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Animal and Plant Health Inspection Service

Veterinary Services

National Animal Health Monitoring System

April 2010

Beef 2007–08

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

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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 will find the latest information on the animal health and management practices of one of the Nation's most important livestock industries.

Calving season

A defined calving season allows for a more uniform calf crop at marketing and for more intense management during the calving period, a time critically important to the health of cows and calves. Overall, 46.1 percent of beef cow-calf operations had year-round calving seasons, and 45.0 percent had spring calving seasons. Calving season was strongly related to herd size and to region. The majority of operations with 200 or more beef cows (75.7 percent) had spring calving seasons, as did the majority of operations in the West region (78.8 percent). Choice of calving season often depends on seasonal weather patterns, feed availability, and cattle markets. In some cases, spring calving allows producers to capitalize on available grazing forage. In other areas of the country, grazing forage is available in fall and winter.

Expected calving outcome

On approximately two of three operations, the number or percentage of beef calves born dead during the last completed calving season were at expected levels. About 1 of 10 operations had a born-dead calving outcome greater than expected (9.0 percent of operations for heifers and 10.0 percent of operations for cows). About one of four operations reported less than expected calf losses at birth for beef heifers and for beef cows.

Calf mortality prior to weaning

Calves born dead accounted for nearly half of calf losses (44.5 percent) during the first 6 months of 2008. Another 13.5 percent of losses occurred in the first 24 hours following birth, and 28.0 percent of the losses occurred more than 24 hours but less than 3 weeks following birth. This information highlights how critical the parturition process and early post partum period are for calf survival. Ensuring proper nutrition for dams, timely intervention during difficult calvings (dystocia), and effective infectious disease control can help minimize calving losses.

Brucellosis vaccination of heifers less than 12 months old

Overall, brucellosis vaccination practices have remained relatively stable from 5 years prior to the interview. More than one-half of operations did not vaccinate heifers less than 12 months old for brucellosis 5 years previously or at the time of the interview (51.2 and 59.0 percent of operations, respectively). Less than one-fifth of operations vaccinated all heifers for brucellosis 5 years previously or at the time of the interview.

Bull selection for heifers

When asked about the most important criterion for purchasing bulls or semen to be used to breed replacement heifers, the highest percentage of operations (37.2 percent) cited calving ease expected progeny difference (EPD). Calving ease as a selection criterion has been recommended for a long time and has been successfully used by many producers.

Selected Highlights of Beef 2007–08 Part V

- About three-fourths of beef cows (76.7 percent) on hand July 1, 2008, had calved during the first 6 months of 2008. By herd size, the percentage of beef cows that calved during the first 6 months of 2008 ranged from 66.2 percent on operations with 1 to 49 beef cows to 85.9 percent on operations with 200 or more beef cows.

- In the West and Central regions, a higher percentage of beef cows calved during the first 6 months of 2008 (90.1 and 85.9 percent, respectively) than in the Southeast region (66.3 percent).

- During the first 6 months of 2008, nearly all calves born to beef cows and beef heifers were born alive (97.9 and 94.2 percent, respectively).

- More than three of four operations with 200 or more beef cows had spring calving seasons compared with about one of three operations with 1 to 49 beef cows.

- The majority of operations in the West and Central regions had a spring calving season (78.8 and 60.8 percent, respectively). The majority of operations in the Southeast region (54.8 percent) calved year-round.

- During the first 6 months of 2008, 3.2 percent of calves born alive died or were lost from all causes prior to weaning. The percentage of unweaned calves that died or were lost from all causes was similar across herd sizes.

- Calves born dead accounted for nearly one-half of all calves (44.5 percent) that died prior to weaning during the first 6 months of 2008. Only 14.0 percent of calf loss or death occurred 3 weeks or more following birth but prior to weaning. About one in four calf losses (28.0 percent) occurred more than 24 hours but less than 3 weeks following birth.

- About 1 percent of beef breeding cattle (weaned or older) died or was lost from all causes during the first 6 months of 2008, regardless of herd size.

- Over 90 percent of operations would contact a veterinarian for assistance based on observing the following conditions in their animals: slobbering or salivation, blisters on muzzle, blisters on feet, and death.

- Four of 10 operations (39.6 percent) planned to purchase a bull or semen in the next 2 years specifically for breeding heifers.

Acknowledgments

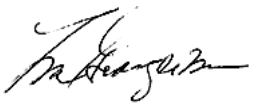
This report was a cooperative effort between two U.S. Department of Agriculture (USDA) agencies: the National Agricultural Statistics Service (NASS) and the Animal and Plant Health Inspection Service (APHIS).

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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Feedback

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

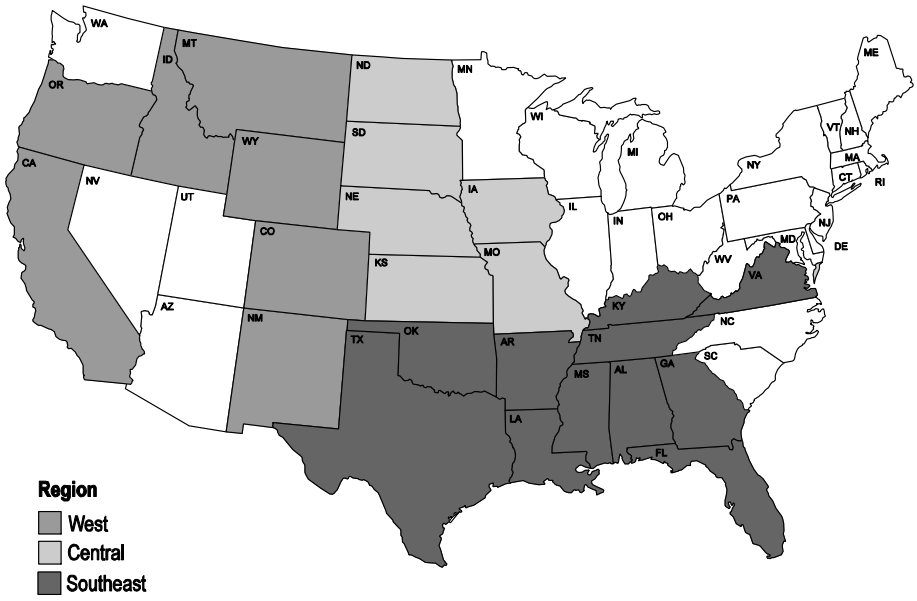
The National Animal Health Monitoring System (NAHMS) is a nonregulatory program of the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service. NAHMS is designed to help meet the Nation's animal health information needs and has collected data on cattle health and management 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 occurrence of "mystery calf disease" throughout the United States. Such reports stimulated requests from stakeholders for information on this "new" disease. The CHAPA study became one vehicle that provided estimates of the frequency of occurrence and geographic distribution of the disease.

The NAHMS Beef '97 study provided information that 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 Nation's 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 V: Reference of Beef Cow-calf Management Practices in the United States, 2007–08 is the fifth in a series of reports containing national information from the NAHMS Beef 2007–08 study. This report provides information collected from 470 cow-calf operations by veterinary medical officers from July 1 through August 15, 2008.

NAHMS Beef 2007-08 Participating States



Terms Used in This Report

Animal average: The average value for all animals; a single 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 table c., p 48.

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

Beef heifer: Female bovine that has not yet calved.

Born alive: Calves alive at 2 hours following birth.

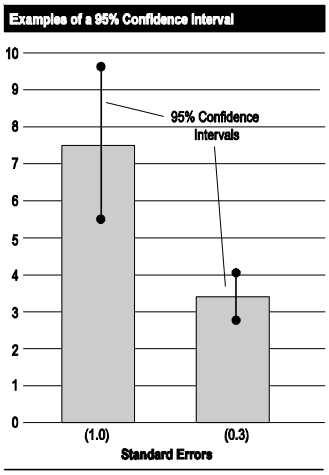
Failure to calve: Known abortion or failure to conceive/unobserved abortion.

Herd size: Herd size is based on January 1, 2008, beef cow inventory.

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 an example, see table c., p48.

Population estimates: The estimates in this report make inference to all operations in the target population (see Section II: Methodology, p 58). Data from the 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

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

Section I: Population Estimates

A. January-June Productivity

1. Calving percentage

About three-fourths of the beef cows on hand July 1, 2008, (76.7 percent) had calved during the first 6 months of 2008. By herd size, the percentage of beef cows that calved during the first 6 months of 2008 ranged from 66.2 percent on operations with 1 to 49 beef cows to 85.9 percent on operations with 200 or more beef cows.

a. Percentage of beef cows that calved during the first 6 months of 2008, by herd size:

Percent Calved*

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
66.2	(3.4)	77.4	(3.7)	75.1	(4.0)	85.9	(2.1)	76.7	(1.6)

*As a percentage of July 1, 2008, inventory of cows and heifers that had calved.

In the West and Central regions, a higher percentage of beef cows calved during the first 6 months of 2008 (90.1 and 85.9 percent, respectively) than in the Southeast region (66.3 percent).

b. Percentage of beef cows that calved during the first 6 months of 2008, by region:

Percent Calved*

Region

West		Central		Southeast	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
90.1	(4.0)	85.9	(1.9)	66.3	(2.5)

*As a percentage of July 1, 2008, inventory of cows and heifers that had calved.

Overall, 87.5 percent of the females that calved during the first 6 months of 2008 were beef cows. The percentages of calving females that were beef heifers or beef cows were similar by size of operation.

c. Of the female beef breeding cattle that calved during the first 6 months of 2008, percentage that were heifers and percentage that were cows, by herd size:

Percent Calved

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
Heifers	9.3	(1.3)	15.5	(2.0)	12.7	(1.2)	12.7	(0.8)	12.5	(0.6)
Cows	90.7	(1.3)	84.5	(2.0)	87.3	(1.2)	87.3	(0.8)	87.5	(0.6)
Total	100.0		100.0		100.0		100.0		100.0	

The percentages of calving females that were beef heifers or beef cows were similar by region.

d. Of the female beef breeding that calved during the first 6 months of 2008, percentage that were heifers and percentage that were cows, by region:

Percent Calved

Region

	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Heifers	15.2	(1.0)	13.6	(0.8)	10.4	(1.2)
Cows	84.8	(1.0)	86.4	(0.8)	89.6	(1.2)
Total	100.0		100.0		100.0	

2. Calves born alive

During the first 6 months of 2008, nearly all calves born to beef heifers and to beef cows were born alive (94.2 and 97.9, respectively). The percentages of calves born alive or dead to beef heifers and to beef cows during the first 6 months of 2008 were similar across herd sizes. For all operations, a higher percentage of calves born to beef heifers were born dead compared with calves born to beef cows.

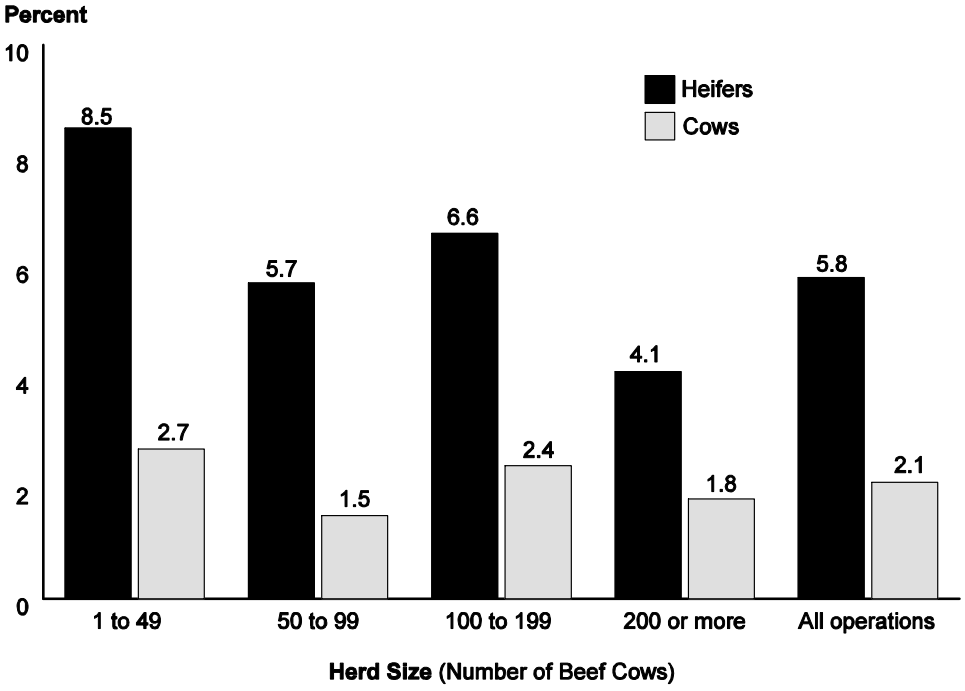
a. Percentage of calves born alive and percentage born dead to beef heifers and to beef cows during the first 6 months of 2008, by herd size:

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
Calves born to beef heifers										
Born alive	91.5	(2.9)	94.3	(1.5)	93.4	(1.5)	95.9	(0.5)	94.2	(0.8)
Born dead	8.5	(2.9)	5.7	(1.5)	6.6	(1.5)	4.1	(0.5)	5.8	(0.8)
Total	100.0		100.0		100.0		100.0		100.0	
Calves born to beef cows										
Born alive	97.3	(0.6)	98.5	(0.3)	97.6	(0.3)	98.2	(0.2)	97.9	(0.2)
Born dead	2.7	(0.6)	1.5	(0.3)	2.4	(0.3)	1.8	(0.2)	2.1	(0.2)
Total	100.0		100.0		100.0		100.0		100.0	

Percentage of Calves Born Dead to Beef Heifers and to Beef Cows During the First 6 Months of 2008, by Herd Size



The percentages of calves born dead to beef heifers and to beef cows during the first 6 months of 2008 were similar across regions.

b. Percentage of calves born alive and percentage born dead to beef heifers and to beef cows during the first 6 months of 2008, by region:

	Percent Calves					
	Region					
	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Calves born to beef heifers						
Born alive	96.3	(0.7)	95.1	(0.8)	91.9	(1.8)
Born dead	3.7	(0.7)	4.9	(0.8)	8.1	(1.8)
Total	100.0		100.0		100.0	
Calves born to beef cows						
Born alive	97.8	(0.3)	98.0	(0.2)	97.9	(0.3)
Born dead	2.2	(0.3)	2.0	(0.2)	2.1	(0.3)
Total	100.0		100.0		100.0	

3. Timing of last completed calving season

Note: This section reports data for the last complete calving season, not just a specific 6-month interval. The last complete calving season could span a calendar year (e.g., if producers' cows began calving in November or December). The last complete calving season could also reflect calvings in 2007 rather than in 2008 (e.g., for producers with fall calving seasons).

A higher percentage of operations with 1 to 49 beef cows than operations with 200 or more beef cows had year-round calving seasons (bulls not removed for at least 30 days). In contrast, about three of four operations with 200 or more beef cows had spring calving seasons compared with about one of three operations with 1 to 49 beef cows. Overall, year-round and spring calving seasons each accounted for nearly one-half of the operations.

a. Percentage of operations by timing of last completed calving season and by herd size:

Percent Operations

Herd Size (Number of Beef Cows)

	1-49		50-99		100-199		200 or More		All Operations	
Timing of Last Completed Calving Season*	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**
Year-round	54.3	(5.1)	28.3	(6.0)	37.6	(7.1)	15.4	(3.4)	46.1	(3.8)
Fall	8.2	(3.0)	12.7	(4.8)	6.8	(2.7)	8.9	(3.8)	8.9	(2.2)
Spring	37.5	(4.9)	59.0	(6.8)	55.6	(6.7)	75.7	(4.5)	45.0	(3.7)
Total	100.0		100.0		100.0		100.0		100.0	

*Year-round = previous 12 months; fall calving = fall 2007; spring calving = 2008 calving season, whether complete or not.

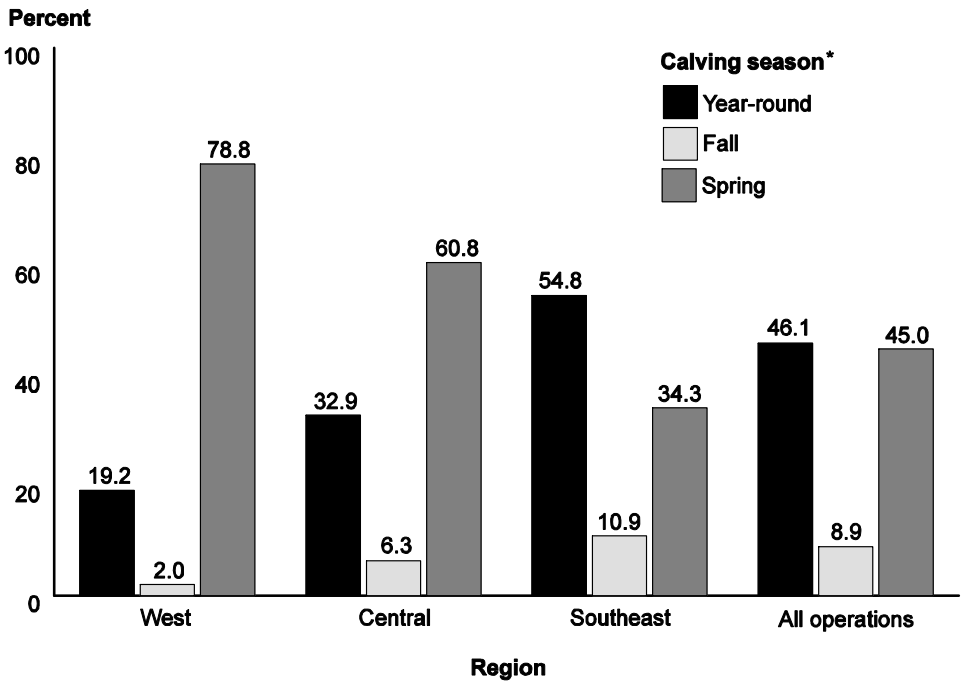
The majority of operations in the West and Central regions (78.8 and 60.8 percent, respectively) had a spring calving season. The majority of operations in the Southeast region (54.8 percent) had year-round calving seasons.

b. Percentage of operations by timing of last completed calving season and by region:

	Percent Operations					
	Region					
	West		Central		Southeast	
Timing of Last Completed Calving Season*	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Year-round	19.2	(9.4)	32.9	(5.8)	54.8	(5.1)
Fall	2.0	(1.2)	6.3	(2.6)	10.9	(3.2)
Spring	78.8	(9.3)	60.8	(5.7)	34.3	(4.9)
Total	100.0		100.0		100.0	

*Year-round = previous 12 months; fall calving = fall 2007; spring calving = 2008 calving season, whether complete or not.

Percentage of Operations by Timing of Last Completed Calving Season and by Region



*Year-round = previous 12 months; fall calving = fall 2007; spring calving = 2008 calving season, whether complete or not.

4. Calving outcome

Producers were asked about the reproductive outcome for heifers and cows exposed for breeding during the breeding season associated with the last completed calving season. Of beef cows and beef heifers exposed for breeding, a slightly higher percentage of beef cows than beef heifers (92.2 and 87.2 and percent, respectively) had calves born alive during the last completed calving season. A higher percentage of exposed beef heifers than exposed beef cows (5.8 and 1.9 percent, respectively) had calves born dead. Other calving outcomes were similar for exposed beef heifers and beef cows. For beef heifers, 93.8 percent (87.2/(87.2+5.8) of calves born in the last complete calving season were born alive, which was very similar to the 94.2 percent of calves born alive to heifers in the first 6 months of 2008 (table a., p 7). For exposed beef cows, 98.0 percent (92.2/(92.2+1.9) of calves born in the last complete calving season were born alive, which was very similar to the 97.9 percent of calves born alive in the first 6 months of 2008 (table a., p 7).

a. For beef cows and beef heifers exposed for breeding during the last completed calving season, percentage of beef heifers, beef cows (and both beef heifers and cows) by calving outcome:

	Percent					
	Beef Heifers		Beef Cows		Beef Heifers and Cows	
Calving Outcome	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Calf born alive	87.2	(1.3)	92.2	(0.7)	91.5	(0.6)
Calf born dead	5.8	(0.8)	1.9	(0.1)	2.3	(0.2)
Known abortion	0.7	(0.2)	0.3	(0.1)	0.4	(0.1)
Failure to conceive or unobserved abortion	5.5	(1.2)	4.3	(0.6)	4.5	(0.5)
Other (cow died, sold, lost before calving)	0.8	(0.3)	1.3	(0.2)	1.3	(0.2)
Total	100.0		100.0		100.0	

On year-round calving operations, 19.8 percent of beef heifers exposed for breeding had a calving outcome other than born alive, compared with 9.6 percent of beef cows exposed for breeding. About 1 of 12 exposed beef heifers (8.5 percent) had a calf born dead compared with 2.1 percent of exposed beef cows.

b. For beef cows and beef heifers exposed for breeding on **year-round calving operations**, percentage of beef heifers, beef cows (and both beef heifers and cows) by calving outcome:

	Percent					
	Beef Heifers		Beef Cows		Beef Heifers and Cows	
Calving Outcome	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Calf born alive	80.2	(3.6)	90.4	(1.4)	89.2	(1.4)
Calf born dead	8.5	(2.5)	2.1	(0.3)	2.8	(0.4)
Known abortion	1.1	(0.6)	0.2	(0.1)	0.4	(0.1)
Failure to conceive or unobserved abortion	9.0	(3.6)	5.8	(1.3)	6.2	(1.3)
Other (cow died, sold, lost before calving)	1.2	(0.6)	1.5	(0.5)	1.4	(0.4)
Total	100.0		100.0		100.0	

Photo courtesy of Geni Wren, “Bovine Veterinarian” Magazine.

On fall calving operations, 95.0 percent of all beef heifers and cows exposed for breeding had a calf born alive. Exposed beef heifers and beef cows each had similar live calving percentages (93.6 and 95.1 percent, respectively). About 1 of 20 exposed beef heifers on fall calving operations (4.9 percent) had a calf born dead.

c. For beef cows and beef heifers exposed for breeding on **fall calving operations**, percentage of beef heifers, beef cows (and both beef heifers and cows) by calving outcome:

Percent

	Beef Heifers		Beef Cows		Beef Heifers and Cows	
Calving Outcome	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**
Calf born alive	93.6	(1.9)	95.1	(1.2)	95.0	(1.1)
Calf born dead	4.9	(2.1)	0.8	(0.3)	1.2	(0.2)
Known abortion	0.5	(0.4)	0.6	(0.4)	0.6	(0.1)
Failure to conceive or unobserved abortion	0.8	(0.7)	2.5	(1.0)	2.3	(0.6)
Other (cow died, sold, lost before calving)	0.2	(0.2)	1.0	(0.5)	0.9	(0.3)
Total	100.0		100.0		100.0	

On spring calving operations, 89.3 percent of all beef heifers and cows exposed for breeding had a calf born alive. Exposed beef heifers and exposed beef cows each had similar live calving percentages (87.2 and 89.7 percent, respectively). About 1 of 20 exposed beef heifers on spring calving operations (4.7 percent) had a calf born dead.

d. For beef cows and beef heifers exposed for breeding on **spring calving operations**, percentage of beef heifers, beef cows (and both beef heifers and beef cows) by calving outcome:

Percent

	Beef Heifers		Beef Cows		Beef Heifers and Cows	
Calving Outcome	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**
Calf born alive	87.2	(1.4)	89.7	(1.2)	89.3	(1.1)
Calf born dead	4.7	(0.6)	1.8	(0.2)	2.2	(0.2)
Known abortion	0.6	(0.2)	0.3	(0.1)	0.3	(0.1)
Failure to conceive or unobserved abortion	4.4	(0.9)	3.6	(0.6)	3.8	(0.6)
Other (cow died, sold, lost before calving)	0.7	(0.4)	1.3	(0.3)	1.2	(0.3)
Calf not yet born*	2.4	(0.8)	3.3	(0.8)	3.2	(0.7)
Total	100.0		100.0		100.0	

*Spring 2008 calving season. The spring 2008 calving season was not complete on all operations at the time of the interview/questionnaire so the option “calf not yet born” was offered to respondents.

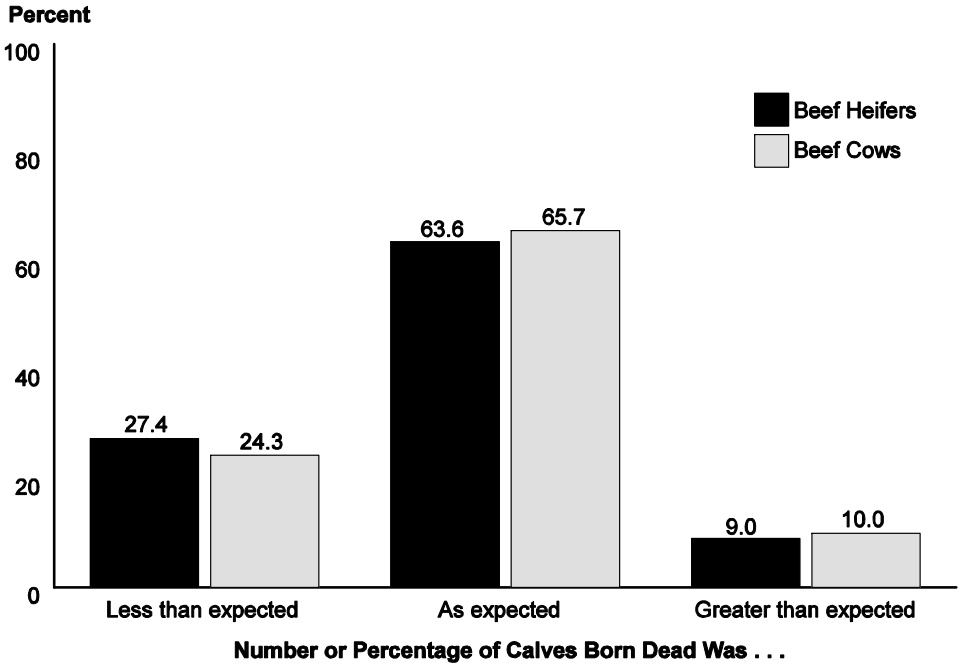
5. Expected calving outcome

The number or percentage of calves born dead during the most recent calving season to beef **heifers** exposed for breeding was as expected on 63.6 percent of operations. Similarly, the number or percentage of calves born dead to exposed **cows** during the most recent calving season was as expected on 65.7 percent of operations. The born-dead calving outcome was greater than expected on 9.0 percent of operations for heifers and 10.0 percent of operations for cows.

a. Percentage of operations by whether the number or percentage of calves born dead during the most recent calving season to beef heifers and beef cows exposed for breeding was less than expected, as expected, or greater than expected:

	Percent Operations			
	Beef Heifers		Beef Cows	
Number or Percentage of Calves Born Dead Was . . .	Percent	Std. Error	Percent	Std. Error
Less than expected	27.4	(4.1)	24.3	(3.2)
As expected	63.6	(4.5)	65.7	(3.6)
Greater than expected	9.0	(2.6)	10.0	(2.1)
Total	100.0		100.0	

Percentage of Operations by Whether the Number or Percentage of Calves Born Dead During the Most Recent Calving Season to Beef Heifers and Cows Exposed for Breeding was Less Than Expected, as Expected, or Greater than Expected



On operations that reported a **greater-than-expected number or percentage** of calves born dead during the most recent calving season to heifers and cows exposed for breeding, 14.1 percent of exposed heifers had calves born dead, and 4.1 percent of exposed cows had calves born dead. On operations that reported an **as-expected number or percentage** of calves born dead, 5.8 percent of exposed heifers had calves born dead and 1.8 percent of exposed cows had calves born dead.

b. On operations in which the number or percentage of calves born dead during the most recent calving season to beef heifers and beef cows exposed for breeding was less than expected, as expected, or greater than expected, percentage of exposed females that had a calf born dead:

	Percent of Exposed Females with Calves Born Dead*			
	Beef Heifers		Beef Cows	
Number or Percentage of Calves Born Dead Was . . .	**Percent**	**Std. Error**	**Percent**	**Std. Error**
Less than expected	1.9	(0.7)	1.2	(0.2)
As expected	5.8	(1.1)	1.8	(0.2)
Greater than expected	14.1	(1.8)	4.1	(0.5)
Overall	5.8	(0.8)	1.9	(0.1)

*Calves born dead as a percentage of females exposed for breeding.

The percentages of beef heifers and beef cows exposed for breeding that failed to calve during the most recent calving season were consistent with operator expectations on 72.5 and 69.9 percent of operations, respectively.

c. Percentage of operations by whether the number or percentage of beef heifers and beef cows exposed for breeding that failed to calve during the most recent calving season was less than expected, as expected, or greater than expected:

	Percent Operations			
	Beef Heifers		Beef Cows	
Number or Percentage of Heifers and Cows that Failed to Calve Was…	**Percent**	**Std. Error**	**Percent**	**Std. Error**
Less than expected	19.6	(3.7)	14.3	(2.6)
As expected	72.5	(4.3)	69.9	(3.6)
Greater than expected	7.9	(2.7)	15.8	(3.0)
Total	100.0		100.0	

On operations in which the number or percentage of beef heifers and beef cows exposed for breeding that failed to calve during the last breeding season was as expected, 6.2 percent of exposed heifers failed to calve, and 3.5 percent of exposed cows failed to calve.

d. On operations in which the number or percentage of beef heifers and beef cows exposed for breeding that failed to calve during the last breeding season was less than expected, as expected, or greater than expected, percentage of exposed females that failed to calve:

	Percent of Exposed Females that Failed to Calve*			
	Beef Heifers		Beef Cows	
Percentage of Heifers and Cows that Failed to Calve Was…	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**
Less than expected	1.5	(0.6)	1.4	(0.3)
As expected	6.2	(1.6)	3.5	(0.7)
Greater than expected	19.4	(3.8)	12.4	(2.0)
Overall	6.4	(1.2)	4.8	(2.1)

*Females that failed to calve as a percentage of those exposed for breeding.

B. Deaths

1. Calf mortality prior to weaning

Note: Tables a. through d. refer to calves born alive from January 1 through June 30, 2008, and survived at least 2 hours following birth.

During the first 6 months of 2008, 3.2 percent of calves born alive died or were lost from all causes prior to weaning. The percentage of unweaned calves that died or were lost from all causes was similar across herd sizes.

a. Percentage of calves born alive that died or were lost from all causes prior to weaning during the first 6 months of 2008, 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**
3.3	(0.7)	3.4	(0.5)	3.3	(0.4)	3.1	(0.5)	3.2	(0.3)

*As a percentage of calves born alive.

The percentage of calves born alive that died or were lost was not substantially different across regions.

b. Percentage of calves born alive that died or were lost from all causes prior to weaning during the first 6 months of 2008, by region:

Percent Calves*					
Region					
West		**Central**		**Southeast**	
Pct.	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**
3.7	(0.7)	3.8	(0.5)	2.5	(0.3)

*As a percentage of calves born alive.

About one-third of operations with 200 or more beef cows (34.7 percent) lost between 2.0 and 4.9 percent of calves prior to weaning during the first 6 months of 2008. Operations with 50 to 99 and 100 to 199 beef cows reported similar results (28.9 and 32.8 percent of operations, respectively). About 7 of 10 operations with 1 to 49 beef cows (70.2 percent) had no calf losses prior to weaning during the first 6 months of 2008. However, 12.4 percent of operations with 1 to 49 beef cows had calf losses of 10 percent or higher. This higher percentage may reflect the more substantial impact that even a single loss has on a small herd relative to the total number of calves.

c. Percentage of operations by percentage of calves born alive that died or were lost to all causes prior to weaning during the first 6 months of 2008, and by herd size:

Percent Operations

Herd Size (Number of Beef Cows)

	1-49		50-99		100-199		200 or More		All Operations	
Percent Calves*	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**
0	70.2	(4.8)	28.1	(6.2)	29.5	(6.8)	11.4	(3.4)	55.6	(3.7)
0.01 to 0.9	0.0	(--)	0.8	(0.8)	3.2	(1.5)	20.4	(4.6)	1.5	(0.3)
1.0 to 1.9	0.0	(--)	16.0	(5.2)	10.7	(3.7)	14.6	(4.5)	4.7	(1.1)
2.0 to 4.9	7.7	(2.8)	28.9	(6.8)	32.8	(5.7)	34.7	(5.6)	15.4	(2.4)
5.0 to 9.9	9.7	(3.1)	24.5	(6.0)	15.2	(4.3)	13.0	(3.7)	13.1	(2.4)
10.0 or more	12.4	(3.4)	1.7	(1.2)	8.6	(4.4)	5.9	(4.3)	9.7	(2.3)
Total	100.0		100.0		100.0		100.0		100.0	

*Number of calves that died in the first 6 months of 2008 as a percentage of calves born alive in the first 6 months.

On about 25 percent of operations in the West region, unweaned calf losses during the first 6 months of 2008 totaled 5.0 to 9.9 percent. On about 10 percent of operations in the Central and Southeast regions, unweaned calf losses totaled 10.0 percent or more. Only 1.0 percent of operations in the West region had losses of 10.0 percent or more.

d. Percentage of operations by percentage of calves born alive that died or were lost to all causes prior to weaning during the first 6 months of 2008, and by region:

Percent Operations

Region

	West		Central		Southeast	
Percent Calves*	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**
0	54.2	(9.2)	39.7	(5.8)	61.6	(4.9)
0.01 to 0.9	3.9	(2.0)	2.7	(0.8)	0.7	(0.3)
1.0 to 1.9	5.0	(2.2)	6.5	(2.4)	4.0	(1.4)
2.0 to 4.9	10.8	(3.5)	24.4	(4.5)	12.7	(3.1)
5.0 to 9.9	25.1	(8.4)	16.0	(3.7)	10.4	(3.1)
10.0 or more	1.0	(0.5)	10.7	(4.1)	10.6	(3.2)
Total	100.0		100.0		100.0	

*Number of calves that died in the first 6 months of 2008 as a percentage of calves born alive in the first 6 months.

Calves born dead accounted for nearly one-half (44.5 percent) of all calves that died prior to weaning during the first 6 months of 2008. Only 14.0 percent of the calf loss or death occurred 3 weeks or more following birth but prior to weaning. About one of four calf losses (28.0 percent) occurred more than 24 hours but less than 3 weeks following birth.

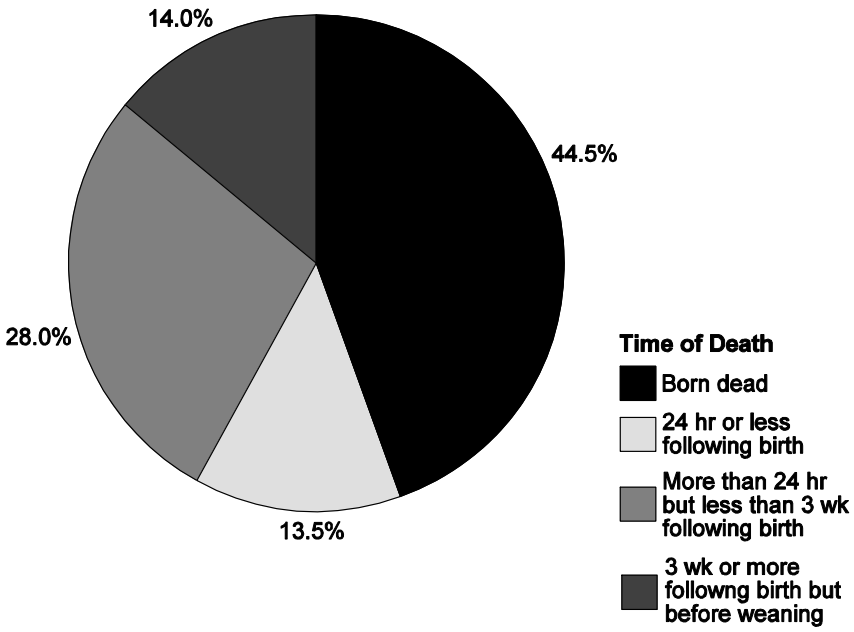
e. Percentage of calves that were born dead, died, or were lost prior to weaning during the first 6 months of 2008, by time of death and by herd size:

Percent Calves

Herd Size (Number of Beef Cows)

	1-49		50-99		100-199		200 or More		All Operations	
Time of Death	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**
Born dead	50.9	(6.5)	38.9	(5.3)	48.4	(4.7)	39.8	(4.8)	44.5	(2.8)
24 hr or less following birth	15.0	(3.3)	6.8	(2.1)	11.9	(2.1)	18.5	(4.4)	13.5	(1.8)
More than 24 hr but less than 3 wk following birth	25.5	(6.5)	39.3	(5.5)	24.1	(3.3)	25.0	(3.4)	28.0	(2.5)
3 wk or more following birth but before weaning	8.6	(3.6)	15.0	(3.2)	15.6	(2.5)	16.7	(2.1)	14.0	(1.5)
Total	100.0		100.0		100.0		100.0		100.0	

Percentage of Calves that were Born Dead, Died, or were Lost Prior to Weaning During the First 6 Months of 2008, by Time of Death



During the first 6 months of 2008, the highest percentages of calf death losses in unweaned calves less than 3 weeks old were attributed primarily to weather-related causes (27.6 percent), unknown causes (17.5 percent), birth-related problems (17.4 percent), and digestive problems (16.3 percent). For unweaned calves 3 weeks old and older, the highest percentages of death losses were due primarily to respiratory problems (37.0 percent), unknown causes (21.3 percent) and digestive problems (17.7 percent). For all unweaned calves, the primary cause of calf death loss was attributed to weather-related causes and to unknown causes (23.7 and 18.5 percent of death losses, respectively).

f. For unweaned calves that died or were lost prior to weaning during the first 6 months of 2008, percentage of calf death losses by primary cause of death and by age:

	Percent Unweaned Calves					
	Age					
	Calves Less Than 3 Weeks Old		Calves 3 Weeks Old and Older		All Calves	
Primary Cause of Death Losses	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Digestive problems	16.3	(3.0)	17.7	(3.2)	16.6	(2.3)
Respiratory problems	9.4	(1.9)	37.0	(5.6)	16.4	(2.6)
Metabolic problems	0.0	(0.0)	0.1	(0.1)	0.0	(0.0)
Lameness or injury	3.4	(1.4)	4.4	(1.7)	3.7	(1.1)
Birth-related problems	17.4	(2.7)	0.2	(0.2)	13.0	(1.9)
Other known diseases	0.9	(0.9)	0.8	(0.5)	0.9	(0.7)
Weather-related causes	27.6	(4.5)	12.2	(3.2)	23.7	(3.6)
Poisoning	0.1	(0.1)	0.9	(0.5)	0.3	(0.2)
Predators	4.8	(1.5)	4.9	(3.2)	4.8	(1.4)
Theft	0.2	(0.2)	0.0	(0.0)	0.2	(0.2)
Other known causes	2.4	(0.9)	0.5	(0.3)	1.9	(0.7)
Unknown causes	17.5	(4.1)	21.3	(5.5)	18.5	(3.5)
Total	100.0		100.0		100.0	

2. Cattle mortality

About 1 percent of weaned or older beef breeding cattle died or was lost from all causes during the first 6 months of 2008, regardless of herd size.

a. Percentage of weaned or older beef breeding cattle that died or were lost from all causes during the first 6 months of 2008, by herd size:

Percent Breeding 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
1.1	(0.3)	1.0	(0.2)	1.1	(0.2)	0.8	(0.1)	1.0	(0.1)

*As a percentage of July 1, 2008, inventory (cows plus replacement heifers).

Death losses from all causes during the first 6 months of 2008 were not substantially different across regions.

b. Percentage of weaned or older beef breeding cattle that died or were lost from all causes during the first 6 months of 2008, by region:

Percent Breeding Cattle*

Region

West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
0.7	(0.1)	0.8	(0.1)	1.2	(0.2)

*As a percentage of July 1, 2008, inventory (cows plus replacement heifers)

A majority of operations (69.6 percent) had no death losses of weaned or older beef breeding cattle during the first 6 months of 2008. In general, the percentage of operations that had no death losses of beef breeding cattle decreased as herd size increased.

c. Percentage of operations by percentage of weaned or older beef breeding cattle that died or were lost from all causes during the first 6 months of 2008, and by herd size:

Percent Operations

Herd Size (Number of Beef Cows)

	1-49		50-99		100-199		200 or More		All Operations	
Percent Cattle*	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**
0	80.5	(4.4)	58.5	(6.8)	39.1	(6.4)	22.6	(4.6)	69.6	(3.3)
0.01 to 0.9	0.2	(0.2)	6.2	(3.2)	19.9	(4.5)	39.7	(5.3)	5.2	(0.9)
1.00 to 1.9	0.3	(0.3)	14.5	(4.0)	20.9	(4.7)	29.8	(6.0)	6.3	(1.0)
2.00 to 4.9	9.3	(3.3)	19.4	(6.2)	17.9	(6.5)	7.9	(4.2)	11.8	(2.6)
5.00 to 9.9	9.0	(3.2)	1.4	(1.0)	1.4	(1.1)	0.0	(--)	6.5	(2.2)
10.00 or more	0.7	(0.7)	0.0	(--)	0.8	(0.8)	0.0	(--)	0.6	(0.5)
Total	100.0		100.0		100.0		100.0		100.0	

*As a percentage of July 1, 2008, inventory (cows plus replacement heifers).

Across regions, there was no substantial difference in the percentage of operations by percentage of weaned or older beef breeding cattle that died or were lost.

d. Percentage of operations by percentage of weaned or older beef breeding cattle that died or were lost from all causes during the first 6 months of 2008, and by region:

	Percent Operations					
	Region					
	West		Central		Southeast	
Percent Cattle*	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
0	68.5	(7.1)	64.7	(5.0)	71.6	(4.6)
0.01 to 0.9	12.8	(3.7)	8.8	(1.6)	2.7	(1.0)
1.00 to 1.9	8.9	(3.1)	10.7	(2.7)	4.4	(1.0)
2.00 to 4.9	3.3	(2.1)	11.4	(3.9)	13.2	(3.6)
5.00 to 9.9	6.1	(4.2)	4.4	(2.2)	7.3	(3.1)
10.00 or more	0.4	(0.4)	0.0	(--)	0.8	(0.7)
Total	100.0		100.0		100.0	

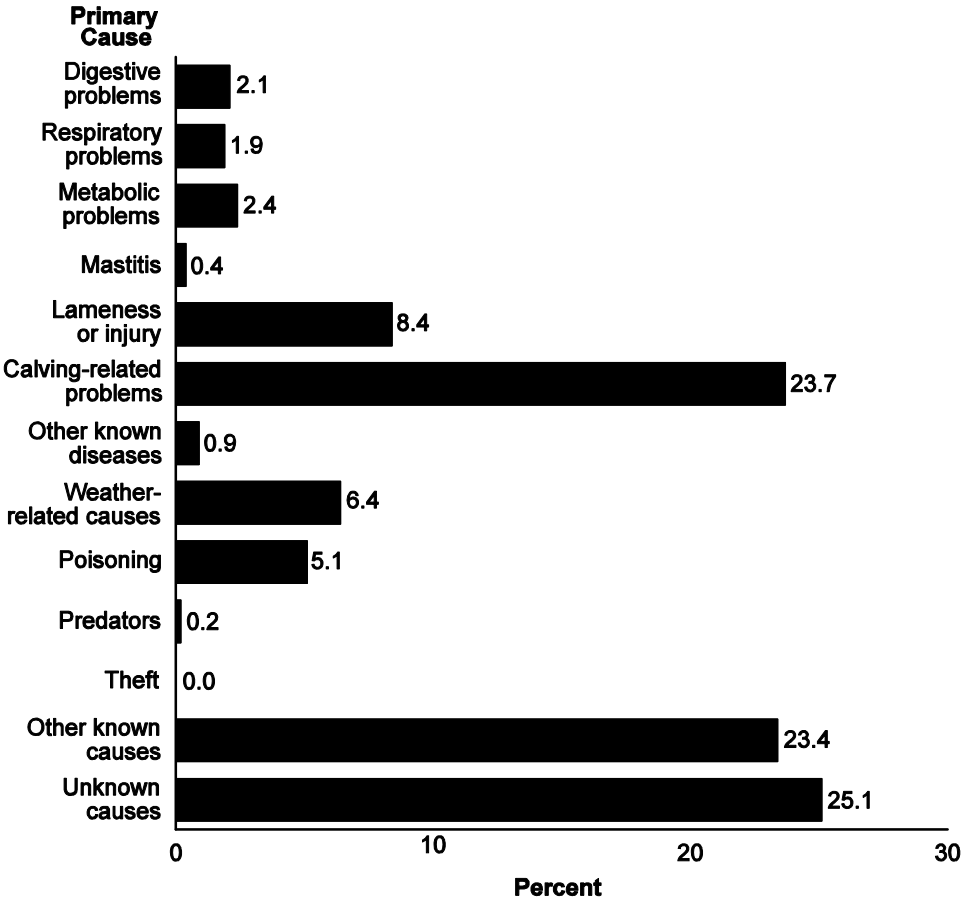
*As a percentage of July 1, 2008, inventory (cows plus replacement heifers).

Unknown causes was the primary reason for the highest percentage of death losses (25.1 percent) in weaned or older beef breeding cattle during the first 6 months of 2008. Unknown causes, calving-related problems, and other known causes each accounted for about one-fourth of death losses. Old age accounted for the highest percentage of specified other known causes of death.

e. For weaned or older beef breeding cattle that died or were lost during the first 6 months of 2008, percentage of cattle death losses by primary cause of death:

Primary Cause of Death	Percent Breeding Cattle Losses	Standard Error
Digestive problems	2.1	(0.8)
Respiratory problems	1.9	(0.6)
Metabolic problems	2.4	(1.0)
Mastitis	0.4	(0.2)
Lameness or injury	8.4	(2.7)
Calving-related problems	23.7	(4.9)
Other known diseases	0.9	(0.6)
Weather-related causes	6.4	(1.6)
Poisoning	5.1	(3.5)
Predators	0.2	(0.1)
Theft	0.0	(--)
Other known causes	23.4	(5.2)
Unknown causes	25.1	(5.0)
Total	100.0	

For Weaned or Older Beef Breeding Cattle that Died or were Lost During the First 6 Months of 2008, Percentage of Cattle Death Losses by Primary Cause of Death



C. Vaccination and Testing Practices

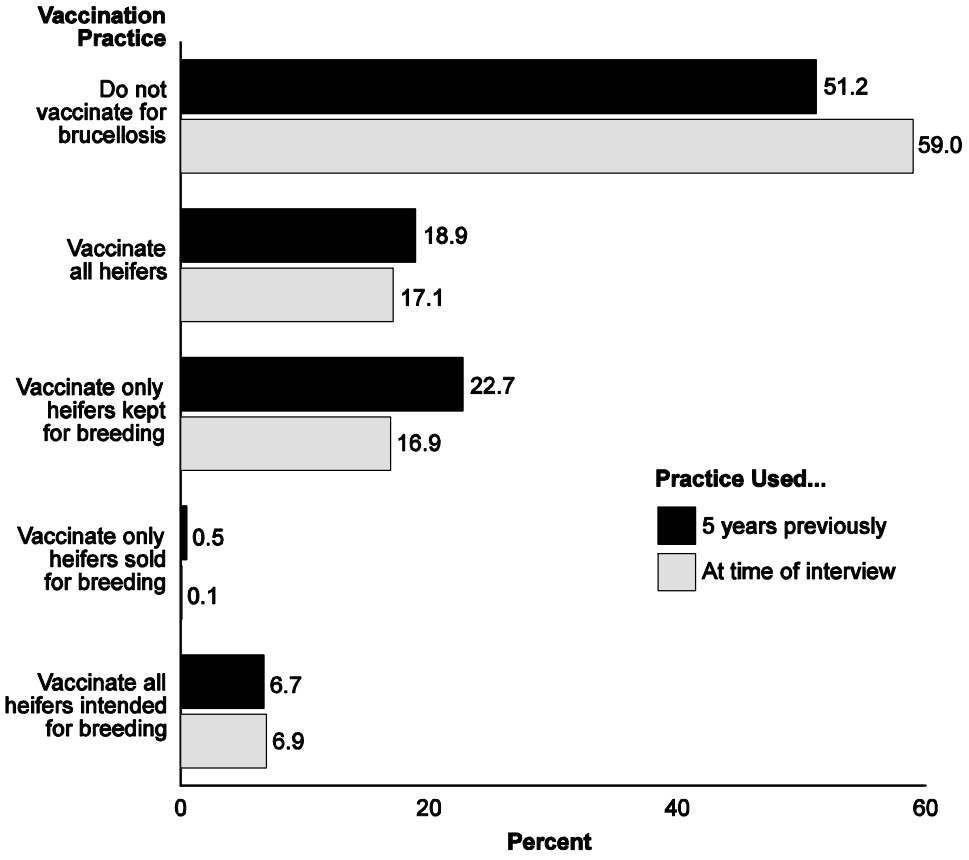
1. Brucellosis vaccination of heifers less than 12 months old

Overall, brucellosis vaccination practices remained relatively stable from 5 years previously to the time of the interview. More than one-half of operations did not vaccinate heifers less than 12 months old for brucellosis 5 years previously or at the time of the interview (51.2 and 59.0 percent of operations, respectively). Less than one-fifth of operations vaccinated all heifers for brucellosis 5 years previously or at the time of the interview.

a. Percentage of operations by best description of brucellosis vaccination practices used for heifers less than 12 months old 5 years previously and at the time of the interview:

	Percent Operations Practice Used . . .			
	5 Years Previously		At Time of Interview	
Vaccination Practice	Percent	Std. Error	Percent	Std. Error
Do not vaccinate for brucellosis	51.2	(3.8)	59.0	(3.7)
Vaccinate all heifers	18.9	(2.7)	17.1	(2.5)
Vaccinate only heifers kept for breeding	22.7	(3.3)	16.9	(3.0)
Vaccinate only heifers sold for breeding	0.5	(0.4)	0.1	(0.1)
Vaccinate all heifers intended for breeding	6.7	(1.8)	6.9	(1.9)
Total	100.0		100.0	

Percentage of Operations by Best Description of Brucellosis Vaccination Practices Used for Heifers Less than 12 Months Old 5 Years Previously and at the Time of Interview



At the time of the interview, a higher percentage of operations with 1 to 49 beef cows (65.9 percent) did not vaccinate any heifers less than 12 months old for brucellosis compared with operations with 200 or more beef cows (26.1 percent). Over one-half of operations with 100 or more beef cows vaccinated all heifers or vaccinated only heifers kept for breeding.

b. Percentage of operations by best description of brucellosis vaccination practices used for heifers less than 12 months old **at the time of the interview,** and by herd size:

Percent Operations

Herd Size (Number of Beef Cows)

	1-49		50-99		100-199		200 or More	
Practice	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**
Do not vaccinate for brucellosis	65.9	(5.1)	54.3	(7.0)	36.7	(6.3)	26.1	(5.6)
Vaccinate all heifers	15.5	(3.5)	18.7	(5.2)	22.5	(5.3)	22.0	(4.3)
Vaccinate only heifers kept for breeding	13.9	(4.1)	17.6	(4.8)	28.9	(7.1)	31.7	(5.3)
Vaccinate only heifers sold for breeding	0.0	(--)	0.0	(--)	1.3	(1.3)	0.5	(0.5)
Vaccinate all heifers intended for breeding	4.7	(2.6)	9.4	(3.7)	10.6	(3.2)	19.7	(5.3)
Total	100.0		100.0		100.0		100.0	

A higher percentage of operations in the Southeast region did not vaccinate for brucellosis compared with operations in the West region (65.1 and 29.1 percent, respectively). More than one-half of operations in the Central and Southeast regions did not vaccinate heifers for brucellosis.

c. Percentage of operations by best description of brucellosis vaccination practices used for heifers less than 12 months old **at the time of the interview,** and by region:

Percent Operations

	Region					
	West		Central		Southeast	
Practice	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**
Do not vaccinate for brucellosis	29.1	(10.2)	54.0	(5.6)	65.1	(5.0)
Vaccinate all heifers	35.3	(8.4)	19.5	(4.7)	13.6	(3.1)
Vaccinate only heifers kept for breeding	28.3	(8.0)	14.8	(2.7)	16.0	(4.2)
Vaccinate only heifers sold for breeding	0.0	(--)	0.6	(0.5)	0.0	(--)
Vaccinate all heifers intended for breeding	7.3	(3.0)	11.1	(3.6)	5.3	(2.5)
Total	100.0		100.0		100.0	

Of operations that vaccinated heifers less than 12 months old for brucellosis, 79.6 percent reported that reduced risk of disease was a very important reason for vaccination. A majority of operations (53.2 percent) ranked value of heifers and/or cows sold as a very important reason to vaccinate heifers for brucellosis.

d. For operations that vaccinated heifers less than 12 months old for brucellosis, percentage of operations by level of importance of the following reasons for vaccinating:

Percent Operations

Level of Importance

Reason for Vaccination	Very Important		Somewhat Important		Not Important		No Opinion		Total
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	
Tradition or habit	23.2	(4.7)	46.1	(5.7)	27.9	(5.1)	2.8	(1.2)	100.0
Reduce risk of disease	79.6	(4.5)	19.6	(4.5)	0.7	(0.5)	0.1	(0.1)	100.0
Required for interstate movement of owned cattle	33.2	(4.9)	35.5	(5.8)	29.2	(5.5)	2.1	(1.0)	100.0
Required by State law	25.8	(4.4)	25.4	(5.6)	41.2	(5.7)	7.6	(2.4)	100.0
Value of heifers and/or cows sold	53.2	(5.8)	31.6	(5.5)	12.6	(3.9)	2.6	(1.8)	100.0

Nearly one-half of operations in the West region (48.8 percent) believed that vaccinating heifers less than 12 months old for brucellosis increased the value of the heifers, compared with about one-fourth of all operations (26.2 percent).

e. Percentage of operations by belief that vaccinating heifers less than 12 months old for brucellosis affected the sale price of heifers, and by region:

Percent Operations

	Region							
	West		Central		Southeast		All Operations	
Belief	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Increases value	48.8	(10.0)	36.1	(5.4)	19.4	(4.2)	26.2	(3.2)
No effect	13.0	(5.5)	25.5	(5.0)	36.0	(5.3)	31.3	(3.8)
Decreases value	0.0	(--)	0,0	(--)	0.0	(--)	0.0	(--)
Do not know	38.2	(10.9)	38.4	(5.9)	44.6	(5.4)	42.5	(4.0)
Total	100.0		100.0		100.0		100.0	

f. For operations that believed vaccinating heifers less than 12 months old for brucellosis affects the sale price of heifers, operation average estimated change in value (dollars per head):

Change in Value	Operation Average (Dollars/Head)	Standard Error
Increase	53.83	(5.43)

2. Brucellosis vaccination of females 12 months or older

During the previous 5 years, 3.5 percent of operations vaccinated any female cattle 12 months or older for brucellosis. There was no substantial difference across herd sizes in the percentage of operations that vaccinated any female cattle 12 months or older for brucellosis. (Note: vaccination of heifers or cows older than 12 months of age against brucellosis requires special permission from animal health officials.)

a. Percentage of operations that vaccinated any female cattle 12 months or older for brucellosis during the previous 5 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
3.5	(1.7)	1.5	(1.1)	5.4	(3.1)	3.5	(1.2)	3.5	(1.2)

All operations with female cattle 12 months or older that vaccinated for brucellosis during the previous 5 years reported that vaccinations were administered by a private practitioner.

b. For the 3.5 percent of operations that vaccinated any female cattle 12 months or older for brucellosis during the previous 5 years, percentage of operations in which a private practitioner administered the vaccinations:

Percent Operations	Standard Error
100.0	(--)

3. Johne's disease testing

Overall, 3.2 percent of operations tested any cattle for Johne's disease using blood or fecal testing during the previous 2 years. During the previous 2 years, less than 1 percent of operations with 1 to 49 beef cows (0.6 percent) tested any cattle for Johne's disease using blood or fecal testing.

a. Percentage of operations in which any cattle were tested for Johne's disease using blood or fecal testing **during the previous 2 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
0.6	(0.6)	9.4	(3.2)	6.0	(2.6)	9.6	(3.2)	3.2	(0.8)

The percentage of operations that tested any cattle for Johne's disease using blood or fecal testing during the previous 2 years was not substantially different across regions.

b. Percentage of operations in which any cattle were tested for Johne's disease using blood or fecal testing **during the previous 2 years,** by region:

Percent Operations

Region

West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
4.3	(3.1)	5.7	(1.7)	2.1	(0.9)

Just over 1 percent of operations participated in any programs to control Johne's disease or to document the low-risk status of the herd during the previous 5 years. There were no differences by herd size in the percentage of operations that participated in any programs to control Johne's disease or to document the low-risk status of the herd during the previous 5 years.

c. Percentage of operations that participated in any programs to control Johne's disease or to document the low-risk status of the herd **during the previous 5 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
0.4	(0.4)	2.7	(1.7)	4.1	(2.1)	5.0	(2.3)	1.4	(0.5)

In the West region, 6.9 percent of operations participated in any programs to control Johne's disease or to document the low-risk status of the herd during the previous 5 years. Less than 1 percent of operations in the Southeast region (0.3 percent) participated in any Johne's disease control programs.

d. Percentage of operations that participated in any programs to control Johne's disease or to document the low-risk status of the herd **during the previous 5 years**, by region:

Percent Operations

Region

West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
6.9	(4.0)	2.0	(0.8)	0.3	(0.2)

Of operations that participated in any programs to control Johne's disease or to document the low-risk status of the herd during the previous 5 years, 90.9 percent participated in an official State/Federal program. About one-third (35.1 percent) participated in a program designed by the operator and/or a veterinarian.

e. For operations that participated in any Johne's disease control programs **during the previous 5 years,** percentage of operations by type of program:

Type of Program	Percent Operations	Standard Error
Designed by operator and/or veterinarian	35.1	(13.8)
Official State/Federal	90.9	(6.5)
Other	0.0	(--)

4. Bovine tuberculosis (TB) testing

Overall, 4.6 percent of operations tested any cattle for TB during the previous 5 years. The percentage of operations in which any cattle were tested for TB during the previous 5 years was similar across herd sizes.

a. Percentage of operations that tested any cattle for TB during the previous 5 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**
2.8	(1.6)	8.4	(4.0)	8.3	(3.3)	9.0	(3.2)	4.6	(1.3)

Considering the standard errors, the percentage of operations that tested any cattle for TB was not substantially different across regions.

b. Percentage of operations that tested any cattle for TB during the previous 5 years, by region:

Percent Operations					
Region					
West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
7.8	(3.6)	1.3	(0.8)	5.4	(1.9)

Of operations that tested any cattle for TB during the previous 5 years, over one-half (53.0 percent) last tested 1 to 2 years ago. About one-fourth tested within the last year (27.9 percent).

c. For operations that tested any cattle for TB during the previous 5 years, percentage of operations by most recent TB test:

Most Recent TB Test	Percent Operations	Standard Error
Within the last year	27.9	(12.3)
1 to 2 years	53.0	(15.0)
3 to 5 years	19.1	(11.0)
Total	100.0	

Of operations that tested any cattle for TB during the previous 5 years, nearly all tested specific animals only (93.7 percent).

d. For operations that tested any cattle for TB during the previous 5 years, percentage of operations by extent of TB testing on the premises:

Extent of TB Testing on Premises	Percent Operations	Standard Error
Entire herd	0.0	(--)
Calves only	0.1	(0.1)
Adult cattle only	6.2	(3.5)
Specific animals only	93.7	(3.5)
Total	100.0	

The highest percentages of operations most recently tested for TB because of sale, show or exhibition, and movement requirements.

e. For operations that tested any cattle for TB during the previous 5 years, percentage of operations by purpose of the most recent TB testing on the premises:

Purpose of TB Testing	Percent Operations	Standard Error
Herd accreditation	0.4	(0.4)
Movement requirement	36.4	(14.0)
Show or exhibition requirement	50.9	(15.2)
State requirement	6.0	(3.8)
Veterinarian recommendation	2.0	(2.0)
Sale requirement	52.9	(15.6)
Other	2.7	(1.9)

D. Conditions Prompting Veterinary Assistance

Overall, only 1.8 percent of operations would not call a veterinarian no matter how many cattle in the herd were affected with any of the conditions listed in the table below. A higher percentage of operations would not call a veterinarian no matter how many cattle were affected with lameness compared with all other conditions, with the exception of off-feed. Less than 1 of 10 operations would not call a veterinarian when cattle were exhibiting signs consistent with some diseases considered foreign to the United States, such as foot-and-mouth disease. The percentages of operations that would not call a veterinarian regardless of the number of cattle affected were not different by herd size or by region.

a. Percentage of operations that would not contact a veterinarian for assistance if the following conditions were observed in their cattle, by herd size:

Percent Operations

Herd Size (Number of Beef Cows)

	1-49		50-99		100-199		200 or More		All Operations	
Condition	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**
Lameness	24.3	(4.5)	30.4	(6.5)	32.3	(6.0)	29.1	(5.0)	26.4	(3.4)
Off-feed	19.0	(4.2)	15.5	(4.7)	20.3	(5.6)	20.9	(4.0)	18.5	(3.0)
Slobbering	8.6	(2.7)	7.8	(3.3)	4.0	(1.9)	10.5	(3.4)	8.2	(1.9)
Blisters on muzzle	4.9	(1.8)	1.9	(1.4)	2.6	(1.5)	7.2	(2.9)	4.2	(1.3)
Blisters on feet	6.4	(2.1)	2.8	(1.6)	4.3	(2.1)	5.8	(2.4)	5.5	(1.5)
Death	4.5	(1.8)	1.0	(1.0)	3.5	(2.0)	6.4	(2.4)	3.9	(1.2)
Overall level of illness	5.2	(2.3)	4.4	(2.4)	1.2	(0.8)	4.9	(2.3)	4.7	(1.6)
Any above	2.0	(1.2)	1.0	(1.0)	0.7	(0.7)	3.1	(2.0)	1.8	(0.8)

b. Percentage of operations that would not contact a veterinarian for assistance if the following conditions were observed in their cattle, by region:

	Percent Operations					
	Region					
	West		Central		Southeast	
Condition	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Lameness	22.1	(7.2)	21.9	(4.6)	28.7	(4.7)
Off feed	13.9	(5.0)	12.1	(4.3)	21.6	(4.3)
Slobbering	6.9	(3.3)	6.0	(2.8)	9.1	(2.7)
Blisters on muzzle	0.8	(0.4)	5.5	(2.4)	4.2	(1.7)
Blisters in feet	1.0	(0.5)	6.9	(3.0)	5.7	(1.9)
Death	4.3	(2.8)	3.7	(2.0)	3.9	(1.7)
Overall level of illness	1.1	(0.7)	9.4	(4.1)	3.4	(1.9)
Any above	0.5	(0.3)	2.7	(1.9)	1.6	(1.0)

Photo courtesy of Geni Wren, “Bovine Veterinarian” Magazine.

Operations reported different thresholds as to what level of concern would cause them to call a veterinarian. For example, while 26.4 percent of operations would never call a veterinarian regardless of how many of their cattle were affected with lameness, 20.9 percent would call for assistance when between 0.1 and 2 percent of their cattle were lame. For 12.9 percent of operations, more than 10 percent of cattle would have to be lame to prompt a call to a veterinarian. In general, the threshold percentage of cattle affected that would cause operations to call a veterinarian was lower for signs consistent with foreign animal disease such as blisters on the muzzle and/or feet, which can be indicative of foot-and-mouth disease. Since producers and their veterinarians are the first line of defense against incursions of foreign animal disease, it is important that producers raise the alert early in order to facilitate a timely response and optimize the opportunity for control.

c. Percentage of operations by level of inventory that would have to be affected by the following conditions before the operations would call a veterinarian for assistance:

	Percent Operations									
	Percent of Inventory Affected									
	0.1-2		2.1-5		5.1-10		10.1 or More		Would Never Call	
Condition	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Lameness	20.9	(2.6)	25.8	(3.5)	14.0	(2.8)	12.9	(2.7)	26.4	(3.4)
Off feed	18.9	(2.2)	30.1	(3.7)	18.6	(3.1)	13.9	(2.8)	18.5	(3.0)
Slobbering	36.7	(3.4)	26.0	(3.6)	18.0	(3.2)	11.1	(2.6)	8.2	(1.9)
Blisters on muzzle	40.8	(3.5)	26.7	(3.6)	17.3	(3.2)	11.0	(2.6)	4.2	(1.3)
Blisters on feet	40.6	(3.5)	25.1	(3.6)	18.3	(3.2)	10.5	(2.6)	5.5	(1.5)
Death	39.3	(3.5)	31.6	(3.6)	14.8	(3.1)	10.4	(2.5)	3.9	(1.2)
Overall level of illness	23.5	(2.5)	30.4	(3.6)	25.1	(3.5)	16.3	(3.0)	4.7	(1.6)

E. Nutrition Practices

1. Protein supplements

The percentage of operations that fed protein supplements to beef cows was not substantially different across herd sizes, with approximately three of every four operations (74.7 percent) feeding protein supplements.

a. Percentage of operations that fed protein supplements to beef cows 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**
71.8	(4.5)	84.0	(4.2)	74.8	(5.1)	79.1	(4.3)	74.7	(3.2)

The percentage of operations that fed protein supplements to beef cows during the previous 12 months was not substantially different across regions.

b. Percentage of operations that fed protein supplements to beef cows during the previous 12 months, by region:

Percent Operations					
Region					
West		**Central**		**Southeast**	
Percent	**Std. Error**	**Percent**	**Std. Error**	**Percent**	**Std. Error**
64.7	(9.4)	72.6	(5.0)	76.8	(4.3)

Operations that fed protein supplements to beef cows during the previous 12 months had an animal average of about 156.5 days of supplementation and an operation average of 172.7 days of supplementation. The variability in the number of days that protein supplements were fed within a herd-size category made it difficult to distinguish differences in feeding duration across the herd sizes.

c. For operations that fed protein supplements to beef cows during the previous 12 months, animal average and operation average number of days that protein supplements were fed, by herd size:

Average Number of Days

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
Animal average*	178.5	(14.4)	158.8	(15.9)	139.6	(11.7)	148.9	(9.8)	156.5	(6.3)
Operation average	183.2	(13.7)	158.4	(13.2)	148.8	(13.6)	141.2	(8.9)	172.7	(9.6)

*Animal average based on number of cows and weaned replacement heifers present on July 1, 2008.

For operations that fed protein supplements to beef cows during the previous 12 months, neither the animal average number of days nor the operation average number of days that protein was fed were different across regions.

d. For operations that fed protein supplements to beef cows during the previous 12 months, animal average and operation average number of days that protein supplements were fed to beef cows, by region:

Average Number of Days

	Region					
	West		Central		Southeast	
	Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error
Animal average*	138.8	(9.0)	140.4	(8.9)	171.0	(10.1)
Operation average	138.3	(16.5)	153.9	(14.5)	183.3	(12.7)

*Animal average based on number of cows and weaned replacement heifers present on July 1, 2008.

Plant protein was the primary ingredient in protein supplements on over two-thirds of operations (68.5 percent). Most of the instances classified as “other” were mixtures of plant protein and nonprotein nitrogen products such as commercial protein blocks or liquid supplements.

e. For operations that fed protein supplements to beef cows during the previous 12 months, percentage of operations by primary ingredient in protein supplements, and by region:

Percent Operations

	Region							
	West		Central		Southeast		All Operations	
Primary Ingredient	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Plant protein	54.4	(10.8)	59.8	(6.4)	73.2	(4.9)	68.5	(3.9)
Nonprotein nitrogen/urea	22.6	(8.5)	21.5	(5.6)	11.3	(3.2)	14.6	(2.7)
Other*	23.0	(9.5)	18.7	(5.4)	15.5	(4.3)	16.9	(3.3)
Total	100.0		100.0		100.0		100.0	

*Includes mixtures of plant protein and nonprotein nitrogen such as commercial protein blocks or liquid supplements.

2. Energy supplements

The percentage of operations that fed energy supplements during the previous 12 months was similar across herd sizes. Overall, approximately one-half of operations (51.0 percent) fed energy supplements to beef cows.

a. Percentage of operations that fed energy supplements to beef cows during the previous 12 months, by herd size:

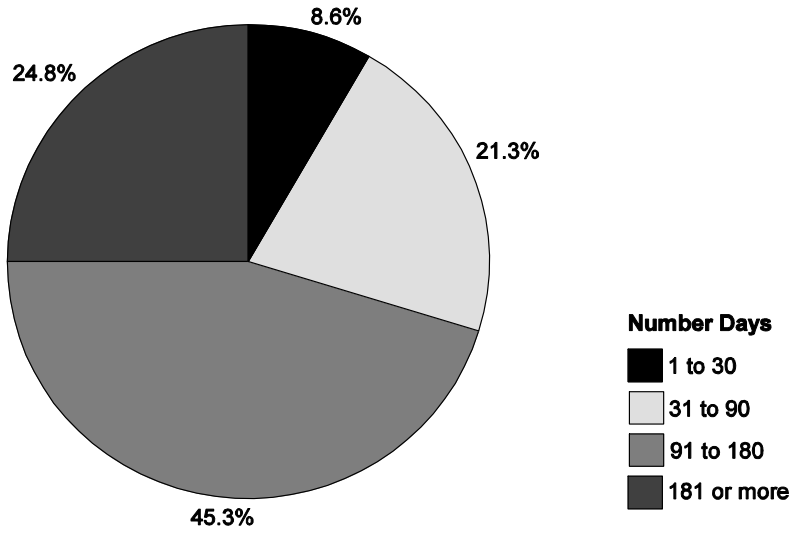
Percent Operations									
Herd Size (Number of Beef Cows)									
1-49		**50-99**		**100-199**		**200 or More**		**All Operations**	
Pct.	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**	**Pct.**	**Std. Error**
49.6	(5.2)	55.4	(6.9)	47.5	(6.6)	60.8	(5.5)	51.0	(3.8)

A large majority of operations that fed energy supplements to beef cows during the previous 12 months fed supplements for over 30 days, regardless of herd size. The highest percentage of operations fed energy supplements for 91 to 180 days.

b. For operations that fed energy supplements to beef cows during the previous 12 months, percentage of operations by number of days energy supplements were fed:

Number Days	Percent Operations	Standard Error
1 to 30	8.6	(2.5)
31 to 90	21.3	(3.7)
91 to 180	45.3	(5.3)
181 or more	24.8	(5.1)
Total	100.0	

For Operations that Fed Energy Supplements to Beef Cows During the Previous 12 Months, Percentage of Operations by Number of Days Energy Supplements were Fed



The operation average number of days that energy supplements were fed was 162.2. Neither the animal average number of days nor the operation average number of days that energy supplements were fed were substantially different across herd sizes.

c. For operations that fed energy supplements to beef cows during the previous 12 months, animal average number of days and operation average number of days that energy supplements were fed, by herd size:

Average Number of Days

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
Animal average*	168.9	(20.6)	153.1	(16.0)	127.9	(12.8)	137.7	(13.4)	146.7	(7.6)
Operation average	174.0	(18.6)	151.6	(15.1)	122.4	(13.0)	131.4	(18.2)	162.2	(12.7)

*Animal average based on number of cows and weaned replacement heifers present on July 1, 2008.

Corn was the primary ingredient in energy supplements used on 57.5 percent of operations. Other energy sources was the primary ingredient in energy supplements on 42.5 percent of operations. Common supplements other than corn were molasses; commercial products such as blocks, pellets or liquids; corn byproducts such as distiller's grains; and oil seeds and meals.

d. For operations that fed energy supplements to beef cows during the previous 12 months, percentage of operations by primary ingredient in energy supplements:

Primary Ingredient	Percent Operations	Standard Error
Corn	57.5	(5.1)
Other	42.5	(5.1)
Total	100.0	

3. Roughage supplements

During the previous 12 months, nearly all operations (97.1 percent) fed roughage supplements. The percentage of operations that fed roughage supplements was similar across herd sizes and regions.

a. Percentage of operations that fed roughage supplements to beef cows 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**
98.7	(0.9)	92.1	(4.0)	96.8	(2.2)	95.3	(1.9)	97.1	(1.0)

b. Percentage of operations that fed roughage supplements to beef cows during the previous 12 months, by region:

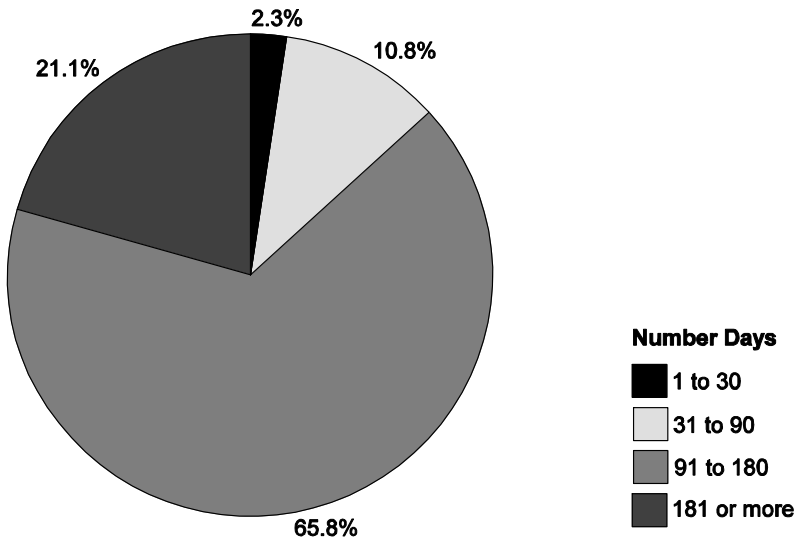
Percent Operations					
Region					
West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
99.2	(0.4)	97.7	(1.8)	96.7	(1.4)

For operations that fed roughage supplements to beef cows during the previous 12 months, a majority of operations fed roughage supplements for 91 to 180 days, regardless of herd size. Only 2.3 percent of operations fed roughage supplements for less than 31 days. About one-fifth of operations (21.1 percent) fed roughage for 181 days or longer.

c. For operations that fed roughage supplements to beef cows during the previous 12 months, percentage of operations by number of days that roughage supplements were fed, and by herd size:

Percent Operations									
Herd Size (Number of Beef Cows)									
	1-49		50-99		100-199		200 or More		All Operations	
Number Days	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
1 to 30	2.4	(1.7)	2.0	(1.4)	2.9	(1.7)	1.9	(1.4)	2.3	(1.2)
31 to 90	10.2	(3.3)	14.8	(5.7)	7.9	(2.6)	9.5	(3.1)	10.8	(2.5)
91 to 180	66.5	(4.8)	62.5	(7.2)	61.7	(6.8)	75.2	(5.1)	65.8	(3.6)
181 or more	20.9	(3.8)	20.7	(6.3)	27.5	(6.7)	13.4	(4.8)	21.1	(2.9)
Total	100.0		100.0		100.0		100.0		100.0	

For Operations that Fed Roughage Supplements to Beef Cows During the Previous 12 Months, Percentage of Operations by Number of Days that Roughage Supplements were Fed



The duration of roughage supplementation was not substantially different across regions.

d. For operations that fed roughage supplements to beef cows during the previous 12 months, percentage of operations by number of days that roughage supplements were fed to beef cows, and by region:

	Percent Operations					
	Region					
	West		Central		Southeast	
Number Days	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
1 to 30	8.3	(6.1)	0.1	(0.1)	2.3	(1.6)
31 to 90	8.3	(3.9)	10.5	(3.4)	11.2	(3.5)
91 to 180	67.7	(8.7)	56.4	(5.7)	69.1	(4.8)
181 or more	15.7	(6.5)	33.0	(5.6)	17.4	(3.6)
Total	100.0		100.0		100.0	

For operations that fed roughage supplements to beef cows during the previous 12 months, neither the animal average number of days nor the operation average number of days roughage was fed were substantially different across herd sizes

e. For operations that fed roughage supplements to beef cows during the previous 12 months, animal average number of days and operation average number of days that roughage supplements were fed, 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
Animal average*	165.6	(8.5)	146.5	(8.4)	168.8	(20.6)	137.8	(9.9)	153.8	(6.4)
Operation average	159.6	(7.3)	152.6	(8.9)	163.8	(15.0)	152.5	(10.9)	158.5	(5.4)

*Animal average based on number of cows and weaned replacement heifers present on July 1, 2008.

For operations that fed roughage supplements to beef cows during the previous 12 months, the animal average number of days and operation average number of days roughage was fed were similar across regions.

f. For operations that fed roughage supplements to beef cows during the previous 12 months, animal average number of days and operation average number of days that roughage supplements were fed, by region:

Percent Operations

Region

	West		Central		Southeast	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Animal average*	138.4	(5.6)	163.5	(6.6)	151.3	(11.9)
Operation average	141.8	(11.3)	178.0	(9.5)	153.6	(7.0)

*Animal average based on number of cows and weaned replacement heifers present on July 1, 2008.

F. Breeding Heifers in Next 2 Years

Bull selection for heifers

Four of 10 operations (39.6 percent) planned to purchase a bull or semen in the next 2 years specifically for breeding heifers. A higher percentage of operations with 200 or more beef cows (70.9 percent) were planning to purchase a bull or semen in the next 2 years specifically for breeding heifers than operations with 1 to 49 beef cows (32.5 percent) or operations with 50 to 99 beef cows (45.9 percent).

a. Percentage of operations that planned to purchase a bull or semen in the next 2 years specifically for breeding heifers, 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
32.5	(4.9)	45.9	(6.9)	61.2	(6.4)	70.9	(5.0)	39.6	(3.7)

The percentage of operations that planned to purchase a bull or semen in the next 2 years specifically for breeding heifers was similar across regions:

b. Percentage of operations that planned to purchase a bull or semen in the next 2 years specifically for breeding heifers, by region:

Percent Operations

Region

West		Central		Southeast	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
48.4	(9.3)	39.0	(5.0)	38.6	(5.0)

Operations that planned to purchase a bull or semen in the next 2 years specifically for breeding heifers were asked to rank the factors for bull selection by level of importance. The calving ease expected progeny difference (EPD) was the most important factor for the highest percentage of operations (37.2 percent), followed by breed (23.5 percent of operations). About four of five operations (80.3 percent) reported that cost was not an important factor in bull selection. Overall, the calving ease EPD was one of the three most important bull selection factors for 61.2 percent of operations. Breed was one of the top three factors for 54.7 percent of operations, and birth-weight EPD was one of the top three factors for 46.6 percent of operations.

c. For operations that planned to purchase a bull or semen in the next 2 years specifically for breeding heifers, percentage of operations by level of importance of bull selection factor:

	Percent Operations								
	Level of Importance								
	Most Important		Second Most Important		Third Most Important		Not Important		
Bull Selection Factor	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Total
Calving ease expected progeny difference (EPD)	37.2	(5.5)	19.4	(5.2)	4.6	(2.2)	38.8	(5.6)	100.0
Birth-weight EPD	11.8	(3.4)	28.0	(5.0)	6.8	(2.7)	53.4	(5.7)	100.0
Parents' EPD	0.5	(0.3)	5.5	(1.8)	14.0	(3.5)	80.0	(4.0)	100.0
Actual calving-ease score	5.3	(2.0)	3.9	(1.6)	1.2	(0.7)	89.6	(2.6)	100.0
Actual birth weight	8.8	(4.0)	16.3	(4.8)	10.6	(3.4)	64.3	(5.8)	100.0
Appearance/ shape/size of head-shoulder	9.8	(4.1)	9.4	(3.5)	11.4	(3.3)	69.4	(5.5)	100.0
Anticipated mature bull size	0.0	(0.0)	0.0	(0.0)	4.3	(1.8)	95.7	(1.8)	100.0
Breed	23.5	(4.9)	11.5	(3.2)	19.7	(4.8)	45.3	(5.8)	100.0
Color	0.6	(0.4)	3.0	(1.6)	4.6	(2.6)	91.8	(3.0)	100.0
Cost	1.9	(1.6)	1.1	(0.7)	16.7	(3.7)	80.3	(4.8)	100.0
Other	0.5	(0.5)	1.9	(1.3)	6.1	(3.7)	91.5	(3.9)	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 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 helped identify the most critical information gaps regarding animal health and health and production management by surveying 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 survey. 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. Sampling and Estimation

1. State selection

The preliminary selection of States to be included in the study was done in October 2006 using the National Agricultural Statistics Service (NASS) "Cattle Report." A goal for NAHMS national studies is to include States that account for at least 70 percent of the animal and producer populations in the United States. The initial review identified 24 States representing 87.8 percent of the Nation's beef cow inventory and 79.6 percent of operations with beef cows (cow-calf herds). The States were: Alabama, Arkansas, California, Colorado, Florida, Georgia, Idaho, Iowa, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Tennessee, Texas, Virginia, and Wyoming.

A memo identifying the States was provided in November 2006 to the USDA-APHIS-VS CEAH Director and, in turn, the VS Regional Directors. Each Regional Director sought input from the respective States about being included in or excluded from the study.

2. Operation selection

The list sampling frame was provided by NASS. Within each State a stratified random sample was selected. The size indicator was the number of beef cows for each operation. NASS selected a sample of beef producers in each State for making the January 1 cattle estimates. The list sample from the January 2007 survey was used as the screening sample. Those producers in the 24 States reporting one or more beef cows on January 1, 2007, were included in the sample for contact in October 2007.

3. Population inferences

a. Phase I: General Beef Management Report; and Phase II: VS Initial and Second Visits

Inferences cover the population of beef producers with at least 1 beef cow in the 24 participating States. As of January 1, 2008, these States accounted for 87.8 percent (28.6 million) of beef cows and 79.6 percent (603,000) of operations with beef cows in the United States. (See Appendix II, p 65, for respective data on individual States.) All respondent data were statistically weighted to reflect the population from which they were selected. The inverse of the probability of selection for each operation was the initial selection weight. This selection weight was adjusted for nonresponse within each State and size group to allow for inferences back to the original population from which the sample was selected.

C. Data Collection

1. Data collectors and data collection periods

a. Phase I: General Beef Management Report
From October 22 through November 30, 2007, NASS enumerators administered the General Beef Management Report. The interview took slightly over 1 hour.

b. Phase II: VS Initial Visit Questionnaire
From January 14 through March 31, 2008, State and Federal animal health personnel administered the Beef 2007–08 VS Initial Visit Questionnaire.

c. Phase II: VS Second Visit Questionnaire
From July 1 through August 15, 2008, State and Federal animal health personnel administered the Beef 2007–08 Second VS Visit Questionnaire.

D. Data Analysis

1. 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.

2. Phase II: Validation—VS Initial and Second 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.

E. 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 on 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.

			Measurement Parameter		
Response Category	**Number Operations**	**Percent Operations**	**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 (prison and research farms, etc.)	7	0.2			
Refusal of GBMR	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

[1]Useable operation—respondent provided answers to inventory questions for the operation (either zero or positive number on hand).
[2]Survey complete operation—respondent provided answers to all or nearly all questions.
[3]Weighted 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.

			Measurement Parameter		
Response Category	**Number Operations**	**Percent Operations**	**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	953	588	567
Percent of total operations			92.2	56.9	54.9
Percent of total operations weighted[4]			91.1	49.1	45.9

[1]Useable operation—respondent provided answers to inventory questions for the operation (either zero or positive number on hand).
[2]Survey complete operation—respondent provided answers to all or nearly all questions.
[3]Ineligible—no beef cows at time of interview, which occurred from January 14 through March 31, 2008.
[4]Weighted response—the rate was calculated using the turnover weights.

3. Phase II: VS Second Visit

There were 567 operations that completed the VS initial visit. Of these 567, 470 (82.9 percent) agreed to continue in Phase II of the study and completed the VMO Second Visit Questionnaire; 60 (10.6 percent) refused to participate further. A total of 5.1 percent of the 567 operations were not contacted, and 1.2 percent were ineligible because they had no beef cows at the time they were contacted by the VMO during the Phase II second visit.

			Measurement Parameter		
Response Category	**Number Operations**	**Percent Operations**	**Contacts**	**Usable[1]**	**Complete[2]**
Survey complete	470	82.9	x	x	x
Survey refused	60	10.6	x		
Not contacted	29	5.1			
Ineligible[3]	8	1.4	x	x	
Total	567	100.0	538	478	470
Percent of total operations			94.9	84.3	82.9
Percent of total operations weighted[4]			93.9	77.7	75.8

[1]Useable operation—respondent provided answers to inventory questions for the operation (either zero or positive number on hand).
[2]Survey complete operation—respondent provided answers to all or nearly all questions.
[3]Ineligible—no beef cows at time of interview, which occurred from July 1 through August 15, 2008.
[4]Weighted response—the rate was calculated using the turnover weights.

Appendix I: Sample Profile

A. Responding Operations

1. Number of responding operations, by herd size

	Number of Responding Operations		
Herd Size (Number of Beef Cows)	**Phase I: General Beef Management Report**	**Phase II: VS Initial Visit**	**Phase II: VS Second Visit**
1-49	819	163	127
50-99	386	96	81
100-199	381	125	104
200 or more	573	183	158
Total	2,159	567	470

2. Number of responding operations, by region

	Number of Responding Operations		
Region	**Phase I: General Beef Management Report**	**Phase II: VS Initial Visit**	**Phase II: VS Second Visit**
West	370	138	105
Central	612	196	175
South Central*	483	233	190
East*	694		
Total	2,159	567	470

*Regions were combined for VS portion of study.

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

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, April 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, April 2010
   - Vaccination of Cattle and Calves on U.S. Beef Cow-calf Operations, info sheet, December 2009
   - Vaccination of Calves for Respiratory Disease on U.S. Beef Cow-calf Operations, info sheet, December 2009
   - Use of Nutritional Supplements on U.S. Beef Cow-calf Operations, info sheet, April 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, December 2009

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 April 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 summer 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, December 2009
- Producer Disease Awareness, info sheet, expected April 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