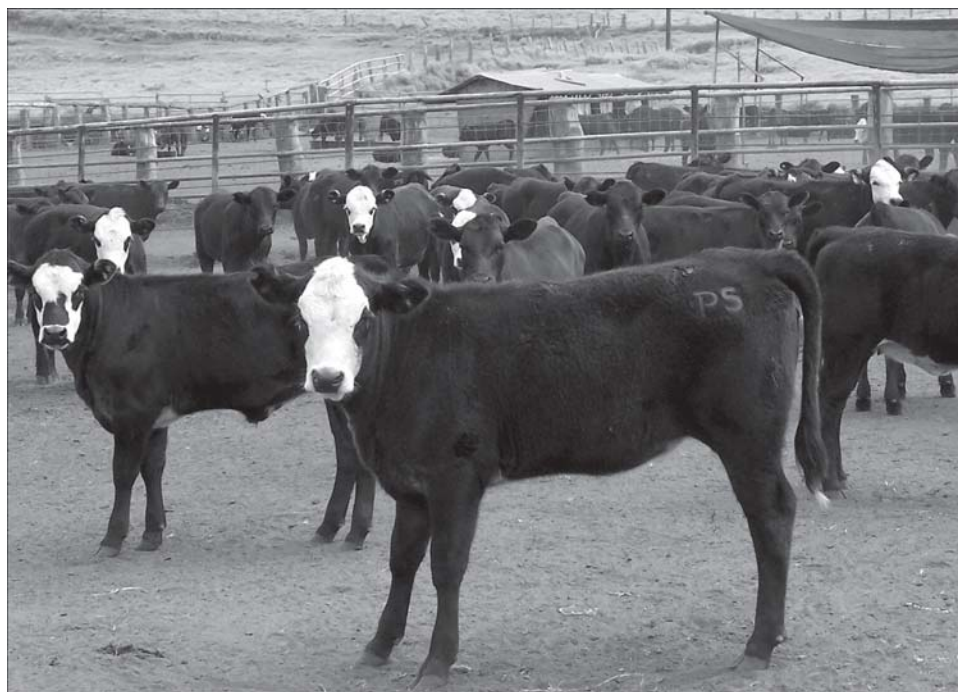


Photo courtesy of Geni Wren, "Bovine Veterinarian" Magazine

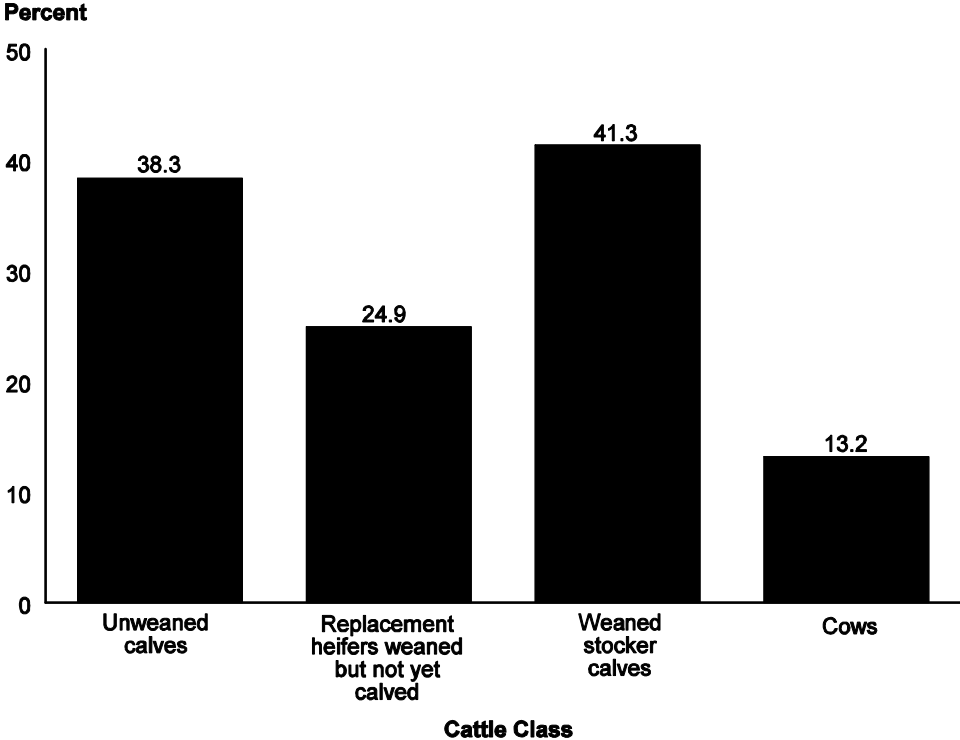
2. Deworming—frequency, products, and information sources

More than one-half of operations usually dewormed one or more times per year (53.7 and 54.1 percent, respectively). About 7 of 10 operations (69.5 percent) dewormed replacement heifers 1 or more times per year, and over 8 of 10 operations (81.7 percent) dewormed cows 1 or more times per year.

a. Percentage of operations by frequency that the following classes of cattle were usually dewormed:

Cattle Class	Percent Operations								Total
	Frequency								
	Never		Occasionally (Less than Once a Year)		Once a Year		More than Once a Year		
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	
Unweaned calves	38.3	(3.3)	8.0	(1.9)	31.1	(3.0)	22.6	(3.1)	100.0
Replacement heifers weaned but not yet calved	24.9	(3.1)	5.6	(1.8)	29.4	(3.1)	40.1	(3.4)	100.0
Weaned stocker calves	41.3	(3.5)	4.6	(1.7)	28.9	(2.9)	25.2	(3.1)	100.0
Cows	13.2	(2.4)	5.1	(1.6)	38.2	(3.1)	43.5	(3.4)	100.0

Percentage of Operations that Never Dewormed the Following Classes of Cattle



Deworming weaned replacement heifers or cows was more common on operations with 50 or more beef cows than on operations with 1 to 49 beef cows.

b. Percentage of operations that dewormed cattle or calves at least occasionally, by cattle class and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Cattle Class	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Unweaned calves	57.9	(4.5)	73.1	(5.5)	75.8	(4.6)	51.2	(5.2)	61.7	(3.3)
Replacement heifers weaned but not yet calved	67.7	(4.3)	93.9	(2.5)	91.5	(3.1)	88.3	(3.9)	75.1	(3.1)
Weaned stocker calves	54.4	(4.8)	62.4	(6.8)	75.5	(7.2)	75.7	(5.3)	58.7	(3.5)
Cows	82.4	(3.5)	98.4	(1.0)	95.5	(2.3)	94.5	(1.9)	86.8	(2.4)
Any	86.2	(3.1)	99.2	(0.8)	97.3	(1.9)	96.9	(1.4)	90.0	(2.2)

The percentage of operations that dewormed cattle or calves at least occasionally was similar across regions.

c. Percentage of operations that dewormed cattle or calves at least occasionally, by cattle class and by region:

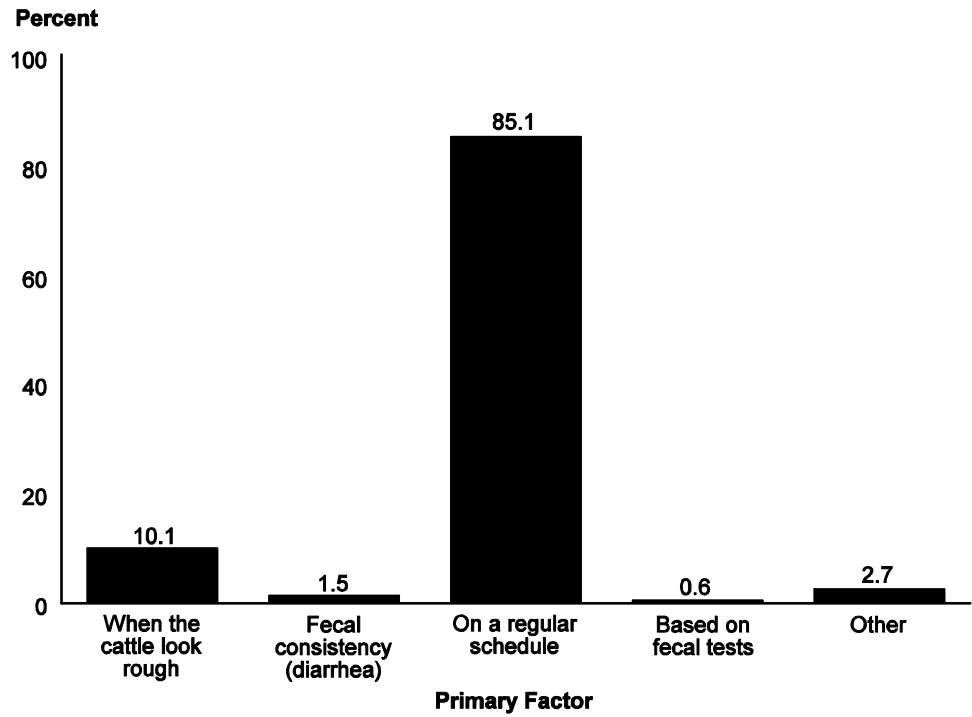
Percent Operations						
Region						
Cattle Class	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Unweaned calves	39.9	(8.6)	57.3	(4.6)	66.2	(4.5)
Replacement heifers weaned but not yet calved	74.5	(6.8)	65.3	(5.5)	78.9	(4.2)
Weaned stocker calves	65.6	(9.3)	58.7	(5.6)	57.6	(4.7)
Cows	75.2	(6.6)	84.2	(4.1)	89.4	(3.2)
Any	80.3	(6.6)	89.1	(3.7)	91.5	(2.9)

A regular schedule was the primary factor used to determine when to deworm cattle and calves on the majority of operations across herd sizes.

d. For operations that dewormed cattle or calves at least occasionally, percentage of operations by primary factor used to determine when to treat cattle or calves for internal parasites (worms), and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
	1-49		50-99		100-199		200 or More		All Operations	
Primary Factor	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
When the cattle look rough	13.3	(3.5)	2.4	(1.7)	4.9	(2.1)	7.6	(3.1)	10.1	(2.3)
Fecal consistency (diarrhea)	1.9	(1.6)	1.0	(0.7)	0.0	(--)	1.1	(1.1)	1.5	(1.1)
On a regular schedule	81.0	(4.1)	93.0	(3.0)	94.4	(2.2)	90.4	(3.2)	85.1	(2.8)
Based on fecal tests	0.8	(0.8)	0.0	(--)	0.0	(--)	0.3	(0.3)	0.6	(0.6)
Other	3.0	(1.8)	3.6	(2.3)	0.7	(0.7)	0.6	(0.4)	2.7	(1.3)
Total	100.0		100.0		100.0		100.0		100.0	

**For Operations that Dewormed Cattle or Calves at Least Occasionally,
Percentage of Operations by Primary Factor Used to Determine when to Treat
Cattle or Calves for Internal Parasites (Worms)**



The percentages of operations that used specific classes of deworming products were similar across herd sizes. Overall, avermectins were the most common class of dewormers used on 90 percent of the operations that dewormed at least occasionally.

e. For operations that dewormed cattle or calves at least occasionally, percentage of operations that used the following products to treat cattle or calves for internal parasites during the previous 3 years, by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Product	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Avermectins (Ivomec®–ivermectin, Cydectin®–moxidectin)	83.1	(4.0)	96.5	(1.8)	93.1	(5.9)	98.5	(1.0)	87.5	(2.7)
Benzimidazoles (Valbazen®– albendazole, Panacur®– fenbendazole)	20.8	(4.2)	19.2	(5.5)	13.0	(3.4)	13.4	(2.6)	19.3	(3.0)
Imidazothiazoles (Levasole®– levamisole)	3.9	(1.6)	6.4	(2.7)	2.0	(2.0)	3.0	(1.6)	4.1	(1.2)
Benzenesul- phonamides (Curatrem®–clorsulon, Ivomec Plus®– clorsulon)	15.4	(3.6)	23.3	(5.9)	24.3	(6.3)	23.3	(4.8)	18.2	(2.7)
Tetrahydro-pyrimidines (Rumatel®–morantel)	1.0	(0.8)	0.0	(--)	0.0	(--)	1.1	(1.1)	0.7	(0.5)

The percentages of operations that used specific classes of deworming products were similar across regions.

f. For operations that dewormed cattle or calves at least occasionally, percentage of operations that used the following products to treat cattle or calves for internal parasites during the previous 3 years, by region:

Product	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Avermectins (Ivomec–ivermectin, Cydectin–moxidectin)	94.5	(3.8)	94.7	(3.0)	84.0	(3.8)
Benzimidazoles (Valbazen–albendazole, Panacur–fenbendazole)	10.6	(4.7)	12.5	(3.9)	22.8	(4.2)
Imidazothiazoles (Levasole–levamisole)	0.4	(0.2)	5.1	(2.3)	4.2	(1.5)
Benzenesul-phonamides (Curatrem–clorsulon, Ivomec Plus–clorsulon)	14.4	(5.6)	10.4	(3.4)	21.6	(3.7)
Tetrahydro-pyrimidines (Rumatel–morantel)	0.0	(--)	2.0	(2.0)	0.4	(0.3)

Of operations that dewormed cattle or calves at least occasionally, about 9 of 10 (91.1 percent) listed efficacy as important or very important when choosing a deworming product. Additionally, over 8 of 10 operations (83.8 percent) cited ease of application as important or very important. Almost one-half of operations (48.3 percent) cited tradition as not important in choosing a deworming product.

g. For operations that dewormed cattle or calves at least occasionally, percentage of operations by reason for choosing deworming product and by importance level of reason:

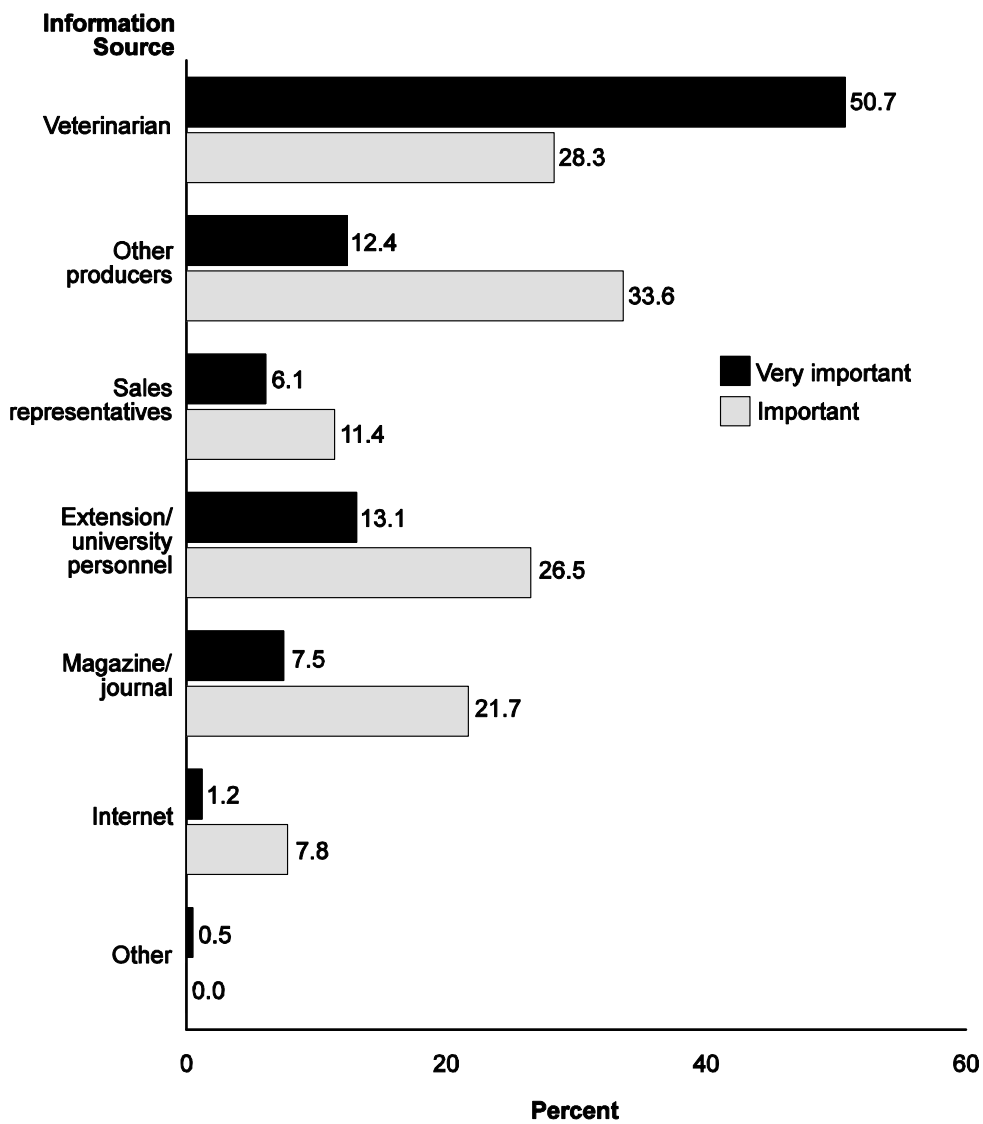
Reason	Percent Operations								Total
	Level of Importance								
	Very Important		Important		Slightly Important		Not Important		
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error		
Price	20.4	(2.8)	35.6	(3.3)	24.4	(2.9)	19.6	(2.8)	100.0
Tradition	9.8	(2.2)	24.0	(3.1)	17.9	(2.6)	48.3	(3.2)	100.0
Efficacy	62.7	(3.2)	28.4	(2.9)	4.1	(1.3)	4.8	(1.6)	100.0
Recommended by others	18.8	(2.9)	38.9	(3.4)	19.1	(2.7)	23.2	(3.1)	100.0
Ease of application or administration	49.5	(3.6)	34.3	(3.2)	6.3	(1.4)	9.9	(2.3)	100.0
Other	0.7	(0.5)	2.2	(1.4)	0.0	(0.0)	97.1	(1.5)	100.0

Of operations that dewormed cattle or calves at least occasionally, about 8 of 10 (79.0 percent) listed veterinarian as an important or very important source of deworming information. The majority of operations cited “other” sources, Internet, and sales representatives as not important information sources (99.5, 76.6, and 55.7 percent of operations, respectively).

h. For operations that dewormed cattle and calves at least occasionally, percentage of operations by level of importance of deworming information sources:

Information Source	Percent Operations								Total
	Level of Importance								
	Very Important		Important		Slightly Important		Not Important		
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error		
Veterinarian	50.7	(3.4)	28.3	(3.3)	8.5	(2.0)	12.5	(2.5)	100.0
Other producers	12.4	(2.3)	33.6	(3.3)	31.1	(3.5)	22.9	(2.9)	100.0
Sales representative	6.1	(1.5)	11.4	(2.2)	26.8	(3.2)	55.7	(3.4)	100.0
Extension/ university personnel	13.1	(2.3)	26.5	(3.2)	18.0	(2.4)	42.4	(3.4)	100.0
Magazine/ journals	7.5	(1.9)	21.7	(2.9)	32.5	(3.3)	38.3	(3.3)	100.0
Internet	1.2	(0.7)	7.8	(2.0)	14.4	(2.1)	76.6	(2.7)	100.0
Other source	0.5	(0.5)	0.0	(--)	0.0	(--)	99.5	(0.5)	100.0

For Operations that Dewormed Cattle and Calves at Least Occasionally, Percentage of Operations that Considered the Following Deworming Information Sources Very Important or Important



For operations that dewormed cattle or calves at least occasionally, the percentages of operations citing specific sources of deworming information as very important or important were similar across herd sizes.

i. For operations that dewormed cattle and calves at least occasionally, percentage of operations that considered the following deworming information sources very important or important, by herd size:

Information Source	Percent Operations									
	Herd Size (Number of Beef Cows)									
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Veterinarian	73.6	(4.5)	90.4	(3.5)	88.3	(3.6)	88.7	(2.8)	79.0	(3.0)
Other producers	45.1	(5.1)	49.5	(6.2)	48.4	(6.1)	41.1	(5.3)	46.0	(3.6)
Sales representative	18.3	(3.6)	17.9	(4.5)	9.3	(2.3)	21.8	(5.0)	17.5	(2.5)
Extension/ university personnel	36.6	(4.6)	40.8	(6.4)	52.5	(6.0)	46.9	(5.6)	39.6	(3.4)
Magazine/ journals	30.8	(4.2)	30.0	(5.5)	21.8	(4.4)	20.6	(4.9)	29.2	(3.0)
Internet	11.8	(3.0)	2.0	(1.4)	3.8	(2.6)	7.6	(3.0)	9.0	(2.1)
Other source	0.7	(0.7)	0.0	(--)	0.0	(--)	0.0	(--)	0.5	(0.5)

The majority of operations in all three regions considered a veterinarian a very important or important source of deworming information. A higher percentage of operations in the Southeast region listed extension/university personnel as important or very important sources of information for deworming compared with operations in the Central region.

j. For operations that dewormed cattle and calves at least occasionally, percentage of operations that considered the following deworming information sources very important or important, by region:

Information Source	Percent Operations					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Veterinarian	87.7	(7.4)	92.6	(2.9)	73.0	(4.2)
Other producers	49.9	(5.9)	39.7	(5.0)	47.9	(4.9)
Sales representative	19.2	(5.6)	16.3	(4.2)	17.8	(3.3)
Extension/ university personnel	29.4	(9.1)	25.8	(4.1)	45.8	(4.7)
Magazine/ journals	14.0	(4.3)	23.9	(4.9)	32.9	(4.0)
Internet	8.6	(6.9)	6.8	(3.0)	9.9	(2.7)
Other source	0.0	(--)	0.0	(--)	0.7	(0.7)

3. Deworming—veterinarian involvement, program, time of year

Overall, about one of five operations (21.5 percent) indicated that a veterinarian was highly involved in the diagnosis of parasite infections, while just over one-half (54.6 percent) indicated that a veterinarian was not involved. On 6 of 10 operations with 1 to 49 beef cows (60.0 percent), a veterinarian was not involved in diagnosing parasite infections, compared with 37.1 percent of operations with 200 or more beef cows.

a. For operations that dewormed cattle and calves at least occasionally, percentage of operations by level of veterinarian involvement in the **diagnosis of parasite infections**, and by herd size:

Level of Veterinarian Involvement	Percent Operations									
	Herd Size (Number of Beef Cows)									
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Highly involved	17.1	(3.6)	36.7	(5.9)	17.1	(3.9)	32.8	(5.3)	21.5	(2.6)
Somewhat involved	22.9	(4.0)	18.4	(4.4)	36.6	(5.7)	30.1	(4.5)	23.9	(2.9)
Not involved	60.0	(4.8)	44.9	(6.4)	46.3	(6.2)	37.1	(5.5)	54.6	(3.4)
Total	100.0		100.0		100.0		100.0		100.0	

The level of veterinarian involvement in the diagnosis of parasite infections was similar across regions.

b. For operations that dewormed cattle and calves at least occasionally, percentage of operations by level of veterinarian involvement in the **diagnosis of parasite infections**, and by region:

Level of Veterinarian Involvement	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Highly involved	20.3	(5.2)	24.3	(4.2)	20.7	(3.6)
Somewhat involved	34.9	(6.4)	32.0	(4.8)	19.7	(3.8)
Not involved	44.8	(6.3)	43.7	(4.9)	59.6	(4.5)
Total	100.0		100.0		100.0	



Photo courtesy of Geni Wren, "Bovine Veterinarian" Magazine

Overall, 32.2 percent of operations indicated that a veterinarian was highly involved in decisions about parasite treatments, and 27.0 percent indicated that a veterinarian was somewhat involved. About 4 of 10 operations indicated that a veterinarian was not involved in decisions about parasite treatments.

c. For operations that dewormed cattle and calves at least occasionally, percentage of operations by level of veterinarian involvement in **decisions about parasite treatments**, and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Level of Veterinarian Involvement	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Highly involved	28.1	(4.4)	44.2	(6.1)	29.4	(4.8)	47.1	(5.3)	32.2	(3.1)
Somewhat involved	22.3	(3.9)	33.4	(5.7)	41.9	(5.9)	34.6	(4.8)	27.0	(2.8)
Not involved	49.6	(4.7)	22.4	(5.5)	28.7	(6.2)	18.3	(4.0)	40.8	(3.3)
Total	100.0		100.0		100.0		100.0		100.0	

A higher percentage of operations in the Southeast region indicated that veterinarians were not involved in parasite treatment decisions compared with operations in the Central region.

d. For operations that dewormed cattle and calves at least occasionally, percentage of operations by level of veterinarian involvement in **decisions about parasite treatments**, and by region:

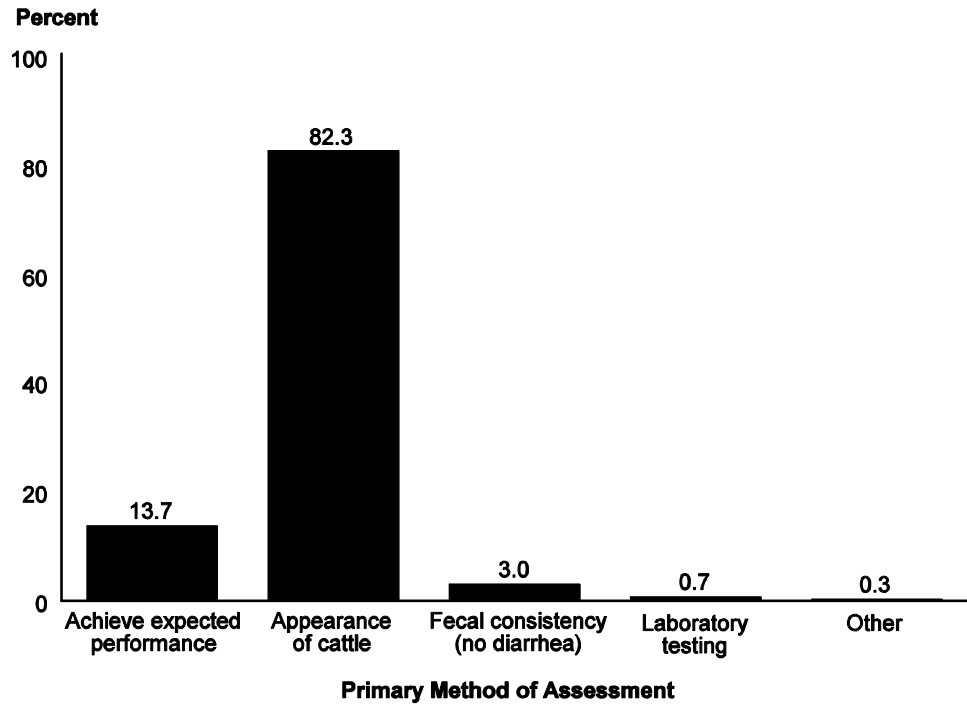
Level of Veterinarian Involvement	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Highly involved	35.5	(6.1)	39.7	(4.8)	29.1	(4.2)
Somewhat involved	28.4	(6.0)	39.4	(5.3)	22.3	(3.6)
Not involved	36.1	(6.3)	20.9	(4.3)	48.6	(4.4)
Total	100.0		100.0		100.0	

For operations that dewormed any cattle or calves at least occasionally, the majority of operations (82.3 percent) used the appearance of cattle as the primary method to assess the effectiveness of the deworming program. Laboratory testing as a primary method to assess the effectiveness of the deworming program was used by fewer than 1 of 100 operations.

e. For operations that dewormed cattle or calves at least occasionally, percentage of operations by primary method used to assess the effectiveness of the deworming program:

Primary Method of Assessment	Percent Operations	Standard Error
Achieve expected performance	13.7	(2.6)
Appearance of cattle	82.3	(2.8)
Fecal consistency (no diarrhea)	3.0	(1.2)
Laboratory testing	0.7	(0.6)
Other	0.3	(0.1)
Total	100.0	

**For Operations that Dewormed Cattle or Calves at Least Occasionally,
Percentage of Operations by Primary Method Used to Assess the Effectiveness
of the Deworming Program**



For operations that dewormed cattle or calves at least occasionally, the percentages of operations by methods used to prolong or improve the efficacy of dewormers were generally similar across herd sizes. Nearly 1 of 2 operations (48.7 percent) did not implement a method; about 4 of 10 (39.4 percent) rotated dewormer types; and about 1 of 5 (21.8 percent) dewormed more often.

f. For operations that dewormed cattle or calves at least occasionally, percentage of operations by methods used to prolong or improve the efficacy of dewormers, and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Method	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Rotated dewormer type	36.5	(5.0)	44.5	(6.3)	49.7	(6.0)	39.2	(5.1)	39.4	(3.6)
Monitored effectiveness by laboratory testing	1.8	(1.1)	3.5	(2.2)	2.1	(1.3)	3.7	(1.6)	2.2	(0.8)
Dewormed more often	20.3	(4.3)	22.2	(5.2)	34.7	(5.8)	14.9	(3.7)	21.8	(3.0)
Dewormed less often	3.9	(1.7)	0.5	(0.5)	0.7	(0.7)	1.4	(1.3)	2.8	(1.1)
Other	1.6	(1.1)	2.9	(1.5)	2.2	(1.2)	2.6	(1.2)	2.0	(0.8)
No method	52.2	(5.0)	45.8	(6.1)	32.1	(4.9)	47.7	(5.2)	48.7	(3.5)

For operations that dewormed cattle or calves at least occasionally, the percentages of operations that used specific methods to prolong or improve the efficacy of dewormers were similar across regions.

g. For operations that dewormed cattle or calves at least occasionally, percentage of operations by methods used to prolong or improve the efficacy of dewormers, and by region:

Method	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Rotated dewormer type	30.3	(8.7)	27.8	(4.4)	44.6	(5.0)
Monitored effectiveness by laboratory testing	4.2	(2.4)	2.1	(1.1)	2.0	(1.2)
Dewormed more often	19.4	(8.2)	16.9	(3.8)	23.8	(4.2)
Dewormed less often	0.0	(--)	0.9	(0.5)	3.8	(1.6)
Other	1.7	(1.1)	3.6	(2.1)	1.4	(0.9)
No method	56.4	(8.1)	57.0	(5.1)	44.9	(4.7)

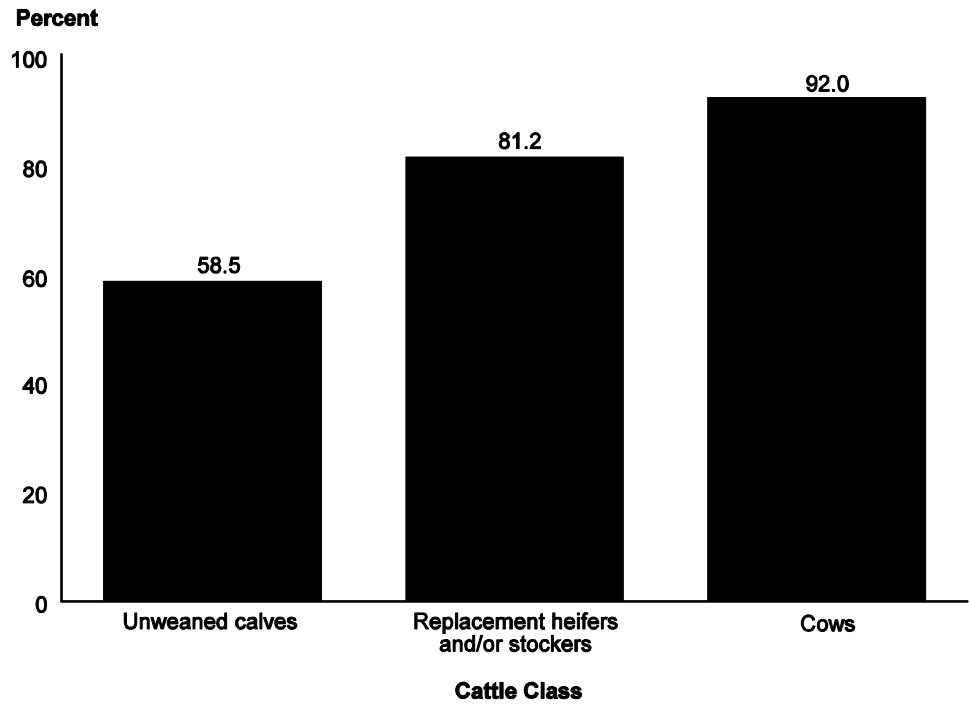
Of operations that dewormed cattle or calves at least occasionally, over 90 percent in each size category dewormed cows. A higher percentage of operations with 200 or more beef cows than operations with 1 to 49 beef cows dewormed replacement heifers and/or stockers. A higher percentage of operations with 100 to 199 beef cows dewormed unweaned calves compared with operations with 200 or more beef cows.

h. For operations that dewormed cattle or calves at least occasionally, percentage of operations by class of beef cattle dewormed in 2007, and by herd size:

Percent Operations*										
Herd Size (Number of Beef Cows)										
Cattle Class	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Unweaned calves	55.4	(5.1)	64.7	(5.9)	72.8	(4.7)	47.0	(5.1)	58.5	(3.6)
Replacement heifers and/or stockers	76.3	(4.8)	87.5	(4.5)	91.6	(2.8)	95.6	(2.4)	81.2	(3.3)
Cows	91.0	(3.0)	93.8	(2.4)	93.1	(2.6)	95.1	(2.3)	92.0	(2.0)

*Operations that had the class of cattle present in 2007.

**For Operations that Dewormed Cattle or Calves at Least Occasionally,
Percentage of Operations* by Class of Cattle Dewormed in 2007**



*Operations that had the class of cattle present in 2007.

For operations that dewormed cattle or calves at least occasionally, the percentages of operations by cattle class dewormed were similar across regions.

i. For operations that dewormed cattle or calves at least occasionally, percentage of operations by class of beef cattle dewormed in 2007, and by region:

Cattle Class	Percent Operations*					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Unweaned calves	45.0	(10.4)	58.7	(5.0)	60.0	(4.9)
Replacement heifers and/or stockers	88.8	(5.5)	81.0	(5.1)	80.4	(4.4)
Cows	92.4	(3.2)	89.7	(3.1)	92.7	(2.8)

*Operations that had the class of cattle present in 2007.

For operations that dewormed unweaned calves in 2007, 63.0 percent—accounting for 55.3 percent of calves—dewormed unweaned calves from April through June.

j. For operations that dewormed **unweaned calves** in 2007, percentage of operations (and percentage of calves on these operations) by quarter in which calves were dewormed:

Quarter	Percent Operations	Standard Error	Percent Calves*	Standard Error
January-March	24.4	(4.1)	20.6	(3.4)
April-June	63.0	(4.4)	55.3	(3.9)
July-September	26.7	(4.1)	29.4	(3.4)
October-December	42.8	(4.6)	45.2	(3.9)

*Calves weaned or expected to be weaned in 2007.

k. For operations that dewormed **unweaned calves** in 2007, percentage of operations by quarter in which calves were dewormed, and by region:

Quarter	Percent Operations					
	West		Central		Southeast	
	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
January-March	0.2	(0.2)	27.4	(6.9)	25.4	(5.3)
April-June	56.3	(12.8)	43.6	(6.9)	70.8	(5.7)
July-September	28.9	(11.7)	34.8	(6.6)	23.6	(5.4)
October-December	28.6	(10.0)	43.1	(6.9)	43.9	(6.1)

Of operations that dewormed replacement heifers and/or stockers in 2007, approximately one-half (49.4 percent) dewormed replacement heifers and/or stockers from April through June, and almost 6 of 10 (58.9 percent) dewormed from October through December.

l. For operations that dewormed **replacement heifers** and/or **stockers** in 2007, percentage of operations (and percentage of heifers on these operations) by quarter in which heifers and/or stockers were dewormed:

Quarter	Percent Operations	Standard Error	Percent Heifers/Stockers*	Standard Error
January-March	29.2	(3.9)	23.7	(3.4)
April-June	49.4	(4.2)	37.2	(3.4)
July-September	19.1	(3.2)	18.5	(2.9)
October-December	58.9	(4.2)	70.7	(3.6)

*Percentage of October 1, 2007, replacement heifer inventory.

m. For operations that dewormed **replacement heifers** and/or **stockers** in 2007, percentage of operations by quarter in which heifers and/or stockers were dewormed, and by region:

Quarter	Percent Operations					
	Region					
	West		Central		Southeast	
Percent	Standard Error	Percent	Standard Error	Percent	Standard Error	
January-March	8.5	(4.1)	26.0	(5.8)	33.3	(5.5)
April-June	37.7	(8.8)	39.3	(6.1)	54.9	(5.9)
July-September	17.9	(6.6)	23.1	(5.5)	17.8	(4.3)
October-December	78.0	(6.8)	54.3	(6.1)	57.9	(5.8)

For operations that dewormed cows in 2007, 54.6 percent—accounting for 44.5 percent of cows—dewormed cows from April through June. In addition, 52.3 percent of operations—accounting for 66.4 percent of cows—dewormed cows from October through December.

n. For operations that dewormed **cows** in 2007, percentage of operations (and percentage of cows on these operations) by quarter in which cows were dewormed:

Quarter	Percent Operations	Standard Error	Percent Cows *	Standard Error
January-March	27.2	(3.3)	25.5	(2.9)
April-June	54.6	(3.7)	44.5	(3.0)
July-September	18.7	(3.1)	13.7	(1.9)
October-December	52.3	(3.7)	66.4	(2.7)

*Percentage of January 1, 2008, beef cow inventory.

o. For operations that dewormed **cows** in 2007, percentage of operations by quarter in which the cows were dewormed, and by region:

Quarter	Percent Operations					
	Region					
	West		Central		Southeast	
Percent	Standard Error	Percent	Standard Error	Percent	Standard Error	
January-March	6.7	(3.9)	21.6	(4.7)	31.6	(4.6)
April-June	44.1	(8.9)	43.6	(5.7)	59.8	(4.9)
July-September	17.6	(6.8)	14.9	(4.3)	20.2	(4.2)
October-December	66.4	(8.9)	54.9	(5.7)	49.6	(5.0)

4. Fly control

Over one-half of operations (57.8 percent) used a pour-on product for fly and/or lice control during the previous 12 months. With the exception of operations with 1 to 49 beef cows, the percentage of operations that used a pour-on product for fly and/or lice control was similar across herd sizes.

a. Percentage of operations that used a pour-on product for fly and/or lice control during the previous 12 months, by herd size:

Percent Operations									
Herd Size (Number of Beef Cows)									
1-49		50-99		100-199		200 or More		All Operations	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
50.1	(4.6)	74.4	(5.7)	76.9	(5.2)	73.6	(4.8)	57.8	(3.3)

The percentage of operations that used a pour-on product for fly and/or lice control during the previous 12 months was similar across regions.

b. Percentage of operations that used a pour-on product for fly and/or lice control during the previous 12 months, by region:

Percent Operations					
Region					
West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
62.1	(8.4)	65.2	(5.0)	54.5	(4.5)

5. Cattle and calf death loss

Overall, 3.6 percent of calves born alive in 2007 died or were lost prior to weaning. The percentage of beef calves born alive that died or were lost in 2007 was similar across herd size.

a. Percentage of **beef calves born alive** in 2007 that died or were lost (from all causes) prior to weaning, by herd size:

Percent Calves*									
Herd Size (Number of Beef Cows)									
1-49		50-99		100-199		200 or More		All Operations	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
4.1	(0.5)	4.1	(0.4)	3.6	(0.3)	3.1	(0.2)	3.6	(0.2)

*Number of calves that died as a percentage of number born alive.

The percentage of calves born alive that died or were lost in 2007 was similar across regions.

b. Percentage of **beef calves born alive** in 2007 that died or were lost (from all causes) prior to weaning, by region:

Percent Calves*					
Region					
West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
4.2	(0.4)	4.1	(0.3)	3.1	(0.3)

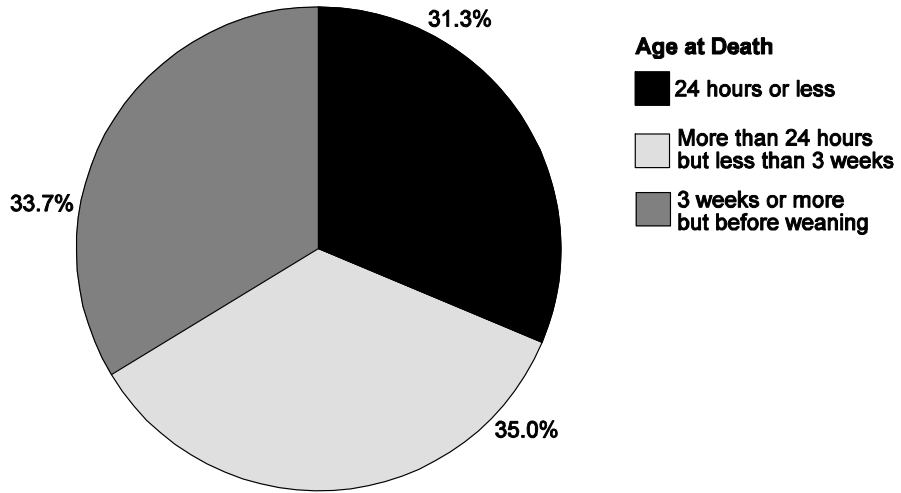
*Number of calves that died as a percentage of the number born alive.

For operations in which any unweaned calves died or were lost in 2007, approximately one-third of calf losses occurred in each age category: 24 hours or less, more than 24 hours but less than 3 weeks, and 3 weeks or more but before weaning.

c. For operations in which any **unweaned calves** died or were lost (from all causes) in 2007, percentage of losses by age at death:

Age at Death	Percent Losses	Standard Error
24 hours or less	31.3	(2.6)
More than 24 hours but less than 3 weeks	35.0	(2.8)
3 weeks or more but before weaning	33.7	(2.6)
Total	100.0	

For Operations in which any Unweaned Calves Died or were Lost (From All Causes) in 2007, Percentage of Losses by Age at Death



Overall, 1.5 percent of weaned or older beef breeding cattle died or were lost in 2007. The percentage of beef breeding cattle that died or were lost in 2007 was similar across herd sizes.

d. Percentage of weaned or older **beef breeding cattle** that died or were lost (from all causes) in 2007, by herd size:

Percent Cattle*									
Herd Size (Number of Beef Cows)									
1-49		50-99		100-199		200 or More		All Operations	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
1.7	(0.3)	2.0	(0.4)	1.5	(0.1)	1.1	(0.1)	1.5	(0.1)

*Number of beef breeding cattle that died as a percentage of the October 1, 2007, inventory of cows, replacement heifers, and bulls.

The percentage of beef breeding cattle that died or were lost in 2007 was similar across regions.

e. Percentage of weaned or older **beef breeding cattle** that died or were lost (from all causes) in 2007, by region:

Percent Cattle*					
Region					
West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
1.1	(0.1)	1.4	(0.2)	1.7	(0.2)

*Number of beef breeding cattle that died as a percentage of the October 1, 2007, inventory of cows, replacement heifers, and bulls.

For unweaned calves that died or were lost in 2007, more than one-half of losses in calves less than 3 weeks of age were due to calving-related problems or weather-related causes (25.7 and 25.6 percent, respectively). Unknown causes accounted for an additional 18.6 percent of losses in calves less than 3 weeks of age.

Of calves 3 weeks of age and older that died or were lost in 2007, more than one-half died due to digestive problems or respiratory problems (22.6 and 31.4 percent, respectively). Unknown causes accounted for an additional 19.4 percent of losses in calves 3 weeks of age and older.

For beef breeding cattle that died or were lost in 2007, similar percentages died from calving-related problems (17.3 percent), weather-related causes (16.2 percent), other known causes (22.2 percent), or unknown causes (23.4 percent).

f. For cattle and calves that died or were lost (from all causes) in 2007, percentage of cattle and calves lost, by cause of death and by age at death:

Cause of Death	Percent Cattle and Calves Lost					
	Age at Death					
	Less than 3 Weeks Old		3 Weeks and Older		Beef Breeding Cattle	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	14.0	(2.4)	22.6	(4.8)	5.4	(1.5)
Respiratory problems (pneumonia, shipping fever, etc.)	8.2	(1.4)	31.4	(3.9)	3.4	(0.9)
Metabolic problems (milk fever, grass tetany, etc.)	0.1	(0.1)	0.1	(0.1)	2.1	(0.8)
Mastitis (cows only)	NA	NA	NA	NA	0.1	(0.0)
Lameness or injury	1.5	(0.6)	4.4	(2.1)	6.4	(1.1)
Calving-related/birth-related problems	25.7	(3.4)	2.3	(1.1)	17.3	(3.0)
Other known diseases	0.5	(0.4)	1.2	(0.6)	1.5	(0.5)
Weather-related causes (lightning, drowning, chilling, etc.)	25.6	(3.6)	10.0	(2.4)	16.2	(5.3)
Poisoning (nitrates, noxious feeds, noxious weeds, etc.)	0.0	(0.0)	0.1	(0.1)	1.7	(0.5)
Predators (known or unknown)	4.7	(1.6)	4.7	(1.6)	0.1	(0.1)
Theft (stolen)	0.1	(0.1)	0.9	(0.6)	0.2	(0.2)
Other known causes (old age, etc.)	1.0	(0.5)	2.9	(1.3)	22.2	(3.5)
Unknown causes	18.6	(3.9)	19.4	(3.1)	23.4	(3.8)
Total	100.0		100.0		100.0	

6. Carcass disposal

Disposal methods for unweaned calves and breeding cattle were similar. About 4 of 10 operations buried carcasses of unweaned calves and breeding cattle (38.2 and 39.7 percent of operations, respectively). About 5 of 10 operations had no disposal method for the carcasses of unweaned calves or breeding cattle (46.9 and 44.5 percent of operations, respectively). Almost one-half of unweaned calves or breeding cattle that died in 2007 (47.8 and 40.8 percent, respectively) were not disposed of by any specific method.

For operations in which any unweaned calves or breeding cattle died in 2007, percentage of operations (and percentage of calves and cattle that died), by carcass disposal method:

Disposal Method	Unweaned Calves				Breeding Cattle			
	Percent Operations	Std. Error	Percent Calves	Std. Error	Percent Operations	Std. Error	Percent Cattle	Std. Error
Buried on operation	38.2	(4.2)	31.4	(3.3)	39.7	(4.7)	36.0	(5.1)
Burned on operation	7.9	(2.1)	9.6	(2.5)	10.7	(3.0)	10.5	(2.6)
Landfill	3.7	(1.1)	4.4	(1.1)	2.5	(1.0)	2.9	(1.3)
Renderer	3.1	(0.9)	4.0	(1.0)	7.8	(1.8)	7.3	(1.6)
No disposal method (e.g., left to nature/scavengers)	46.9	(4.2)	47.8	(3.5)	44.5	(4.8)	40.8	(4.5)
Other	3.3	(1.4)	2.8	(0.9)	5.9	(3.1)	2.5	(1.2)
Total			100.0				100.0	

7. Movement

Animal movement can present a biosecurity threat. Animals brought onto an operation can introduce disease agents that are apparent or unapparent. If the receiving herd has not been previously exposed to a disease agent, an outbreak of disease can occur. In addition, the disease agents may result in more subtle and possibly prolonged impacts on the health and productivity of the receiving herd. Overall, 67.8 percent of operations brought new cattle onto the operation during the previous 3 years. A lower percentage of operations with 1 to 49 cows brought new cattle onto the operation compared with operations with 50 or more cows.

a. Percentage of operations that brought new cattle onto the operation during the previous 3 years, by herd size:

Percent Operations									
Herd Size (Number of Beef Cows)									
1-49		50-99		100-199		200 or More		All Operations	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
58.6	(4.4)	88.3	(3.7)	88.1	(3.4)	89.2	(3.0)	67.8	(3.2)

The percentage of operations that brought new cattle onto the operation during the previous 3 years was similar across regions.

b. Percentage of operations that brought new cattle onto the operation during the previous 3 years, by region:

Percent Operations					
Region					
West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
73.1	(6.8)	76.6	(4.7)	63.8	(4.3)

A number of strategies can be used to mitigate the risks that the addition of new animals presents. Of operations that brought new cattle onto the operation during the previous 3 years, approximately one of three normally required vaccination for brucellosis (32.9 percent), and approximately one of four normally required vaccination for BVD, IBR, or leptospirosis (25.1, 25.5, and 27.2 percent, respectively). The percentage of operations that required new cattle be vaccinated against brucellosis did not differ substantially across herd sizes. A lower percentage of operations with 1 to 49 beef cows normally required that new cattle be vaccinated against BVD, IBR, and/or leptospirosis compared with operations with 200 or more beef cows.

c. For operations that brought new cattle onto the operation during the previous 3 years, percentage of operations that normally required new animals be vaccinated against the following diseases, by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Disease	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Brucellosis*	26.2	(5.8)	40.0	(7.8)	50.0	(7.7)	46.2	(6.2)	32.9	(4.1)
BVD	19.2	(4.0)	33.4	(6.0)	29.0	(5.3)	45.2	(5.4)	25.1	(2.8)
IBR	20.2	(4.1)	33.4	(6.0)	27.7	(5.2)	43.7	(5.4)	25.5	(2.8)
Leptospirosis	20.3	(4.1)	42.8	(6.8)	27.5	(5.2)	40.0	(5.4)	27.2	(3.1)
Other	3.8	(1.7)	10.8	(3.6)	2.3	(1.8)	12.6	(3.4)	5.7	(1.3)

*Excludes operations that only brought on bulls.

The percentages of operations that normally required new cattle be vaccinated against brucellosis or leptospirosis did not differ substantially across regions. A higher percentage of operations in the Central region required that new cattle be vaccinated against BVD or IBR compared with operations in the Southeast region.

d. For operations that brought new cattle onto the operation during the previous 3 years, percentage of operations that normally required new animals be vaccinated against the following diseases, by region:

Disease	Percent Operations					
	Region					
	West		Central		Southeast	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	
Brucellosis*	57.2	(11.0)	36.8	(6.4)	28.7	(5.6)
BVD	26.6	(6.2)	39.6	(5.3)	18.4	(3.5)
IBR	26.9	(6.2)	38.9	(5.3)	19.3	(3.6)
Leptospirosis	29.4	(7.1)	38.3	(5.5)	21.9	(4.0)
Anything else	1.3	(0.9)	7.5	(2.1)	5.6	(1.9)

*Excludes operations that only brought on bulls.

Overall, almost one of four operations that brought new cattle onto the operation during the previous 3 years (24.1 percent) required testing for brucellosis. About 1 of 20 operations that brought cattle onto the operation during the previous 3 years required testing for BVD or tuberculosis (TB) [4.5 and 5.4 percent, respectively]. Only 1 of 50 operations (2.1 percent) required testing for Johne's disease. The percentages of operations that tested new cattle brought onto the operation for specific diseases were similar across herd sizes.

e. For operations that brought new cattle onto the operation during the previous 3 years, percentage of operations that normally required tests for the following diseases, by herd size:

Disease	Percent Operations									
	Herd Size (Number of Beef Cows)									
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Brucellosis for animals 2 years of age or older*	23.1	(5.5)	20.8	(5.8)	33.2	(6.7)	27.9	(5.2)	24.1	(3.6)
Johne's disease	2.2	(1.8)	1.4	(1.0)	3.0	(1.9)	1.0	(1.0)	2.1	(1.1)
BVD	4.0	(2.3)	5.1	(2.5)	4.5	(2.1)	6.8	(2.6)	4.5	(1.5)
TB	5.3	(2.6)	4.5	(2.6)	7.6	(2.9)	5.3	(1.9)	5.4	(1.7)
Anything else	0.8	(0.5)	6.1	(2.6)	3.2	(1.4)	7.3	(2.1)	2.7	(0.7)

*Excludes operations that only brought on cattle less than 2 years old.

Of operations that brought new cattle onto the operation during the previous 3 years, a higher percentage in the Southeast region (7.3 percent) normally required testing for TB compared with operations in the West region (0.7 percent). The percentages of operations that tested for brucellosis, Johne's disease, or BVD did not differ substantially across regions.

f. For operations that brought new cattle onto the operation during the previous 3 years, percentage of operations that normally required tests for the following diseases, by region:

Disease	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Brucellosis for animals 2 years of age or older*	13.7	(6.0)	15.2	(4.2)	29.0	(5.2)
Johne's disease	0.6	(0.6)	1.6	(0.8)	2.5	(1.8)
BVD	2.3	(1.2)	2.6	(0.9)	5.6	(2.3)
TB	0.7	(0.4)	3.0	(2.0)	7.3	(2.5)
Anything else	9.8	(3.4)	5.1	(2.0)	0.5	(0.3)

*Excludes operations that only brought on cattle less than 2 years old.

About 1 of 20 operations that brought new cattle onto the operation during the previous 3 years required testing for internal parasites.

g. For operations that brought weaned calves or cows onto the operation during the previous 3 years, percentage of operations that normally required testing for internal parasites before animals were brought onto the operation, by cattle class:

Cattle Class	Percent Operations	Standard Error
Weaned calves	4.9	(2.8)
Cows	4.8	(2.3)

Of operations that brought weaned calves or cows onto the operation during the previous 3 years, approximately one of five normally required that weaned calves and cows be treated for internal parasites (22.5 and 21.4 percent of operations, respectively) before being brought onto the operation. The percentage of operations that required weaned calves or cows be treated for internal parasites were similar across herd sizes.

h. For operations that brought weaned calves or cows onto the operation during the previous 3 years, percentage of operations that normally required weaned calves or cows be treated for internal parasites before being brought onto the operation, by cattle class and by herd size:

Percent Operations										
Herd Size (Number of Beef Cows)										
Cattle Class	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Weaned calves	23.1	(7.2)	19.4	(8.0)	20.8	(6.4)	28.1	(6.4)	22.5	(4.8)
Cows	21.3	(6.4)	23.4	(7.4)	18.2	(5.3)	23.0	(5.3)	21.4	(4.4)

For operations that brought weaned calves or cows onto the operation during the previous 3 years, a lower percentage of operations in the West region (4.1 percent) normally required weaned calves be treated for internal parasites compared with operations in the Central and Southeast regions (29.6 and 23.2 percent, respectively). The percentage of operations that required cows be treated for internal parasites did not differ substantially across regions.

i. For operations that brought weaned calves or cows onto the operation during the previous 3 years, percentage of operations that normally required weaned calves or cows be treated for internal parasites before being brought onto the operation, by cattle class and by region:

Cattle Class	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Weaned calves	4.1	(1.7)	29.6	(6.6)	23.2	(6.7)
Cows	9.2	(4.7)	16.5	(3.9)	25.2	(6.5)

Approximately 1 percent of operations used any cattle for rodeo events either on or off the premises in 2007. The percentages of operations that used cattle for rodeo events were similar across herd sizes.

j. Percentage of operations that used any cattle for rodeo events (e.g., team roping) on or off the premises in 2007, by herd size:

	Percent Operations									
	Herd Size (Number of Beef Cows)									
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
On the premises	1.0	(0.7)	0.5	(0.5)	1.9	(1.3)	2.0	(1.0)	1.1	(0.5)
Off the premises	0.0	(0.0)	4.7	(3.7)	1.1	(0.7)	1.9	(1.0)	1.0	(0.6)

The percentages of operations that used cattle for rodeo events were similar across regions.

k. Percentage of operations that used any cattle for rodeo events (e.g., team roping) on or off the premises in 2007, by region:

	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
On the premises	3.8	(2.8)	1.1	(0.6)	0.7	(0.7)
Off the premises	1.4	(0.5)	1.0	(0.5)	0.9	(0.9)

D. Opinions on the Significance of Health Problems

1. Economic impact

Over one-half of operations strongly agreed or agreed that internal or external parasites have a significant economic impact on the operation (53.4 and 62.5 percent of operations, respectively). Additionally, 53.3 percent of operations strongly agreed or agreed that open/late calvers have an economic impact on the operation. About one of three operations strongly agreed or agreed that calf scours, abortion, weak calves, calf pneumonia, pinkeye, and footrot have an economic impact on the operation.

a. Percentage of operations by level of agreement about the economic impact the following diseases have on the operation:

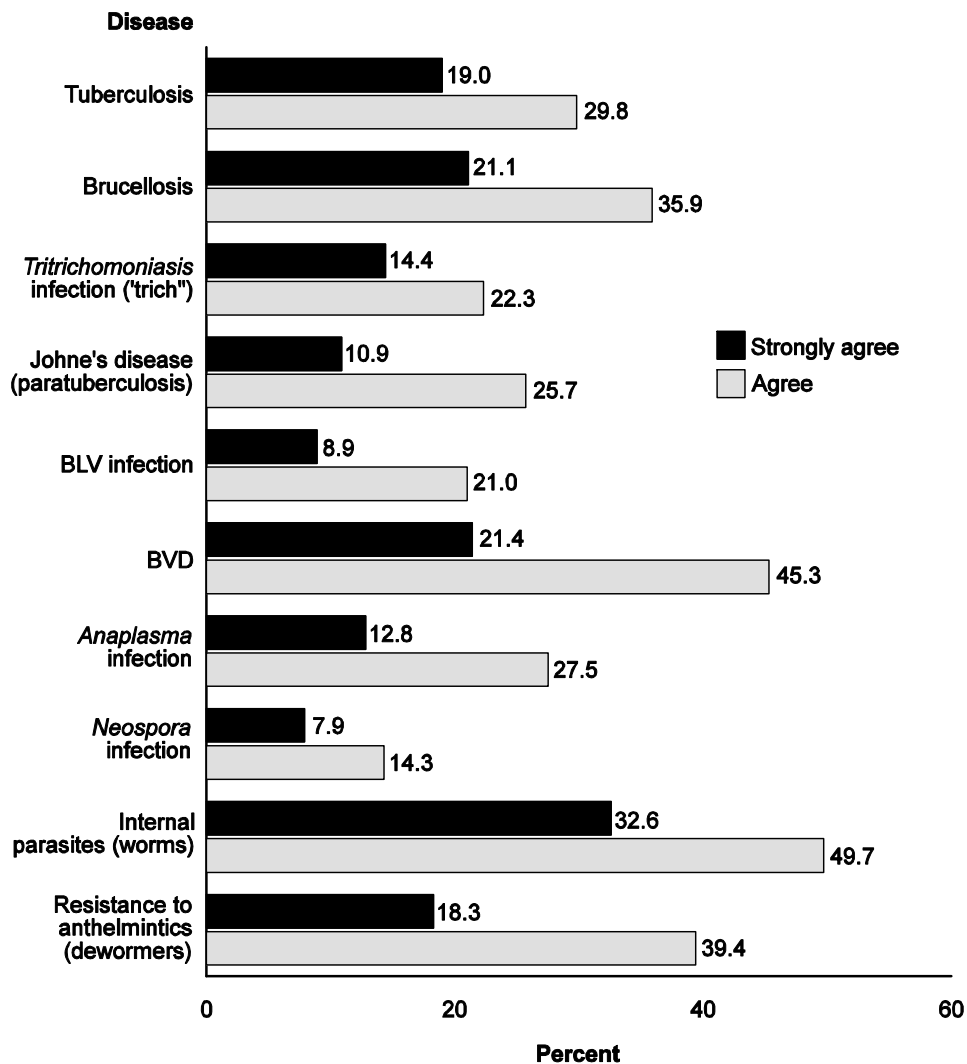
Disease	Percent Operations Level of Agreement										Total
	Strongly Agree		Agree		Disagree		Strongly Disagree		No Opinion		
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	
Parasites											
Internal parasites	22.6	(2.6)	30.8	(2.9)	29.8	(3.1)	9.8	(2.1)	7.0	(1.7)	100.0
External parasites (flies, lice, ticks, grubs)	23.7	(2.7)	38.8	(3.2)	24.6	(2.9)	8.2	(2.0)	4.7	(1.4)	100.0
Digestive											
Calf scours	13.0	(2.1)	18.4	(2.5)	44.1	(3.2)	16.0	(2.6)	8.5	(1.8)	100.0
Bloat/colic/ulcers (abomasal/stomach)	8.1	(1.8)	13.2	(2.3)	48.6	(3.2)	17.7	(2.6)	12.4	(2.1)	100.0
Coccidiosis	9.2	(1.9)	14.0	(2.3)	46.9	(3.2)	16.4	(2.6)	13.5	(2.3)	100.0
Reproductive											
Open/late calvers	25.9	(2.8)	27.4	(2.8)	31.5	(3.3)	8.6	(1.8)	6.6	(1.7)	100.0
Abortion	15.0	(2.4)	13.8	(2.1)	43.6	(3.3)	18.5	(2.9)	9.1	(2.0)	100.0
Weak calves	15.7	(2.4)	16.5	(2.1)	43.5	(3.3)	16.1	(2.7)	8.2	(1.7)	100.0
Respiratory											
Calf pneumonia/shipping fever	13.4	(2.1)	20.5	(2.5)	41.6	(3.2)	15.2	(2.7)	9.3	(2.0)	100.0
Cow asthma	4.2	(1.4)	7.9	(1.6)	47.8	(3.3)	18.0	(2.7)	22.1	(2.7)	100.0
Plant-related											
Plant-related toxicities	9.9	(2.0)	10.6	(1.8)	44.6	(3.3)	19.4	(2.9)	15.5	(2.2)	100.0
Other											
Pinkeye	12.8	(2.2)	22.9	(2.6)	39.9	(3.1)	16.5	(2.6)	7.9	(1.8)	100.0
Footrot	9.0	(1.9)	22.6	(2.4)	43.2	(3.2)	15.7	(2.6)	9.5	(2.0)	100.0
White muscle disease (selenium/vitamin E deficiency)	4.5	(1.3)	6.1	(1.4)	45.6	(3.3)	21.0	(2.9)	22.8	(2.8)	100.0
Copper deficiency	5.4	(1.6)	9.2	(1.7)	45.1	(3.3)	20.1	(2.9)	20.2	(2.6)	100.0
<i>Anaplasma</i>	7.1	(1.7)	10.0	(1.8)	45.7	(3.2)	19.1	(2.9)	18.1	(2.4)	100.0
Grass tetany	8.8	(1.9)	15.3	(2.1)	43.6	(3.2)	19.1	(2.8)	13.2	(2.3)	100.0

More than 8 of 10 operations (82.3 percent) strongly agreed or agreed that internal parasites are a significant problem for the U.S. beef industry. Two-thirds of operations (66.7 percent) strongly agreed or agreed that BVD is a significant problem for the beef industry. About one-half of operations strongly agreed or agreed that TB, brucellosis, and resistance to anthelmintics are important problems for the beef industry. About one-third of operations strongly agreed or agreed that *Tritrichomoniasis*, Johne's disease, and *Anaplasma* are important problems for the beef industry.

b. Percentage of operations by level of agreement about whether the following diseases are a significant problem for the U.S. beef industry:

Disease	Percent Operations										
	Level of Agreement										
	Strongly Agree		Agree		Disagree		Strongly Disagree		No Opinion		Total
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error		
TB	19.0	(2.8)	29.8	(2.9)	23.5	(2.9)	3.9	(1.3)	23.8	(2.9)	100.0
Brucellosis	21.1	(2.8)	35.9	(3.2)	24.0	(2.9)	4.8	(1.4)	14.2	(2.5)	100.0
<i>Tritrichomoniasis</i> infection ("trich")	14.4	(2.5)	22.3	(2.6)	16.3	(2.6)	3.1	(1.2)	43.9	(3.3)	100.0
Johne's disease (paratuberculosis)	10.9	(2.3)	25.7	(2.8)	18.0	(2.6)	2.5	(1.1)	42.9	(3.2)	100.0
BLV infection	8.9	(2.1)	21.0	(2.8)	15.3	(2.5)	3.2	(1.2)	51.6	(3.3)	100.0
BVD	21.4	(2.6)	45.3	(3.2)	10.2	(2.2)	1.0	(0.8)	22.1	(2.8)	100.0
<i>Anaplasma</i> infection	12.8	(2.4)	27.5	(2.7)	15.2	(2.5)	2.2	(1.0)	42.3	(3.2)	100.0
<i>Neospora</i> infection	7.9	(2.1)	14.3	(2.4)	17.7	(2.6)	2.4	(1.1)	57.7	(3.3)	100.0
Internal parasites (worms)	32.6	(3.2)	49.7	(3.2)	7.7	(1.9)	1.0	(0.8)	9.0	(1.9)	100.0
Resistance to anthelmintics (dewormers)	18.3	(2.5)	39.4	(3.3)	14.6	(2.4)	2.4	(1.2)	25.3	(2.9)	100.0

Percentage of Operations that Strongly Agree or Agree that the Following Diseases are a Significant Problem for the U.S. Beef Industry



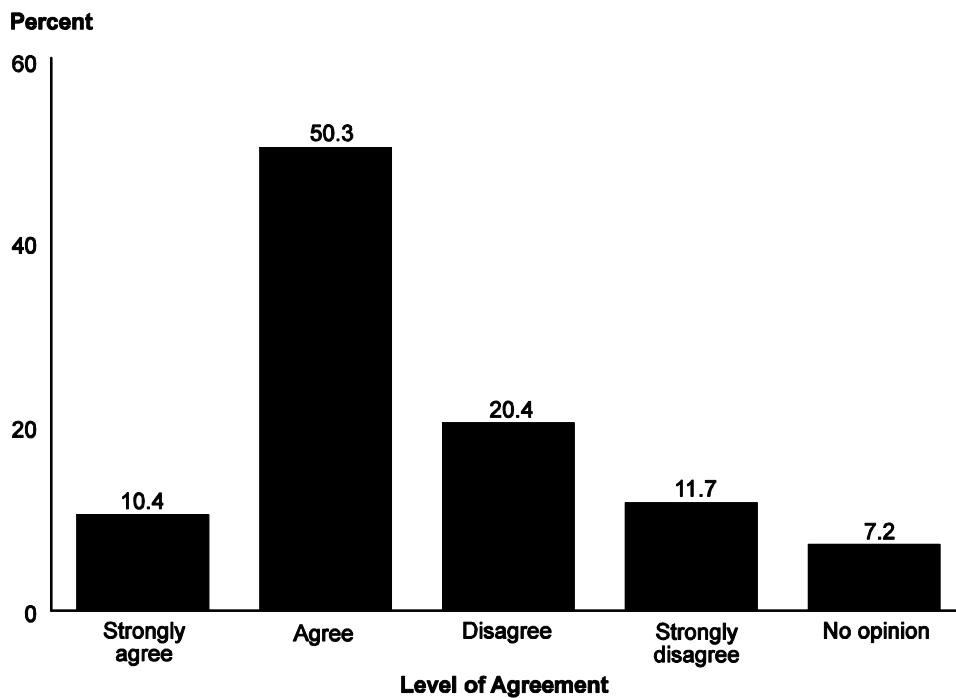
2. U.S. outbreak preparedness

Overall, 6 of 10 operations (60.7 percent) strongly agreed or agreed with the statement “The United States is well prepared to handle outbreaks of livestock disease currently not found in this country, such as foot-and-mouth disease and rinderpest.” The percentages of operations by each level of agreement were similar across herd sizes.

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

Level of Agreement	Percent Operations									
	Herd Size (Number of Beef Cows)									
	1-49		50-99		100-199		200 or More		All Operations	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Strongly agree	11.0	(2.9)	10.2	(3.1)	6.7	(2.4)	9.3	(2.7)	10.4	(2.1)
Agree	49.3	(4.6)	58.5	(5.9)	46.1	(6.1)	47.1	(5.4)	50.3	(3.3)
Disagree	19.7	(3.8)	19.1	(4.4)	28.1	(5.1)	19.4	(3.7)	20.4	(2.8)
Strongly disagree	12.1	(3.1)	11.3	(4.6)	6.6	(2.2)	16.2	(3.8)	11.7	(2.2)
No opinion	7.9	(2.2)	0.9	(0.7)	12.5	(3.8)	8.0	(2.6)	7.2	(1.6)
Total	100.0		100.0		100.0		100.0		100.0	

Percentage of Operations by Level of Agreement with the Statement "The United States is well prepared to handle outbreaks of livestock disease currently not found in this country, such as foot-and-mouth disease and rinderpest."



The percentages of operations by level of agreement with the statement “The United States is well prepared to handle outbreaks of livestock disease currently not found in this country, such as foot-and-mouth disease and rinderpest,” were similar across regions.

b. Percentage of operations by level of agreement with the statement “The United States is well prepared to handle outbreaks of livestock disease currently not found in this country, such as foot-and-mouth disease and rinderpest,” and by region:

Level of Agreement	Percent Operations					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Strongly agree	5.4	(2.5)	6.1	(1.8)	12.6	(3.0)
Agree	61.8	(7.9)	49.5	(4.7)	49.1	(4.6)
Disagree	18.7	(6.9)	25.2	(4.2)	18.8	(3.7)
Strongly disagree	8.1	(2.7)	14.1	(3.7)	11.3	(3.1)
No opinion	6.0	(3.1)	5.1	(2.3)	8.2	(2.2)
Total	100.0		100.0		100.0	

Section II. Methodology

A. Needs Assessment

The National Animal Health Monitoring System (NAHMS) develops study objectives by exploring existing literature and contacting stakeholders about their informational needs and priorities during a needs assessment phase. Stakeholders for NAHMS studies include industry members, allied industry representatives, other government agencies, animal health officials, and many others. The objective of the needs assessment for the NAHMS Beef 2007–08 study was to collect information about the most important health and productivity issues of cow-calf production. A driving force for the needs assessment was the desire of NAHMS to receive as much input as possible from a variety of producers, as well as from industry experts and representatives, veterinarians, extension specialists, universities, and beef organizations. Information was collected via interviews with key industry figures and through a Needs Assessment Survey.

The Needs Assessment Survey was designed to collect the most critical information gaps regarding animal health, and health and production management from producers, veterinarians, extension personnel, university researchers, and allied industry groups. The survey, created in SurveyMonkey, was available online from September 9, 2006, through February 15, 2007. The survey was promoted via electronic newsletters, magazines, and Web sites. Organizations/magazines promoting the study included “Beef Magazine,” “Drovers,” “Feedstuffs,” “Bovine Veterinarian,” and “The National Cattleman.” Email messages identifying the online site and asking for input were also sent to State extension personnel as well as State and Federal animal health officials. A total of 94 people completed the questionnaire. Universities/extensions accounted for 41.5 percent of respondents, and veterinarians/consultants accounted for 31.9 percent.

Objectives for the Beef 2007–08 study, using input from interviews, literature searches, and the online survey, were drafted and circulated to stakeholder groups. Following this review, six final study objectives were identified:

1. Describe trends in beef cow-calf health and management practices.
2. Evaluate management factors related to beef quality assurance.
3. Describe record-keeping practices on cow-calf operations.
4. Determine producer awareness of bovine viral diarrhea (BVD) and management practices used for BVD control.
5. Describe current biosecurity practices.
6. Determine the prevalence and antimicrobial resistance patterns of potential food safety pathogens.

B. Data Analysis

1. Validation

a. Phase I: Validation—General Beef Management Report

Initial data entry and validation for the General Beef Management Report were performed in individual NASS State offices. Data were entered into a SAS® data set. NAHMS national staff performed additional data validation on the entire data set after data from all States were combined.

b. Phase II: Validation—VS Initial Visit Questionnaires

After completing the VS Initial Visit Questionnaires, data collectors sent them to their respective State NAHMS Coordinators who reviewed the questionnaire responses for accuracy. Data entry and validation were completed by CEAH staff using SAS.

C. Sample Evaluation

The purpose of this section is to provide various performance measurement parameters. Historically, the term “response rate” was used as a catchall parameter, but there are many ways to define and calculate response rates. Therefore, the following table presents an evaluation based upon a number of measurement parameters, which are defined with an “x” in categories that contribute to the measurement.

1. Phase I: General Beef Management Report

A total of 4,001 operations were selected for the survey. Of these operations, 3,648 (91.2 percent) were contacted. There were 2,872 operations that provided usable inventory information (71.8 percent of the total selected and 78.7 percent of those contacted). In addition, there were 2,159 operations (54.0 percent of total selected) that provided “complete” information for the questionnaire. Of operations that provided complete information, 1,033 (47.8 percent) consented to be contacted for consideration/discussion about further participation in Phase II (VS collection) of the study.

Response Category	Number Operations	Percent Operations	Measurement Parameter		
			Contacts	Usable ¹	Complete ²
Survey complete and VMO consent	1,033	25.8	x	x	x
Survey complete, refused VMO consent	1,126	28.1	x	x	x
No beef cows on October 1 and July 1, 2007	469	11.7	x	x	
Out of business	244	6.1	x	x	
Out of scope	7	0.2			
Refusal of GDMR	776	19.4	x		
Office hold (NASS elected not to contact)	46	1.2			
Inaccessible	300	7.5			
Total	4,001	100.0	3,648	2,872	2,159
Percent of total operations			91.2	71.8	54.0
Percent of total operations weighted ³			92.9	77.8	52.1

¹Useable operation—respondent provided answers to inventory questions for the operation (either zero or positive number on hand).

²Survey complete operation—respondent provided answers to all or nearly all questions.

³Weighted response—the rate was calculated using the initial selection weights.

2. Phase II: VS Initial Visit

There were 1,033 operations that consented during Phase I to be contacted by a veterinary medical officer (VMO) for Phase II. Of these 1,033, 567 (54.9 percent) agreed to continue in Phase II of the study and completed the VMO Initial Visit Questionnaire; 365 (35.3 percent) refused to participate. Approximately 8 percent of the 1,033 operations were not contacted, and 2.0 percent were ineligible because they had no beef cows at the time they were contacted by the VMO during Phase II.

Response Category	Number Operations	Percent Operations	Measurement Parameter		
			Contacts	Usable ¹	Complete ²
Survey complete	567	54.9	x	x	x
Survey refused	365	35.3	x		
Not contacted	80	7.8			
Ineligible ³	21	2.0	x	x	
Total	1,033	100.0			
Percent of total operations			92.2	56.9	54.9
Percent of total operations weighted ⁴			91.1	49.1	45.9

¹Useable operation—respondent provided answers to inventory questions for the operation (either zero or positive number on hand).

²Survey complete operation—respondent provided answers to all or nearly all questions.

³Ineligible—no beef cows at time of interview, which occurred from January 14 through March 31, 2008.

⁴Weighted response—the rate was calculated using the turnover weights.

Appendix I: Sample Profile

A. Responding Operations

1. Total inventory, by herd size

	Phase I: General Beef Management Report	Phase II: VS Initial Visit
Herd Size (Total Inventory)	Number of Responding Operations	
1-49	819	163
50-99	386	96
100-199	381	125
200 or more	573	183
Total	2,159	567

2. Number of responding operations, by region

	Phase I: General Beef Management Report	Phase II: VS Initial Visit
Region	Number of Responding Operations	
West	370	138
Central	612	196
South Central*	483	233
East*	694	
Total	2,159	567

*Regions were combined for VS portion of study.

Appendix II: U.S. Beef Cow Population and Operations

Number of cows on January 1, 2008*

Region	State	Beef Cow Inventory Jan. 1, 2008 (Thousand Head)	Beef Cow Operations 2007
West	California	655	11,200
	Colorado	730	9,900
	Idaho	460	7,100
	Montana	1,523	11,000
	New Mexico	460	5,900
	Oregon	605	11,500
	Wyoming	733	4,800
	Total	5,166	61,400
Central	Iowa	1,015	25,000
	Kansas	1,511	26,000
	Missouri	2,080	54,000
	Nebraska	1,883	20,000
	North Dakota	922	10,500
	South Dakota	1,644	14,500
	Total	9,055	150,000
Southeast	Alabama	677	23,000
	Arkansas	943	26,000
	Florida	936	15,500
	Georgia	553	17,500
	Kentucky	1,159	38,000
	Louisiana	513	12,100
	Mississippi	519	18,500
	Oklahoma	2,053	48,000
	Tennessee	1,079	42,000
	Texas	5,240	130,000
	Virginia	692	21,000
Total	14,364	391,600	
Total (24 States)		28,585	603,000
Percentage of U.S.		87.8	79.6
Total U.S. (50 States)		32,553	757,900

*Source: NASS Cattle report, February 1, 2008, and NASS Farms, Land in Farms, and Livestock Operations 2007 Summary report, February 2008. An operation is any place having one or more head of beef cows, excluding cows used to nurse calves, on hand at any time during the year.

Appendix III: Study Objectives and Related Outputs

1. Describe trends in beef cow-calf health and management practices
 - Part I: Reference of Beef Cow-calf Management Practices, October 2008
 - Part II: Reference of Beef Cow-calf Management Practices, February 2009
 - Part III: Changes in the U.S. Beef Cattle Industry, 1993–2008, May 2009
 - **Part IV: Reference of Beef Cow-calf Health and Health Management, February 2010**
 - Part V: Reference of Beef Cow-calf Management Practices, expected February 2010
 - Bull Management Practices on U.S. Beef Cow-calf Operations, info sheet, February 2009
 - Calving Management Practices on U.S. Beef Cow-calf Operations, info sheet, February 2009
 - Parasite Control Practices on U.S. Cow-calf Operations, 2007–08, info sheet, December 2009
 - Parasites on U.S. Beef Cow-calf Operations, 2007–08, info sheet, December 2009
 - Mortality of Calves and Cattle on U.S. Beef Cow-calf Operations, info sheet, expected January 2010
 - Vaccination of Cattle and Calves on U.S. Beef Cow-calf Operations, info sheet, expected January 2010
 - Vaccination of Calves for Respiratory Disease on U.S. Beef Cow-calf Operations, info sheet, expected January 2010
 - Use of Nutritional Supplements on U.S. Beef Cow-calf Operations, info sheet, expected February 2010
2. Evaluate management factors related to beef quality assurance
 - Part I: Reference of Beef Cow-calf Management Practices, October 2008
 - Injection Practices on U.S. Beef Cow-calf Operations, 2007–08, info sheet, January 2010
3. Describe record-keeping practices on cow-calf operations
 - Part I: Reference of Beef Cow-calf Management Practices, October 2008
 - Part III: Changes in the U.S. Beef Cattle Industry, 1993–2008, May 2009
 - Cattle Identification Practices on U.S. Beef Cow-calf Operations, info sheet, February 2009
 - Record Keeping, info sheet, expected February 2010

4. Determine producer awareness of bovine viral diarrhea (BVD) and management practices used for BVD control

- **Part IV: Reference of Beef Cow-calf Health and Health Management, February 2010**

- BVD Control on U.S. Beef Cow-calf Operations, Interpretive Report, expected spring 2010
- Beef Producers' Perceptions About the Value of Testing for Persistent Infection with Bovine Viral Diarrhea Virus in Calves, info sheet, June 2009
- Persistent Infection of Calves with Bovine Viral Diarrhea Virus on U.S. Beef Cow-calf Operations, info sheet, June 2009

5. Describe current biosecurity practices on cow-calf operations

- **Part IV: Reference of Beef Cow-calf Health and Health Management, February 2010**

- Biosecurity on U.S. Beef Cow-calf Operations, info sheet, January 2010
- Producer Disease Awareness, info sheet, expected February 2010

6. Determine the prevalence and antimicrobial resistance patterns of potential food-safety pathogens

- Antimicrobial Drug Use and Antimicrobial Resistance on U.S. Cow-calf Operations, 2007–08, Interpretive Report, expected summer 2010
- *Campylobacter* on U.S. Beef Cow-calf Operations, 2007–08, info sheet, June 2009
- *Enterococcus* on U.S. Beef Cow-calf Operations, 2007–08, info sheet, June 2009
- *Salmonella* on U.S. Beef Cow-calf Operations, 2007–08, info sheet, June 2009

