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Animal and Plant Health Inspection Service

Veterinary Services

National Animal Health Monitoring System

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Feedlot 2011

Part I: Management Practices on U.S. Feedlots with a Capacity of 1,000 or More Head

USDA–APHIS–VS–CEAH–NAHMS
NRRC Building B, M.S. 2E7
2150 Centre Avenue
Fort Collins, CO 80526–8117
970.494.7000
http://nahms.aphis.usda.gov
#626.0313

Cover photograph courtesy of John Nienaber, USDA Agricultural Research Service.

Items of Note

The National Animal Health Monitoring System's (NAHMS) Feedlot 2011 study updates information on the U.S. cattle feedlot industry previously collected during the NAHMS Feedlot '99 study: http://nahms.aphis.usda.gov/feedlot/index.shtml. As with the Feedlot '99 study, Feedlot 2011 takes a broad look at animal health and management practices on feedlots throughout the major cattle feeding regions of the United States.

One component of Feedlot 2011 focused on large feedlots with a capacity of 1,000 or more head located in 12 States. These feedlots were divided into two groups: those with a capacity of 1,000 to 7,999 head and those with a capacity of 8,000 or more head. The other component of Feedlot 2011 focused on small feedlots (fewer than 1,000 head capacity) in 13 States. This report provides estimates for feedlots with a capacity of 1,000 or more head. Study results for feedlots with a capacity of fewer than 1,000 head are available in "Part II: Management Practices on U.S. Feedlots with Capacity of Fewer than 1,000 Head" at http://www.aphis.usda.gov/animal_health/nahms/feedlot/index.shtml#feedlot11.

In general, cattle feedlots receive cattle from throughout the United States. Feedlots typically provide cattle with high-energy diets in order to grow them to an acceptable size with an appropriate degree of finish for the slaughter market. Depending on their arrival weight, cattle may spend anywhere from a few months to nearly a year in the feedlot. Typical feedlot stays last slightly less than 6 months.

Pre-arrival management practices can help improve cattle health and thereby reduce death loss and sickness in feedlots. Implementing these practices in the early stages of the production process can help improve cattle's resistance to infectious disease before they arrive in feedlots. Feedlot operators recognize the value of these practices. For example, more than 70 percent of feedlot operators on feedlots with a capacity of 1,000 head or more believed that pre-arrival processing practices were very or extremely effective in reducing cattle sickness and death loss in feedlots (p 28). There was also consensus among these operators that castrating and dehorning calves at least 4 weeks prior to arrival, giving vaccinations for respiratory disease, and introducing cattle to a feed bunk before being placed on the feedlot were critical. Despite the perception of importance of these pre-arrival practices and the feedlots' inclination to use information about these practices to manage cattle after their arrival, such information is not necessarily available. Only 34.7 percent of feedlots reported that such information was always available and 58.2 percent reported that it was sometimes available (p 30).

Normally, cattle receive some arrival processing when placed on the feedlot to help ensure their health and productivity. Nearly all feedlots with a capacity of 1,000 or more head (96.8 percent) processed arriving cattle as a group at least once (p 35). The most frequent management practices used as part of an initial processing were vaccination for

respiratory disease (96.0 percent of those processing) and treatment for parasites (94.5 percent of those processing) [p 37].

Overall, 73.4 percent of feedlots with a capacity of 1,000 or more head used some antibiotics in feed for some of their animals (p 72). On 55.9 percent of these feedlots (41.6 percent of all feedlots) all cattle and calves received an antibiotic in feed as a health or production management tool (p 72). For 66.9 percent of feedlots, the average period of inclusion of antibiotics in feed was from 1 to 7 days (p 75).

Familiarity with the Beef Quality Assurance (BQA) program was prevalent among feedlots with a capacity of 1,000 or more head; 93.8 percent indicated they were very familiar or somewhat familiar with the program (p 82). Over 98 percent of cattle placed in feedlots with a capacity of 1,000 or more head were placed in feedlots that were very familiar or somewhat familiar with the BQA program (p 85). Nearly two of three feedlots (65.5 percent) had someone representing their feedlot attend a BQA meeting in the previous 5 years (p 85).

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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'd like to thank the NASS enumerators who contacted beef feedlot operators and collected the data. Their hard work and dedication were invaluable. We'd also like to thank the personnel at the USDA–APHIS–Veterinary Services' Centers for Epidemiology and Animal Health for their efforts in generating and distributing this report.

All participants are to be commended, particularly the feedlot operators whose voluntary efforts made the Feedlot 2011 study possible.

Larry M. Granger
Director
Centers for Epidemiology and Animal Health

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Contacts for further information:

Questions or comments on data analysis: Dr. David Dargatz (970) 494-7000
Information on reprints or other reports: Ms. Abby Zehr (970) 494-7000

Feedback

Feedback, comments, and suggestions regarding Feedlot 2011 study reports are welcomed. You may submit feedback via online survey at: http://nahms.aphis.usda.gov (Click on “FEEDBACK on NAHMS reports.”)

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 animal health and management practices on U.S. feedlots via two previous studies.

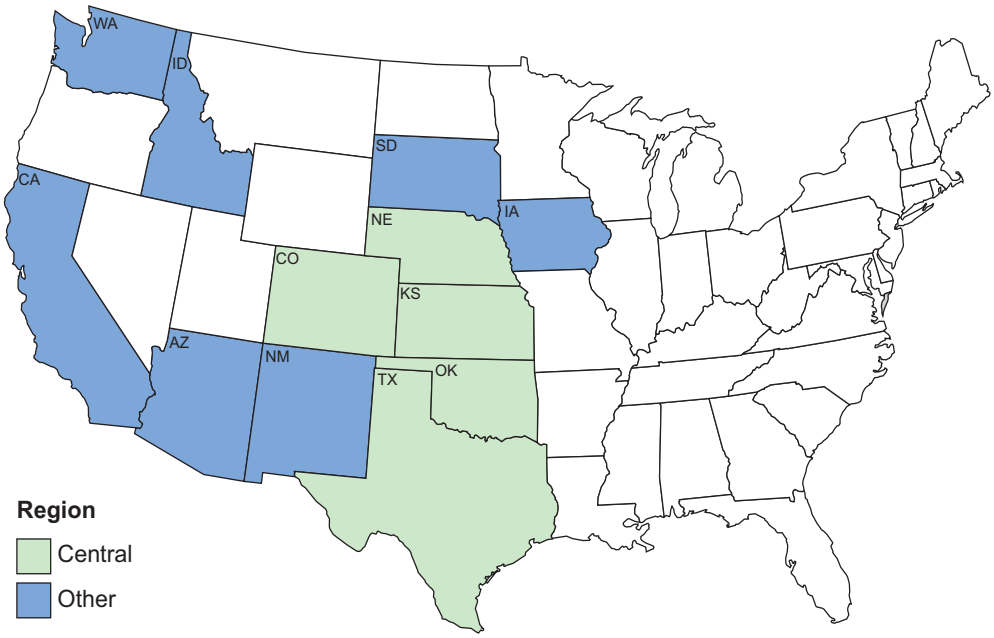
The NAHMS 1994 Cattle on Feed Evaluation (COFE) provided the first national information on the health and management practices of feedlots in the United States. Data were collected from 3,214 feedlots from 13 major cattle-on-feed States, which accounted for 85.8 percent of the U.S. cattle-on-feed inventory on January 1, 1994.

The NAHMS Feedlot '99 study was designed to provide participants and those affiliated with the cattle-feeding industry with information on the Nation's feedlot-cattle population to be used for education and research. For Feedlot '99, a statistically valid sample was selected so that inferences could be made to 100 percent of the cattle on feed in feedlots with a capacity of 1,000 head or more on January 1, 1999, in 12 participating States. These feedlots represented 82.1 percent of all cattle on feed on January 1, 2000, in the 50 States.

The NAHMS Feedlot 2011 study takes an in-depth look at large U.S. feedlots (1,000 head or more capacity) in 12 States (see map) and small feedlots (fewer than 1,000 head capacity) in 13 States.* Large feedlots accounted for 82.1 percent of the January 1, 2011, inventory in all U.S. feedlots but only 2.8 percent of all feedlots. The 12 participating States accounted for over 95 percent of the inventory in large feedlots (NASS, "Cattle on Feed" February 18, 2011). Study results presented in this report reflect only large feedlots, which were divided into two groups: those with a capacity of 1,000 to 7,999 head and those with a capacity of 8,000 or more head.

*See "Feedlot 2011, Part II: Management Practices on U.S. Feedlots with a Capacity of Fewer than 1,000 Head" at http://www.aphis.usda.gov/animal_health/nahms/feedlot/index.shtml#feedlot11

Participating States for feedlots with a capacity of 1,000 head or more



Terms Used in This Report

Antibiotic: A chemical compound, generally produced by molds, that has the ability to inhibit the growth of or kill certain bacteria. They are very effective against illness caused by bacteria, but are ineffective against viruses.

Auction: A public sale or auction barn where livestock and other animals are sold to the highest bidder.

Beta-agonist: Medicated feed additives that promote growth. These compounds are "repartitioning agents," shifting nutrients away from fat deposition and toward lean muscle growth. Currently, two beta-agonists are available to cattle feeders: ractopamine hydrochloride (Optaflexx®) and zilpaterol hydrochloride (Zilmax®).

Biocontainment: Actions taken to minimize the risk of spreading disease agents among groups of animals on an operation.

Biosecurity: Actions taken to minimize the risk of introducing disease agents to an operation.

Brand: Permanent scar on an animal's hide used to identify ownership or a unique herd number. It is made by applying an extremely hot or cold iron to the animal's hide.

Breed: A strain of animal with identifiable characteristics—usually preserved by controlled mating or propagation—that distinguish it from other members of its species.

Castration: The removal of testicles or other action that makes a male incapable of producing semen. A band around the scrotum and the Burdizzo (a clamp-like device that crushes the arteries and veins) both work to stop the blood flow to the testicles. Once the blood supply to the testicles is lost, testicular necrosis occurs, and the testicles shrink, soften, and eventually deteriorate completely.

Cattle on feed: Cattle or calves for slaughter market on full feed expected to produce a carcass grading of select or better. Animals being fed a high-energy ration of grain, silage, hay, and/or protein supplement for the slaughter market, excluding cattle being "backgrounded only" for later sale as feeders or later placement in another feedlot.

Cattle placed/placement: Cattle or calves put in a feedlot, fed a high-energy ration, and intended for the slaughter market.

Coccidiostat: Drug which controls coccidiosis.

Concentrates: Cereal grains or their byproducts typically fed for their energy content.

Custom feeding: Cattle being housed and fed in the feedlot are partly or wholly owned by someone other than the feedlot operator.

Dehorn: To remove the horns of livestock by cutting, burning, or applying an acid paste to the horn area. The method used depends on the stage of horn development.

Disease: Any morbid condition that impairs the full productive potential of an animal.

Dry matter basis: The dry portion of the feed (i.e., excluding the water content).

Feed bunk (bunk feeder): A long trough used to feed livestock. Feed may be distributed with an elevator or auger running the length of the feeder or by driving a feed truck or wagon along the feeder.

Feedlot: The confined area where animals are fed.

Feedlot capacity: Size groupings based on feedlot capacity on January 1, 2011. The capacity is the total number of head that could be accommodated in the feedlot at one time.

Heat suppressant: A compound given to female cattle to delay or prevent estrus (heat).

Hide: The tanned or untanned skins of animals, especially of cattle, horses, sheep, and goats.

Horns tipped: Removal of the terminal 1 to 2 inches of horns of cattle.

Ionophore: A drug given in feed that promotes the efficient use of feedstuffs by altering the fermentation pattern in the rumen.

Metaphylaxis: The timely administration of injectable antibiotics given to a group of animals to eliminate or minimize an expected disease outbreak.

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. 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). An estimate of 3.4 with 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 as (0.0). If there were no reports of the event, no standard error was reported (—).

Postmortem: Performed or occurring after death, usually an examination.

Precondition: Preparation of 6- to 8-month-old range-reared beef calves for entry into a feedlot and an intensive fattening program.

Private treaty: A sale negotiated directly between the parties or their agents, rather than through the auction process.

Probiotics: Live organisms that, when administered orally to establish in the digestive tract, are believed to be favorable to the health of the animal.

Processing: A term used to describe a variety of procedures (e.g., vaccinations, implanting, deworming), generally applied to groups of animals.

Ration: The amount of feed an animal receives in a 24-hour period.

Regions:

Central: Colorado, Kansas, Nebraska, Oklahoma, and Texas.
Other: Arizona, California, Idaho, Iowa, New Mexico, South Dakota, and Washington.

Residue: Compounds that remain in animals after treatment has ceased.

Shipment: One group of cattle moved all at once, no matter how many vehicles were required to move them.

Shrinkage: The animal weight lost between feedlot and market scales due to transit or other handling processes.

Vaccination: An injection of a vaccine to produce immunity or resistance to disease.

Wean: To separate nursing young from their mothers so they can no longer nurse.

Section I: Population Estimates[1]

Note: Where appropriate, column totals are shown as 100.0 to aid in interpretation; however, estimates may not sum to 100.0 due to rounding.

Throughout this report, population estimates are shown for all feedlots in the inference population (i.e., those with a capacity of 1,000 or more head in the 12 study States) as well as for subpopulations of feedlots based on size or geographic location. The breakouts are related in that feedlots in the Central region tended to be larger than feedlots in the "Other" region. Hence, in some cases differences seen between the breakout categories may be difficult to attribute to size-related factors as opposed to factors related to geographic location. Sample-size issues generally preclude the possibility of full two-way analyses of these data.

A. Inventory—Primary Use

1. Cattle type

Most feedlots (80.2 percent) placed beef breeds or beef crossbreeds only, regardless of region or feedlot capacity. Overall, 2.3 percent of feedlots placed dairy breeds only. Feedlots with a capacity of 8,000 or more head were more likely to place some cattle of both beef and dairy breeds (38.5 percent) compared with feedlots with a capacity of 1,000 to 7,999 head (9.0 percent).

A.1.a. Percentage of feedlots that placed any of the following types of cattle and calves on feed, by feedlot capacity and by region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Cattle type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Beef breeds or crossbreeds only	88.2	(1.8)	60.6	(3.4)	79.1	(2.2)	81.9	(2.6)	80.2	(1.7)
Dairy breeds only	2.8	(0.9)	0.9	(0.4)	1.0	(0.5)	4.2	(1.4)	2.3	(0.6)
Beef and dairy breeds	9.0	(1.6)	38.5	(3.4)	19.9	(2.2)	13.9	(2.3)	17.5	(1.6)
Total	100.0		100.0		100.0		100.0		100.0	

[1]Unless otherwise specified, all estimates for cattle and calves placed refer to the period July 1, 2010, through June 30, 2011.

Most cattle placed in feedlots (91.5 percent) were beef breeds or beef crossbreeds. Only 8.5 percent of cattle were dairy breeds. Feedlots with a capacity of 8,000 or more head placed a higher percentage of dairy cattle (9.6 percent) compared with feedlots with a capacity of 1,000 to 7,999 head (2.8 percent). Feedlots in the Central region placed a lower percentage of dairy cattle (5.8 percent) than feedlots in the Other region (21.3 percent).

A.1.b. Percentage of cattle and calves by cattle type, feedlot capacity, and region:

Percent Cattle and Calves

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Cattle type	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Beef breeds or crossbreeds	97.2	(0.7)	90.4	(1.0)	94.2	(1.0)	78.7	(2.0)	91.5	(0.9)
Dairy breeds	2.8	(0.7)	9.6	(1.0)	5.8	(1.0)	21.3	(2.0)	8.5	(0.9)
Total	100.0		100.0		100.0		100.0		100.0	

Overall, 72.9 percent of feedlots placed some beef breed or crossbreed steers less than 700 pounds from July 1, 2010, through June 30, 2011; 91.2 percent of feedlots with a capacity of 8,000 or more head placed some beef breed or crossbreed steers less than 700 pounds during the same period. Similar percentages of feedlots placed beef breed or crossbreed steers 700 pounds or more. A low percentage of feedlots (6.3 percent) placed any beef breed or crossbreed cows, and 14.2 percent of feedlots placed some beef breed or crossbreed bulls. Some of these bulls were later castrated at the feedlot (table D.2.d).

A.1.c. Percentage of feedlots that placed any of the following types of cattle and calves on feed, by feedlot capacity and by region:

	Percent Feedlots									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Cattle type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Steers less than 700 lb										
Beef breeds or crossbreeds	65.4	(2.8)	91.2	(1.7)	76.5	(2.4)	67.2	(3.8)	72.9	(2.1)
Dairy breeds	8.3	(1.6)	29.3	(3.5)	15.1	(2.1)	13.2	(2.3)	14.4	(1.6)
Any steers <700 lb	68.0	(2.8)	95.1	(1.4)	78.9	(2.3)	71.1	(3.7)	75.8	(2.0)
Steers 700 lb or more										
Beef breeds or crossbreeds	64.6	(2.7)	87.4	(2.9)	74.5	(2.6)	66.0	(3.6)	71.2	(2.1)
Dairy breeds	4.9	(1.3)	14.6	(1.5)	7.3	(1.0)	8.2	(2.0)	7.7	(1.0)
Any steers ≥700 lb	67.4	(2.6)	87.4	(2.9)	75.6	(2.6)	69.5	(3.4)	73.2	(2.1)
Any steers	**91.6**	**(1.6)**	**100.0**	**(—)**	**94.4**	**(1.4)**	**93.5**	**(1.9)**	**94.0**	**(1.1)**
Heifers less than 700 lb										
Beef breeds or crossbreeds	54.0	(2.9)	88.3	(2.0)	71.2	(2.6)	52.8	(3.9)	63.9	(2.2)
Dairy breeds	2.1	(0.7)	7.4	(1.5)	3.9	(0.8)	3.2	(1.1)	3.6	(0.7)
Any heifers <700 lb	54.9	(2.9)	88.5	(2.0)	72.2	(2.6)	52.9	(3.9)	64.6	(2.2)
Heifers 700 lb or more										
Beef breeds or crossbreeds	47.3	(2.9)	80.2	(3.3)	64.6	(2.8)	44.9	(4.1)	56.8	(2.3)
Dairy breeds	1.2	(0.6)	6.4	(1.1)	3.6	(0.7)	1.4	(0.8)	2.7	(0.5)
Any heifers ≥700 lb	47.8	(2.9)	80.2	(3.3)	64.6	(2.8)	45.8	(4.1)	57.1	(2.3)
Any heifers	**71.2**	**(2.6)**	**93.7**	**(1.4)**	**84.8**	**(2.1)**	**66.9**	**(3.7)**	**77.7**	**(1.9)**
Cows										
Beef breeds or crossbreeds	5.3	(1.4)	8.8	(1.8)	6.1	(1.2)	6.6	(2.1)	6.3	(1.1)
Dairy breeds	0.0	(0.0)	1.9	(0.6)	0.9	(0.3)	0.0	(0.0)	0.5	(0.2)
Any cows	5.3	(1.4)	9.3	(1.8)	6.3	(1.2)	6.6	(2.1)	6.4	(1.1)
Bulls										
Beef breeds or crossbreeds	12.3	(1.9)	18.7	(2.3)	18.7	(2.0)	7.2	(2.1)	14.2	(1.5)
Dairy breeds	1.0	(0.5)	3.2	(1.0)	1.9	(0.6)	1.2	(0.7)	1.6	(0.5)
Any bulls	12.8	(1.9)	19.9	(2.3)	19.9	(2.1)	7.2	(2.1)	14.8	(1.5)

Overall, 54.4 percent of cattle placed in feedlots were beef breed or crossbreed steers of any weight, and 36.1 percent were beef breed or crossbreed heifers of any weight. These percentages were similar across feedlot capacity and region. Overall, 1.1 percent of animals placed were cows and 0.9 percent were bulls.

A.1.d. Percentage of cattle and calves by cattle type, feedlot capacity, and region:

	Percent Cattle and Calves									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Cattle type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Steers less than 700 lb										
Beef breeds or crossbreeds	25.2	(1.9)	22.6	(1.0)	23.4	(1.0)	21.2	(1.9)	23.1	(0.9)
Dairy breeds	1.6	(0.4)	7.6	(0.9)	4.0	(0.9)	19.3	(1.9)	6.6	(0.8)
Steers 700 lb or more										
Beef breeds or crossbreeds	34.1	(2.8)	30.7	(1.3)	32.3	(1.3)	26.3	(2.5)	31.3	(1.2)
Dairy breeds	1.0	(0.5)	0.7	(0.1)	0.6	(0.1)	1.5	(0.5)	0.7	(0.1)
Heifers less than 700 lb										
Beef breeds or crossbreeds	17.8	(1.8)	18.9	(0.9)	19.6	(0.9)	14.5	(1.7)	18.7	(0.8)
Dairy breeds	0.1	(0.1)	0.1	(0.0)	0.1	(0.0)	0.2	(0.0)	0.1	(0.0)
Heifers 700 lb or more										
Beef breeds or crossbreeds	18.6	(2.1)	17.2	(0.9)	18.3	(1.0)	13.3	(1.6)	17.4	(0.8)
Dairy breeds	0.0	(0.0)	0.2	(0.0)	0.1	(0.0)	0.2	(0.1)	0.1	(0.0)
Cows										
Beef breeds or crossbreeds	0.8	(0.4)	1.0	(0.4)	0.5	(0.1)	3.3	(1.9)	1.0	(0.3)
Dairy breeds	0.0	(0.0)	0.1	(0.1)	0.1	(0.1)	0.0	(0.0)	0.1	(0.0)
Bulls										
Beef breeds or crossbreeds	0.8	(0.2)	0.9	(0.1)	1.0	(0.1)	0.2	(0.1)	0.9	(0.1)
Dairy breeds	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Total	100.0		100.0		100.0		100.0		100.0	

Feedlots with a capacity of 8,000 or more head were more likely to place dairy breeds, regardless of weight, than feedlots with a capacity of 1,000 to 7,999 head. In each of the two regions, a similar percentage of feedlots placed dairy breeds, regardless of weight.

A.1.e. Percentage of feedlots that placed the following types of cattle on feed, by feedlot capacity and by region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Cattle type	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Steers and/or heifers less than 700 lb										
Beef breeds or crossbreeds	72.9	(2.6)	93.9	(1.6)	83.4	(2.2)	72.2	(3.6)	79.0	(1.9)
Dairy breeds	8.7	(1.6)	30.9	(3.5)	15.9	(2.2)	14.0	(2.3)	15.1	(1.6)
Any breed	75.5	(2.6)	97.1	(1.2)	85.4	(2.1)	76.1	(3.5)	81.7	(1.9)
Steers and/or heifers 700 lb or more										
Beef breeds or crossbreeds	73.5	(2.5)	88.2	(2.9)	80.8	(2.4)	73.1	(3.4)	77.8	(2.0)
Dairy breeds	4.9	(1.3)	16.0	(1.6)	8.0	(1.0)	8.2	(2.0)	8.1	(1.0)
Any breed	76.0	(2.4)	88.2	(2.9)	81.5	(2.4)	76.5	(3.2)	79.5	(1.9)

The relative mix of cattle types placed in feedlots was similar by feedlot capacity and by region. Nearly 60 percent of the beef breed or crossbreed cattle placed in feedlots (58.8 percent) were steers, whereas almost all of the dairy breed cattle placed in feedlots (94.7 percent) were steers.

A.1.f. Percentage of cattle and calves by cattle type, feedlot capacity, and region:

	Percent Cattle and Calves									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Cattle type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Beef breed or crossbreed										
Steers	60.9	(2.4)	58.4	(1.4)	58.6	(1.4)	60.3	(2.5)	58.8	(1.3)
Heifers	37.4	(2.4)	39.5	(1.4)	39.9	(1.4)	35.2	(2.3)	39.2	(1.2)
Cows	0.9	(0.4)	1.1	(0.4)	0.5	(0.1)	4.2	(2.4)	1.1	(0.4)
Bulls	0.8	(0.2)	1.0	(0.1)	1.0	(0.1)	0.3	(0.1)	0.9	(0.1)
Total	100.0		100.0		100.0		100.0		100.0	
Dairy breed										
Steers	94.1	(2.5)	94.8	(1.0)	91.9	(2.2)	97.9	(0.5)	94.7	(1.0)
Heifers	4.9	(2.3)	3.3	(0.7)	4.7	(1.4)	1.9	(0.5)	3.4	(0.7)
Cows	0.0	(0.0)	1.5	(0.6)	2.7	(1.2)	0.0	(0.0)	1.4	(0.6)
Bulls	1.0	(0.7)	0.4	(0.1)	0.7	(0.2)	0.2	(0.1)	0.5	(0.1)
Total	100.0		100.0		100.0		100.0		100.0	

2. Placements not intended for slaughter

While most cattle placed in feedlots are fed for the slaughter market, some are fed for other purposes. For example, feedlots sometimes grow and develop breeding cattle that are returned to breeding operations, and cattle are sometimes backgrounded or grown temporarily on the feedlot then returned to grazing prior to being fed for slaughter. Overall, 12.2 percent of feedlots placed some cattle for purposes other than slaughter, most commonly beef animals to be used for breeding stock (7.5 percent of feedlots). A lower percentage of feedlots with a capacity of 8,000 or more head (6.9 percent) placed any cattle for purposes other than slaughter compared with feedlots with a capacity of 1,000 to 7,999 head (14.5 percent).

A.2.a. Percentage of feedlots that placed cattle on feed for purposes other than slaughter, by placement purpose, feedlot capacity, and region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Placement purpose	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Beef animals to be used for breeding stock	8.8	(1.6)	4.2	(1.1)	9.1	(1.6)	5.0	(1.6)	7.5	(1.1)
Dairy animals to be used for breeding stock	2.3	(0.9)	0.0	(0.0)	1.2	(0.6)	2.3	(1.4)	1.6	(0.6)
Other cattle and calves (e.g., to be returned to grazing)	5.6	(1.3)	3.4	(1.1)	6.9	(1.5)	2.0	(0.9)	4.9	(1.0)
Any nonslaughter	14.5	(2.0)	6.9	(1.3)	15.0	(2.0)	8.1	(2.1)	12.2	(1.5)

Overall, only 1.3 percent of cattle were placed for purposes other than slaughter. Feedlots with a capacity of 1,000 to 7,999 head had a higher percentage of cattle placed for nonslaughter purposes (6.5 percent) compared with feedlots with a capacity of 8,000 or more head (0.2 percent).

A.2.b. Percentage of cattle and calves placed on feed for purposes other than slaughter, by placement purpose, feedlot capacity, and region:

Percent Cattle and Calves

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Placement purpose	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Beef animals to be used for breeding stock	1.0	(0.4)	0.1	(0.0)	0.3	(0.1)	0.2	(0.1)	0.3	(0.1)
Dairy animals to be used for breeding stock	0.7	(0.3)	0.0	(0.0)	0.0	(0.0)	0.5	(0.3)	0.1	(0.0)
Other cattle and calves (e.g., to be returned to grazing)	4.8	(1.9)	0.1	(0.0)	1.0	(0.4)	0.5	(0.3)	0.9	(0.3)
Any nonslaughter	6.5	(2.1)	0.2	(0.1)	1.3	(0.5)	1.2	(0.4)	1.3	(0.4)

Of cattle placed for nonslaughter purposes, 71.5 percent were intended to return to grazing.

A.2.c. Of cattle placed for nonslaughter purposes, percentage of cattle and calves by placement purpose, feedlot capacity, and region:

Percent Cattle and Calves

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Placement purpose	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Beef animals to be used for breeding stock	15.5	(4.0)	43.4	(9.8)	20.8	(4.9)	12.8	(4.9)	19.5	(4.0)
Dairy animals to be used for breeding stock	10.5	(5.2)	0.0	(0.0)	2.1	(1.2)	43.8	(16.9)	9.0	(4.2)
Other cattle and calves (e.g., to be returned to grazing)	74.0	(6.8)	56.6	(9.8)	77.1	(5.4)	43.4	(16.4)	71.5	(6.4)
Total	100.0		100.0		100.0		100.0		100.0	

3. Mexican-origin cattle

The possibility of Mexican-origin cattle being infected with *Mycobacterium bovis*, the agent associated with bovine tuberculosis, or ticks infected with *Babesia*, the agent associated with Texas cattle fever, has been of concern for many years. As a result, State and Federal regulations have been put in place that address import requirements and subsequent management of these cattle.

Overall, 11.4 percent of feedlots placed some cattle of Mexican origin during the year. A much higher percentage of feedlots with a capacity of 8,000 or more head placed Mexican-origin cattle compared feedlots with a capacity of 1,000 to 7,999 head (33.1 and 2.5 percent, respectively). Similarly, a higher percentage of feedlots in the Central region than in the Other region placed Mexican-origin cattle (15.8 and 4.9 percent, respectively).

A.3.a. Percentage of feedlots that placed Mexican-origin cattle and calves on feed for slaughter, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
2.5	(0.8)	33.1	(2.7)	15.8	(1.3)	4.9	(1.3)	11.4	(0.9)

Less than 5 percent of cattle placed in feedlots were of Mexican origin, and virtually all of those were beef cattle and calves.

A.3.b. Percentage of cattle and calves that were of Mexican origin, by cattle type, feedlot capacity, and region:

Percent Cattle and Calves

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Cattle type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Beef cattle and calves	1.1	(0.5)	5.1	(0.6)	4.4	(0.6)	4.7	(0.7)	4.4	(0.5)
Dairy cattle and calves	0.0	(—)	0.0	(0.0)	0.0	(0.0)	0.0	(—)	0.0	(0.0)
Any	1.1	(0.5)	5.1	(0.6)	4.4	(0.6)	4.7	(0.7)	4.5	(0.5)

A.3.c. Of Mexican-origin cattle, percentage of cattle and calves by cattle type, feedlot capacity, and region:

Percent Cattle and Calves

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Cattle type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Beef cattle and calves	100.0	(—)	99.2	(0.1)	99.0	(0.1)	100.0	(—)	99.2	(0.1)
Dairy cattle and calves	0.0	(—)	0.8	(0.1)	1.0	(0.1)	0.0	(—)	0.8	(0.1)
Total	100.0		100.0		100.0		100.0		100.0	

B. Source of Cattle

1. Description of origin and source

Cattle in feedlots might be owned by the feedlot or be custom fed for another owner. Other owners might be investors or producers that retain ownership of their cattle. Retained ownership programs allow producers to capture some of the extra value associated with high-quality cattle, and access production information through the entire beef production chain.

Nearly two of three feedlots (64.2 percent) purchased some cattle by auction. Approximately one of two feedlots (50.2 percent) custom fed some cattle for other owners. Custom feeding was much more common on feedlots with a capacity of 8,000 or more head compared with feedlots with a capacity of 1,000 to 7,999 head (79.9 and 38.0 percent of feedlots, respectively). Similarly, a higher percentage of feedlots in the Central region than in the Other region custom fed some cattle (62.0 and 31.8 percent, respectively). A relatively low percentage of feedlots (14.4 percent) fed cattle produced on their own feedlot or another operation owned by the feedlot. A lower percentage of feedlots with a capacity of 8,000 or more head (2.6 percent) fed cattle born on their own feedlot or another operation owned by the feedlot compared with feedlots with a capacity of 1,000 to 7,999 head (19.2 percent).

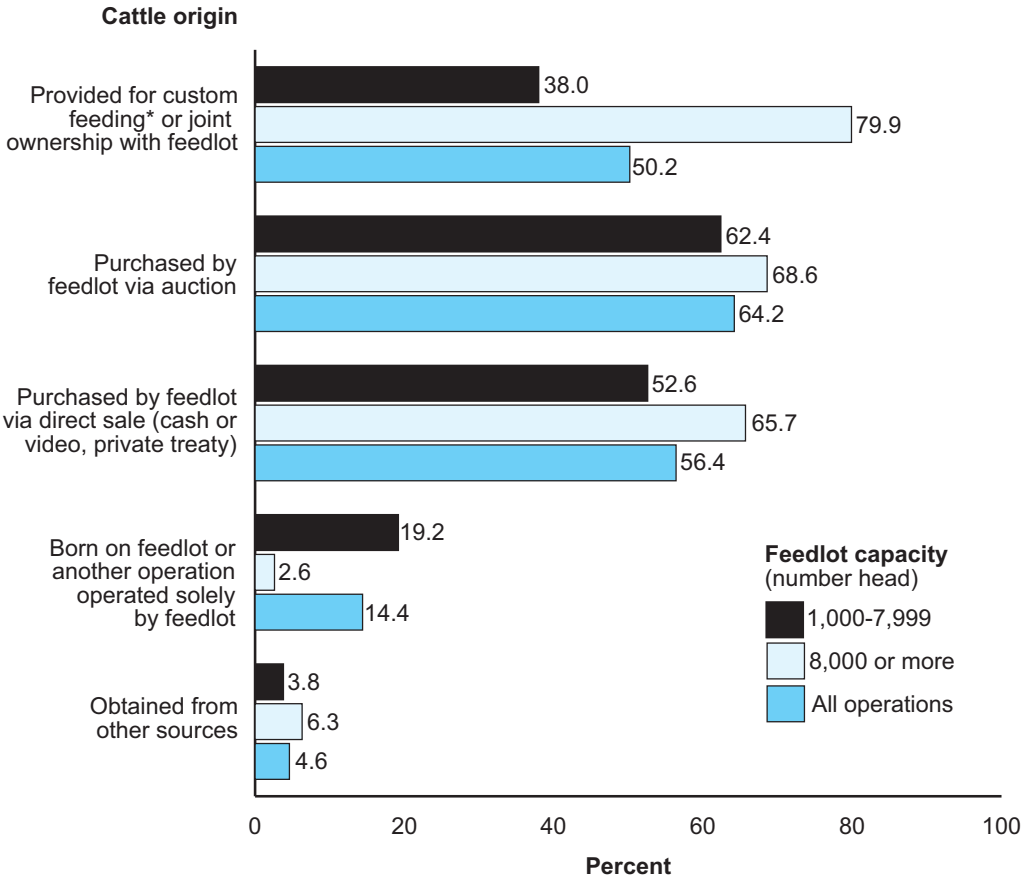
B.1.a. Percentage of feedlots by origin of cattle, feedlot capacity, and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Cattle origin	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Provided for custom feeding* or joint ownership with feedlot	38.0	(2.6)	79.9	(3.5)	62.0	(2.9)	31.8	(3.3)	50.2	(2.2)
Purchased by feedlot via auction	62.4	(2.8)	68.6	(4.2)	67.0	(2.9)	59.8	(3.8)	64.2	(2.3)
Purchased by feedlot via direct sale (cash or video, private treaty)	52.6	(2.9)	65.7	(3.7)	57.8	(2.8)	54.2	(4.0)	56.4	(2.3)
Born on feedlot or another operation operated solely by feedlot	19.2	(2.2)	2.6	(1.0)	12.9	(1.9)	16.7	(2.7)	14.4	(1.6)
Obtained from other sources	3.8	(1.1)	6.3	(2.3)	4.9	(1.4)	4.1	(1.3)	4.6	(1.0)

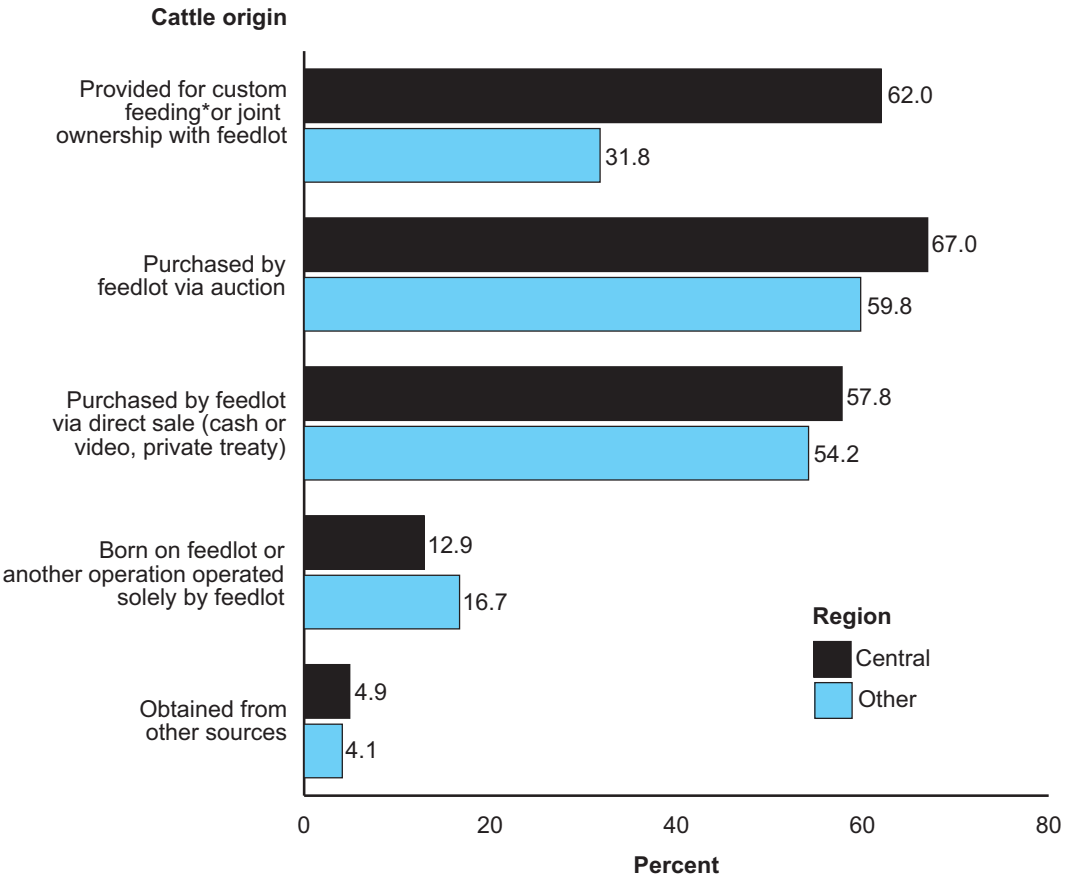
*Producer-retained ownership or investor owned.

Percentage of feedlots by origin of cattle and by feedlot capacity



*Producer-retained ownership or investor owned.

Percentage of feedlots by origin of cattle and by region



*Producer-retained ownership or investor owned.

Nearly all cattle placed in feedlots were placed for custom feeding or joint ownership with the feedlot, purchased by feedlot via auction, or purchased by feedlot via direct sale. While 14.4 percent of feedlots fed some cattle born on the feedlot or another operation owned by the feedlot (table B.1.a.), these animals accounted for only 1.1 percent of cattle placed on feed.

B.1.b. Percentage of cattle and calves by origin of cattle, feedlot capacity, and region:

Percent Cattle and Calves

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Cattle origin	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Provided for custom feeding* or joint ownership with feedlot	30.9	(3.5)	40.0	(2.3)	40.7	(2.2)	27.8	(4.0)	38.5	(2.0)
Purchased by feedlot via auction	37.9	(3.0)	27.0	(1.8)	27.8	(1.5)	33.4	(5.2)	28.8	(1.5)
Purchased by feedlot via direct sale (cash or video, private treaty)	26.5	(2.7)	30.2	(2.1)	28.2	(2.0)	36.5	(5.1)	29.6	(1.8)
Born on feedlot or another operation operated solely by feedlot	3.3	(0.6)	0.7	(0.3)	1.1	(0.3)	1.5	(0.4)	1.1	(0.3)
Obtained from other sources	1.4	(0.6)	2.1	(1.1)	2.2	(1.1)	0.8	(0.3)	2.0	(0.9)
Total	100.0		100.0		100.0		100.0		100.0	

*Producer-retained ownership or investor owned.

2. Source of arriving shipments

Most cattle shipments[2] arriving at feedlots (67.0 percent) came from an auction facility. Approximately one of four shipments (25.1 percent) came directly from another beef operation. Only 1.6 percent of shipments came from other feedlots.

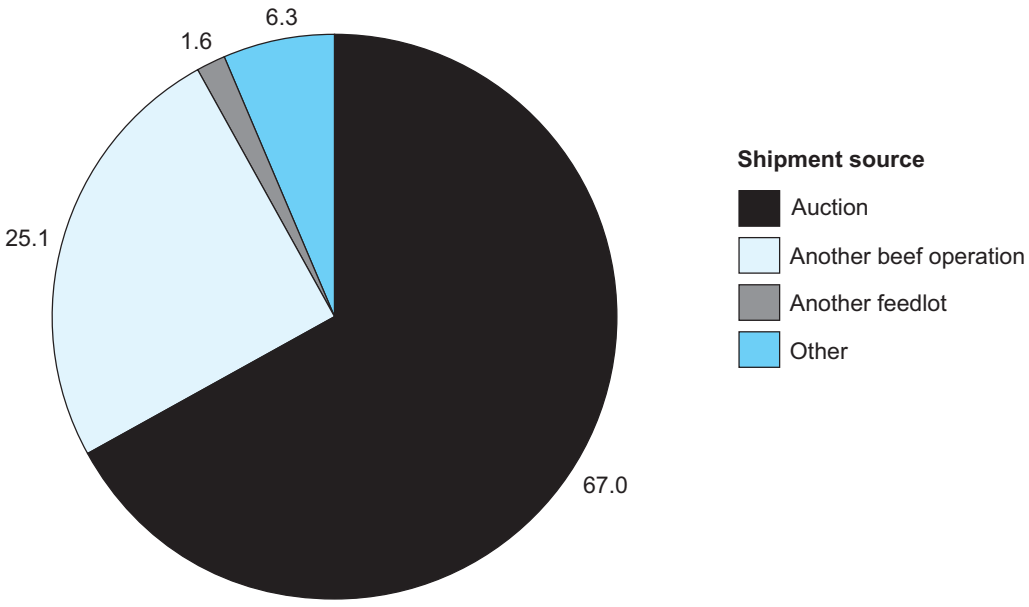
B.2. Percentage of cattle shipments to feedlots, by source of shipments, feedlot capacity, and region:

Percent Shipments

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Shipment source	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Auction	64.5	(3.2)	67.6	(3.4)	61.4	(4.6)	78.8	(3.6)	67.0	(2.9)
Another beef operation (e.g., cow-calf or stocker feedlot)	24.5	(3.0)	25.2	(3.0)	29.3	(3.7)	16.3	(3.7)	25.1	(2.5)
Another feedlot	1.5	(0.4)	1.6	(0.3)	1.9	(0.4)	1.0	(0.3)	1.6	(0.3)
Other	9.5	(1.7)	5.6	(1.2)	7.4	(1.6)	3.9	(0.7)	6.3	(1.1)
Total	100.0		100.0		100.0		100.0		100.0	

[2]One group of cattle moved all at once, no matter how many vehicles were required to move the cattle.

Percentage of cattle shipments to feedlots, by source of shipments



3. Average distance shipments traveled to feedlot

Overall, the average distance cattle shipments traveled to the feedlot was 339 miles. The average shipment distance was similar for all sources, with the exception of shipments from another feedlot, which averaged 159 miles.

B.3. Average distance (miles) cattle shipments traveled to feedlot, by source of shipment, feedlot capacity, and region:

	Average Number of Miles per Shipment									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Shipment source	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error
Auction	280	(16)	356	(37)	288	(21)	323	(24)	302	(16)
Another beef operation (e.g., cow-calf or stocker feedlot)	334	(25)	370	(27)	293	(22)	442	(36)	346	(19)
Another feedlot	160	(40)	158	(29)	135	(19)	201	(57)	159	(25)
Other	351	(46)	518	(58)	366	(42)	500	(75)	411	(38)
All*	319	(16)	394	(26)	306	(17)	386	(24)	339	(14)

*Weighted by number of shipments by source.

4. Shipments crossing State lines

Overall, 55.3 percent of shipments crossed State lines. Shipments from another feedlot accounted for the lowest percentage of shipments that crossed State lines, which is probably a reflection of the lower average distance these shipments traveled to the feedlot (table B.3.).

B.4. Percentage of cattle shipments that crossed State lines, by source of shipments, feedlot capacity, and region:

	Percent Shipments									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Shipment source	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Auction	51.9	(4.2)	56.2	(5.8)	71.6	(5.3)	29.5	(1.3)	55.5	(5.0)
Another beef operation (e.g., cow-calf or stocker feedlot)	60.0	(5.1)	52.1	(3.1)	48.1	(2.4)	73.7	(4.1)	53.4	(2.7)
Another feedlot	36.5	(11.3)	29.5	(6.6)	23.5	(5.7)	57.8	(13.6)	30.6	(5.9)
Other	56.7	(8.6)	69.3	(6.8)	64.4	(7.0)	73.3	(7.1)	66.2	(5.7)
All	54.1	(3.3)	55.5	(4.1)	63.3	(4.3)	38.6	(2.3)	55.3	(3.5)

5. Information provided to cattle sources

Providing information to cattle sources about the disease occurrence, performance, carcass quality, and other characteristics of the cattle sent to the feedlot is a way of sending signals back along the beef production chain. Integrating the segments of the beef industry can allow more efficient progress in providing high-quality products. However, giving information to those supplying cattle to the feedlot is not generally a routine practice. Only 25.3 percent of feedlots always or most of the time provided cattle suppliers with information about the cattle placed. This relatively low percentage might be a function of the way cattle are sourced by the feedlot. For example, when a shipment consists of cattle sourced through an auction market, the shipment might include animals from many different sources, making it difficult to provide information unless the original owners contact the feedlot for the information. Promoting the flow of information to cattle sources may help the beef industry achieve a higher degree of production efficiency, while also ensuring product quality and consumer acceptance.

B.5. Percentage of feedlots by frequency that feedlots provided any information to cattle sources about cattle placed on feed, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Frequency	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Always or most of the time	20.0	(2.3)	38.2	(4.2)	29.5	(2.8)	19.0	(3.0)	25.3	(2.1)
Sometimes	35.8	(2.8)	48.9	(4.1)	40.5	(2.9)	38.3	(3.7)	39.6	(2.3)
Never or almost never	44.1	(2.9)	12.9	(2.7)	30.0	(2.6)	42.7	(4.0)	35.1	(2.2)
Total	100.0		100.0		100.0		100.0		100.0	

C. Pre-arrival Processing

1. Effectiveness of pre-arrival processing

More than 80 percent of feedlot operators believed that pre-arrival processing can reduce sickness and death loss in the feedlot. There were no differences by region in the percentages of feedlots by pre-arrival practices for incoming cattle less than 700 lb. A higher percentage of feedlots with a capacity of 8,000 or more head always or some of the time received calves that had been weaned at least 4 weeks prior to shipment compared with feedlots with a capacity of 1,000 to 7,999 head (91.6 and 77.2 percent, respectively). For the rest of the listed pre-arrival practices, the percentages of feedlots were similar by capacity and by region.

C.1.a. Of feedlots that received steers or heifers less than 700 lb, percentage of feedlots in which the following pre-arrival practices were performed some or all of the time to reduce sickness and death in the feedlot, by feedlot capacity and by region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pre-arrival practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Introduction to feed bunk	85.6	(2.5)	93.6	(1.8)	91.3	(1.8)	83.6	(3.6)	88.4	(1.8)
Respiratory vaccinations given to calves at least 2 weeks prior to weaning	88.9	(2.1)	90.9	(1.9)	88.9	(1.9)	90.8	(2.6)	89.6	(1.6)
Respiratory vaccinations given to calves at weaning	89.0	(2.2)	93.0	(1.7)	92.5	(1.6)	86.5	(3.4)	90.4	(1.6)
Calves weaned at least 4 weeks prior to shipping	77.2	(3.2)	91.6	(2.1)	84.2	(2.4)	78.5	(4.4)	82.1	(2.2)
Calves castrated and dehorned at least 4 weeks prior to shipping	85.2	(2.5)	86.1	(4.4)	84.5	(2.9)	87.2	(3.2)	85.5	(2.2)
Calves treated for external or internal parasites prior to shipping	78.0	(3.0)	86.6	(2.7)	80.8	(2.6)	80.7	(4.1)	80.8	(2.2)

At least 70 percent of feedlot operators felt that each of the listed pre-arrival practices was either very effective or extremely effective in reducing health problems in cattle.

C.1.b. Of feedlots that received steers or heifers less than 700 lb, percentage of feedlots by perceived level of effectiveness of the following pre-arrival management practices for reducing sickness and death in the feedlot:

	Percent Feedlots*								
	Level of Effectiveness								
	Extremely effective		Very effective		Somewhat effective		Not effective		
Pre-arrival practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Introduction to feed bunk	25.7	(2.7)	55.4	(3.0)	18.8	(2.3)	0.0	(—)	100.0
Respiratory vaccinations given to calves at least 2 weeks prior to weaning	29.2	(3.0)	56.2	(3.2)	14.0	(2.1)	0.6	(0.5)	100.0
Respiratory vaccinations given to calves at weaning	25.6	(2.8)	54.8	(3.3)	19.6	(2.7)	0.0	(—)	100.0
Calves weaned at least 4 weeks prior to shipping	32.4	(3.0)	46.6	(3.3)	19.6	(2.7)	1.3	(0.8)	100.0
Calves castrated and dehorned at least 4 weeks prior to shipping	33.8	(2.9)	57.9	(3.1)	7.0	(1.6)	1.4	(0.7)	100.0
Calves treated for external or internal parasites prior to shipping	22.6	(2.9)	48.3	(3.4)	28.3	(3.1)	0.7	(0.7)	100.0

*For feedlots using the practice all or some of the time.

C.1.c. Of feedlots that received steers and heifers less than 700 lb, percentage of feedlots in which the operator believed that the following pre-arrival management practices were **very or extremely effective** in reducing sickness and death in the feedlot, by feedlot capacity and by region:

Percent Feedlots*

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pre-arrival practice	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Introduction to feed bunk	79.8	(3.2)	83.6	(2.5)	84.3	(2.2)	75.3	(4.8)	81.2	(2.3)
Respiratory vaccinations given to calves at least 2 weeks prior to weaning	85.2	(2.9)	85.9	(3.1)	88.6	(2.2)	79.9	(4.4)	85.4	(2.2)
Respiratory vaccinations given to calves at weaning	82.2	(3.0)	76.9	(5.4)	81.5	(3.4)	78.2	(4.6)	80.4	(2.7)
Calves weaned at least 4 weeks prior to shipping	80.4	(3.3)	76.8	(4.9)	81.6	(3.5)	74.3	(4.8)	79.1	(2.8)
Calves castrated and dehorned at least 4 weeks prior to shipping	92.1	(2.3)	90.6	(2.2)	91.6	(2.0)	91.8	(3.1)	91.6	(1.7)
Calves treated for external or internal parasites prior to shipping	72.6	(3.9)	67.9	(5.4)	73.8	(3.9)	66.3	(5.3)	71.0	(3.2)

*For feedlots using the practice all or some of the time.

2. Availability of pre-arrival processing information

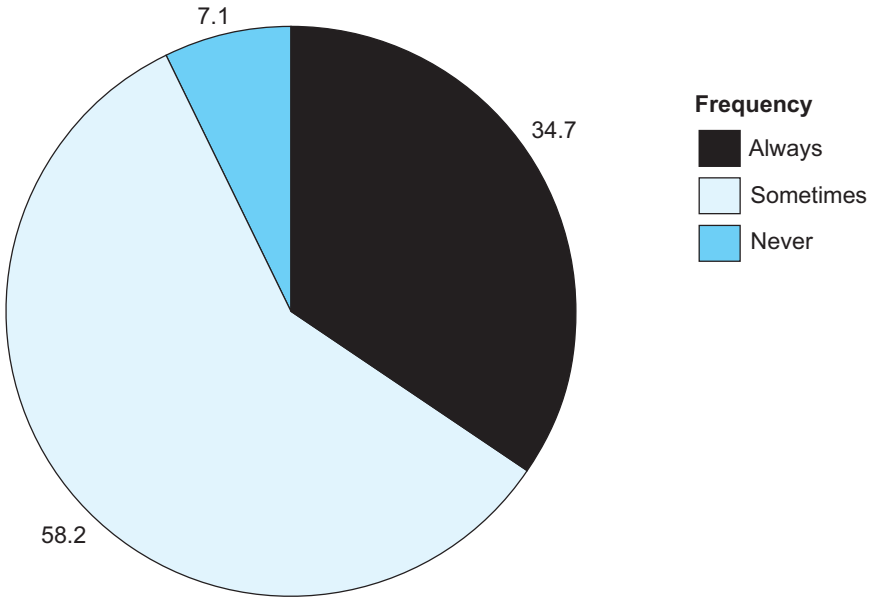
While feedlot operators clearly believe that pre-arrival processing practices can impact animal health in the feedlot, the availability of pre-arrival processing information is limited. Only 34.7 percent of feedlots always had access to pre-arrival processing information, and 58.2 percent sometimes had access to the information. Limitations on information about cattle placed on feedlots might be a reflection of the marketing channels through which the cattle come to the feedlots and the logistics of moving data/information with the cattle, particularly those that might be aggregated from many smaller groups. These are probably many of the same hurdles feedlots face in providing cattle sources information on animal performance.

C.2. Percentage of feedlots by frequency that information on pre-arrival processing (e.g., vaccinations, implants, deworming history, or mineral supplements) was available for cattle placed on feed, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Frequency	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Always	38.4	(2.8)	25.9	(3.6)	31.4	(2.8)	39.8	(3.7)	34.7	(2.2)
Sometimes	53.2	(2.8)	70.1	(3.6)	61.4	(2.9)	53.2	(3.7)	58.2	(2.3)
Never	8.4	(1.5)	4.0	(0.9)	7.2	(1.3)	7.0	(1.9)	7.1	(1.1)
Total	100.0		100.0		100.0		100.0		100.0	

Percentage of feedlots by frequency that information on pre-arrival processing (e.g., vaccinations, implants, deworming history, or mineral supplements) was available for cattle placed on feed



3. Importance of pre-arrival processing information

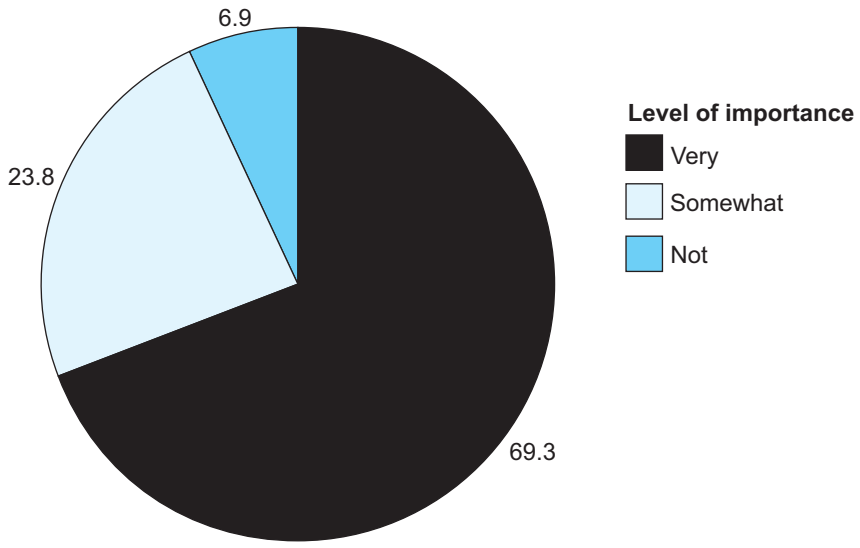
Operators on 69.3 percent of feedlots believed that pre-arrival processing information was very important, which coincides with the belief that these practices support animal health in the feedlot. This view was consistent, regardless of feedlot capacity or region.

C.3. Percentage of feedlots by importance of information on pre-arrival processing (e.g., vaccinations, implants, deworming history, or mineral supplementation), and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Level of importance	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Very	67.6	(2.8)	73.3	(2.9)	72.2	(2.4)	65.1	(3.8)	69.3	(2.1)
Somewhat	24.6	(2.6)	22.0	(2.7)	21.3	(2.2)	27.3	(3.6)	23.8	(2.0)
Not	7.8	(1.6)	4.7	(1.2)	6.5	(1.3)	7.6	(2.0)	6.9	(1.1)
Total	100.0		100.0		100.0		100.0		100.0	

Percentage of feedlots by importance of information on pre-arrival processing (e.g., vaccinations, implants, deworming history, or mineral supplementation)



4. Use of pre-arrival processing information

When pre-arrival processing information was available, 51.3 percent of feedlots always used the information to determine management or processing practices. Another 35.7 percent sometimes made use of the information. The relatively high level of use of available information supports the views expressed by feedlot operators on the importance and effectiveness of pre-arrival practices.

C.4. For feedlots that always or sometimes had pre-arrival processing information available, percentage of feedlots by frequency management or processing procedures were based on pre-arrival processing information, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Frequency	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Always	49.6	(2.9)	55.3	(3.7)	55.4	(2.9)	45.3	(3.9)	51.3	(2.3)
Sometimes	34.6	(2.9)	38.3	(3.7)	35.6	(2.8)	35.7	(4.0)	35.7	(2.3)
Never	15.8	(2.2)	6.4	(1.4)	9.0	(1.5)	18.9	(3.2)	13.0	(1.6)
Total	100.0		100.0		100.0		100.0		100.0	

D. Arrival Management

1. Initial processing timing

Most feedlots (96.8 percent) initially processed arriving cattle as a group. Processing consists of vaccination, parasite control, application of growth promoting implants, or other activities. On 59.7 percent of feedlots, some cattle were processed within 24 hours after arrival. Processing some cattle within 24 hours after arrival was more common in feedlots with a capacity of 8,000 or more head than in feedlots with a capacity of 1,000 to 7,999 head (86.2 and 48.7 percent of feedlots, respectively) and was more common in the Central region than the Other region (68.7 and 46.2 percent, respectively). Only 26.5 percent of feedlots delayed processing some cattle more than 72 hours after arrival. Feedlots might choose to delay processing of some cattle based on their condition at arrival, weather, or the availability of labor.

D.1.a. Percentage of feedlots that initially processed any cattle and calves as a group, by number of hours after arrival animals were processed, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Number of hours	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
24 or less	48.7	(2.8)	86.2	(2.4)	68.7	(2.6)	46.2	(3.7)	59.7	(2.1)
25–72	52.6	(2.9)	67.8	(3.9)	63.9	(2.8)	46.8	(3.9)	57.1	(2.3)
More than 72	25.7	(2.6)	28.5	(3.6)	25.9	(2.6)	27.4	(3.6)	26.5	(2.1)
Ever processed	95.8	(1.1)	99.3	(0.2)	98.7	(0.6)	94.0	(1.8)	96.8	(0.8)

Nearly two-thirds of the cattle placed in feedlots (60.8 percent) were processed in 24 hours after arrival. Only 0.4 percent of cattle were not processed as a group after arrival at the feedlot, and only 6.5 percent of cattle were processed more than 72 hours after arrival. A higher percentage of cattle in feedlots with a capacity of 1,000 to 7,999 head were processed more than 72 hours after arrival than cattle on feedlots with a capacity of 8,000 or more head (14.1 and 5.0 percent of cattle, respectively).

D.1.b. Percentage of cattle and calves initially processed as a group, by number of hours after arrival animals were processed, and by feedlot capacity and region:

Percent Cattle and Calves

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Number of hours	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
24 or less	48.9	(4.1)	63.1	(2.7)	61.5	(2.7)	57.4	(5.4)	60.8	(2.4)
25–72	35.2	(3.6)	31.8	(2.5)	32.3	(2.5)	32.3	(4.8)	32.3	(2.2)
More than 72	14.1	(2.2)	5.0	(0.8)	6.0	(0.9)	8.7	(1.7)	6.5	(0.8)
Not processed	1.8	(0.7)	0.1	(0.1)	0.2	(0.1)	1.6	(0.7)	0.4	(0.1)
Total	100.0		100.0		100.0		100.0		100.0	

2. Cattle processing procedures

A higher percentage of feedlots with a capacity of 8,000 or more head (78.7 percent) used a second processing of cattle as a group compared with feedlots with a capacity of 1,000 to 7,999 head (59.5 percent).

D.2.a. Of feedlots that initially processed cattle and calves as a group, percentage that used a second processing, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
59.5	(2.8)	78.7	(3.8)	67.9	(2.8)	60.8	(3.8)	65.2	(2.3)

The two most common initial processing management practices were vaccination for respiratory disease (96.0 percent of feedlots) and treatment for parasites (94.5 percent of feedlots). About half of feedlots (50.4 percent) gave an antibiotic injection as part of the initial processing procedure for any cattle. Use of an antibiotic injection at initial processing for some cattle was more common in feedlots with a capacity of 8,000 or more head (75.1 percent) than in feedlots with a capacity of 1,000 to 7,999 head (39.8 percent). This practice was more common in the Central region than in the Other region (57.8 and 39.0 percent of feedlots, respectively).

The most common practices used at a second group-processing event were implanting (80.1 percent of feedlots) and another vaccination for respiratory disease (74.9 percent).

D.2.b. For feedlots that initially processed cattle and calves as a group, percentage of feedlots by procedures performed at initial and second processing, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Procedure	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Initial processing										
Vaccinated against respiratory diseases	94.6	(1.4)	99.2	(0.3)	96.4	(1.2)	95.2	(1.6)	96.0	(1.0)
Vaccinated against clostridial diseases	77.9	(2.5)	75.9	(3.7)	76.1	(2.7)	79.3	(3.4)	77.3	(2.1)
Gave an injectable antibiotic	39.8	(2.9)	75.1	(3.7)	57.8	(3.0)	39.0	(4.0)	50.4	(2.4)
Implanted	73.9	(2.7)	89.8	(3.4)	83.5	(2.5)	71.3	(3.8)	78.7	(2.1)
Treated for parasites	94.2	(1.4)	95.1	(1.3)	94.6	(1.4)	94.3	(1.6)	94.5	(1.2)
Second processing										
Vaccinated against respiratory diseases	75.6	(3.4)	73.7	(4.9)	80.2	(3.3)	65.5	(5.3)	74.9	(2.8)
Vaccinated against clostridial diseases	48.5	(4.0)	30.5	(5.2)	36.3	(3.8)	52.5	(5.3)	42.1	(3.1)
Gave an injectable antibiotic	15.4	(3.0)	27.4	(4.2)	22.3	(3.1)	14.8	(3.8)	19.6	(2.4)
Implanted	78.2	(3.2)	83.6	(2.6)	78.4	(2.8)	83.1	(3.8)	80.1	(2.2)
Treated for parasites	38.6	(4.0)	20.6	(3.4)	30.0	(3.3)	36.1	(5.6)	32.2	(2.9)

Most cattle initially processed as a group (96.0 percent) received a vaccination for respiratory disease. The common use of this vaccination is a reflection that respiratory disease is the predominant health issue encountered with arriving animals. Even though 50.4 percent of feedlots used an antibiotic as part of initial processing for some cattle (table D.2.b), only 26.0 percent of cattle initially processed as a group received an injectable antibiotic. Over 9 of 10 cattle processed as a group (91.4 percent) were treated for parasites, and over 4 of 5 cattle (84.4 percent) received a growth promoting implant. Overall, 71.6 percent of cattle processed as a group were vaccinated for one or more of the clostridial diseases.

D.2.c. For cattle and calves initially processed as a group, percentage of cattle and calves by procedure performed at initial and second processing, and by feedlot capacity and region:

Percent Cattle and Calves

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Procedure	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Initial processing										
Vaccinated against respiratory diseases	95.1	(1.8)	96.2	(1.7)	98.8	(0.4)	83.1	(7.2)	96.0	(1.5)
Vaccinated against clostridial diseases	71.0	(4.5)	71.7	(3.3)	72.1	(3.1)	69.5	(7.2)	71.6	(2.9)
Given an injectable antibiotic	20.1	(3.2)	27.2	(2.3)	25.5	(2.3)	28.6	(4.1)	26.0	(2.0)
Implanted	73.7	(4.4)	86.5	(2.2)	89.7	(1.7)	60.3	(6.8)	84.4	(2.0)
Treated for parasites	95.8	(1.8)	90.5	(2.0)	93.7	(1.4)	80.6	(6.7)	91.4	(1.7)
Second processing										
Vaccinated against respiratory diseases	66.6	(4.6)	67.0	(3.1)	67.4	(2.9)	64.3	(7.4)	67.0	(2.7)
Vaccinated against clostridial diseases	46.1	(5.5)	15.4	(2.6)	15.7	(2.4)	45.2	(7.4)	19.8	(2.4)
Given an injectable antibiotic	8.5	(3.1)	4.5	(1.3)	5.5	(1.4)	2.6	(0.9)	5.1	(1.2)
Implanted	63.1	(4.4)	72.5	(2.8)	70.2	(2.8)	76.8	(4.1)	71.2	(2.5)
Treated for parasites	36.9	(6.6)	9.3	(2.3)	12.4	(2.4)	18.6	(6.6)	13.2	(2.2)

As shown in table A.1.c., 14.8 percent of feedlots placed any bulls on feed during the year. Of these feedlots, 91.2 percent castrated at least some of these animals. Nearly two-thirds of feedlots that placed any bulls (64.3 percent) used bands to castrate some bulls and vaccinated them against tetanus. Approximately one of five feedlots (19.2 percent) surgically removed the testicles of some bulls and vaccinated them for tetanus. A similar percentage of feedlots (19.9 percent) surgically removed the testicles of some bulls without vaccinating them for tetanus.

D.2.d. For feedlots that placed bulls on feed, percentage of feedlots by method of castration, feedlot capacity, and region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Castration method	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Banded and vaccinated against tetanus	58.2	(7.7)	73.9	(6.3)	62.3	(5.7)	72.8	(12.0)	64.3	(5.3)
Banded and not vaccinated against tetanus	3.3	(2.9)	5.9	(5.0)	5.4	(3.2)	0.0	(—)	4.3	(2.6)
Testes surgically removed and vaccinated against tetanus	22.3	(6.5)	14.3	(3.3)	23.7	(5.0)	0.0	(—)	19.2	(4.2)
Testes surgically removed and not vaccinated against tetanus	19.1	(6.1)	21.2	(6.1)	17.4	(4.6)	30.6	(13.0)	19.9	(4.4)
Any method	90.2	(4.0)	92.9	(4.3)	90.8	(3.4)	93.1	(4.6)	91.2	(2.9)

Of bulls placed on feed, only 6.5 percent were not castrated while in the feedlot. Overall, the percentage of bulls castrated by banding and given a vaccine against tetanus was similar to the percentage of bulls castrated surgically and not vaccinated against tetanus (42.8 and 44.3 percent, respectively).

D.2.e. For bulls placed on feed, percentage of bulls by method of castration, and by feedlot capacity and region:

Percent Bulls

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Castration method	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Banded and vaccinated against tetanus	63.0	(12.4)	41.1	(17.1)	42.2	(16.6)	62.7	(10.5)	42.8	(16.3)
Banded and not vaccinated against tetanus	0.9	(0.9)	0.0	(0.0)	0.1	(0.1)	0.0	(0.0)	0.1	(0.1)
Testes surgically removed and vaccinated against tetanus	20.1	(9.5)	4.9	(3.1)	6.4	(3.3)	0.0	(0.0)	6.1	(3.2)
Testes surgically removed and not vaccinated against tetanus	10.5	(5.4)	47.4	(20.9)	44.9	(20.7)	28.6	(10.6)	44.3	(20.1)
Other	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Bulls not castrated by this feedlot	5.5	(3.6)	6.6	(6.1)	6.4	(5.8)	8.7	(8.0)	6.5	(5.6)
Total	100.0		100.0		100.0		100.0		100.0	

3. Modification of antibiotic and vaccination procedures

Overall, 96.8 percent of feedlots processed arriving animals as a group (table D.1.a.). New-arrival processing can include one or more of many management strategies designed to ease the transition of the animals into the feedlot environment and ensure their subsequent health and productivity. For 50.4 percent of feedlots, initial processing procedures for some animals included use of an antibiotic (metaphylaxis) [table D.2.b.]. Metaphylaxis was used on 26.0 percent of animals during initial processing (table D.2.c.). The choices of when to apply metaphylaxis and what product to use can be based on many factors related either to the current state of the animals or to the animals' management history.

Approximately one of two feedlots that processed animals initially as a group (56.4 percent) modified their metaphylaxis procedures based on one of the criteria listed in the following table. All of the listed criteria were used by some feedlots, and apparently no single criterion was used by all feedlots that modified their procedures. The most commonly used criteria were arrival weight, source of cattle, history of preconditioning, and previous history of antibiotic treatment. Feedlots with a capacity of 8,000 or more head were much more likely to make changes to the metaphylaxis program based on the listed criteria than feedlots with a capacity of 1,000 to 7,999 head.

Overall, 54.1 percent of feedlots changed vaccination practices at initial processing based on one or more of the listed criteria. Again, there was no single factor that all or most of the feedlots used to decide how to modify the vaccination program; different feedlots used a variety of criteria combinations during their decision-making process. Feedlots with a capacity of 8,000 or more head were more likely to make changes to the vaccination protocols based on animal or animal history criteria than feedlots with a capacity of 1,000 to 7,999 head.

D.3. Of feedlots that processed new arrivals as a group, percentage that modified antibiotic or vaccination procedures for processing new arrivals during the year ending June 30, 2011, by criteria, feedlot capacity, and region:

	Percent Feedlots									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Criteria*	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Antibiotic										
Arrival weight	33.3	(2.6)	65.5	(4.0)	49.4	(3.0)	32.8	(3.6)	42.7	(2.3)
Distance transported or percent shrinkage	19.2	(2.3)	41.8	(4.3)	30.8	(2.8)	18.6	(3.1)	25.9	(2.1)
Source of cattle	31.6	(2.7)	68.3	(3.9)	50.6	(2.9)	30.1	(3.5)	42.3	(2.3)
Preconditioning	29.3	(2.6)	52.1	(4.2)	42.5	(3.0)	26.3	(3.4)	36.0	(2.3)
Dairy cattle breed (compared to beef breeds)	3.2	(0.9)	19.2	(3.6)	9.6	(1.9)	5.3	(1.5)	7.9	(1.3)
History of previous antibiotic treatment	24.3	(2.6)	43.4	(3.8)	34.9	(2.8)	22.5	(3.6)	29.9	(2.2)
Any of the above	48.1	(2.9)	76.5	(3.7)	63.8	(3.0)	45.6	(4.1)	56.4	(2.4)
Vaccination										
Arrival weight	29.9	(2.6)	50.5	(4.3)	40.8	(3.1)	28.4	(3.5)	35.8	(2.3)
Distance transported or percent shrinkage	17.2	(2.1)	34.8	(4.5)	28.3	(2.9)	13.4	(2.6)	22.2	(2.1)
Source of cattle	31.8	(2.7)	59.1	(4.2)	48.6	(3.0)	26.5	(3.4)	39.6	(2.3)
Preconditioning	31.4	(2.7)	57.7	(4.4)	47.1	(3.1)	27.0	(3.5)	39.0	(2.3)
Dairy cattle breed (compared to beef breeds)	4.1	(1.1)	23.0	(3.6)	11.5	(2.0)	6.6	(1.7)	9.5	(1.4)
History of previous antibiotic treatment	21.7	(2.5)	36.4	(3.8)	29.3	(2.7)	21.1	(3.5)	26.0	(2.1)
Any of the above	45.6	(3.0)	75.0	(3.6)	60.4	(3.0)	44.8	(4.0)	54.1	(2.4)

*Feedlots that did not modify procedures include those for which the factor did not apply.

4. Handling pregnant heifers

Most feedlots (77.7 percent, table A.1.c.) placed some heifers on feed during the year. Pregnant heifers represent a liability to the feedlot. For example, depending on the stage of pregnancy, a significant amount of nutrients consumed can be diverted to support the fetus rather than adding condition to the heifer. At slaughter, the combined weight of the fetus and associated uterus and fluids represent a loss for the beef production system. In addition, heifers that calve in the feedlot require more labor and sometimes need medical and surgical intervention. The ideal situation would be that no pregnant heifers be placed in the feedlot. Overall, 7.9 percent of heifers were pregnant at arrival. The percentage of pregnant heifers in feedlots with a capacity of 1,000 to 7,999 head was lower than the percentage of heifers in feedlots with a capacity of 8,000 or more head (2.6 and 8.8 percent, respectively).

D.4.a. Percentage of all heifers that were pregnant at arrival, by feedlot capacity and by region:

Percent Heifers

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
2.6	(0.3)	8.8	(0.8)	8.5	(0.8)	3.8	(0.9)	7.9	(0.7)

Most pregnant heifers (82.1 percent) were treated to abort. This practice was more common in feedlots with a capacity of 8,000 or more head (84.1 percent of pregnant heifers) than in feedlots with a capacity of 1,000 to 7,999 head (42.9 percent of pregnant heifers).

D.4.b. [0142] Percentage of pregnant heifers that were treated to abort, by feedlot capacity and by region:

Percent Pregnant Heifers

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
42.9	(8.3)	84.1	(2.9)	82.7	(3.0)	73.7	(12.1)	82.1	(2.9)

5. Handling cattle with horns

In groups of cattle, animals with horns can cause bruising during the handling process, resulting in compromised beef quality. The Beef Quality Assurance (BQA) program recommends early removal of horns from all nonpolled cattle (those with horns) intended for the slaughter market. Still, 71.9 percent of feedlots placed some horned cattle on feed. More than 8 of 10 feedlots with a capacity of 8,000 or more head (86.0 percent) and more than 6 of 10 feedlots with a capacity of 1,000 to 7,999 head (65.9 percent) placed some horned cattle.

D.5.a. Percentage of feedlots that placed any cattle or calves with horns, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
65.9	(2.7)	86.0	(3.7)	79.1	(2.7)	60.9	(3.6)	71.9	(2.1)

Despite the fact that 71.9 percent of feedlots placed some horned cattle, only 11.7 percent of cattle placed had horns. This relatively small percentage suggests that many producers are following the BQA guidelines and removing the horns of cattle intended for slaughter prior to their arrival at the feedlot.

D.5.b. Percentage of cattle and calves that had horns at arrival, by feedlot capacity and by region:

Percent Cattle and Calves

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
6.5	(0.7)	12.7	(0.8)	12.5	(0.7)	7.6	(1.3)	11.7	(0.7)

When horned cattle are placed on the feedlot, operators might do nothing with the horns or might remove or tip the horns. Most feedlots with some horned cattle (74.6 percent) tipped or removed the horns. Tipping horns entails the removal of the outer few inches of the horn and was more common than dehorning; 55.5 percent of feedlots tipped horns and 27.7 percent removed horns. Feedlots with a capacity of 1,000 to 7,999 head were equally likely to tip or remove horns.

D.5.c. For feedlots that had cattle and calves with horns, percentage of feedlots by management practices used for horned cattle, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Management practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Tipped horns	42.1	(3.5)	79.9	(3.9)	64.6	(3.1)	37.7	(4.8)	55.5	(2.6)
Dehorned cattle	32.2	(3.3)	19.4	(3.5)	25.7	(2.9)	31.5	(4.8)	27.7	(2.5)
Tipped and/or dehorned	70.1	(3.2)	82.8	(3.9)	79.9	(2.8)	64.1	(4.7)	74.6	(2.4)

Overall, 77.0 percent of horned cattle either had their horns tipped or were dehorned, which leaves 23.0 percent of these cattle with horns intact, increasing the possibility of beef quality issues caused by the bruising of animals during handling and transport. There were no differences by feedlot capacity or by region in the percentages of horned cattle that had horns tipped or removed.

D.5.d. Of cattle and calves with horns, percentage that underwent the following management practices for horned cattle, and by feedlot capacity and region:

Percent Cattle and Calves

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Management practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Tipped horns	54.9	(7.7)	65.2	(3.4)	67.0	(3.2)	43.8	(7.6)	64.3	(3.1)
Dehorned cattle	24.2	(4.9)	11.6	(2.1)	11.7	(1.9)	20.9	(7.3)	12.7	(1.9)
Tipped and/or dehorned	79.2	(4.5)	76.8	(3.6)	78.6	(3.2)	64.7	(13.0)	77.0	(3.3)

6. Animal identification

Identification (ID) of animals is important for traceability, disease control purposes, and for managing animal performance. How ID is managed as cattle move from one segment of the production chain to the next is an important consideration in disease control and emergency management scenarios. Most feedlots (75.6 percent) had some cattle that arrived with an individual-animal ID. There was no difference by feedlot capacity or by region in the percentage of feedlots that received animals with individual ID.

D.6.a. Percentage of feedlots that had any cattle or calves that arrived with individual-animal ID, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
72.6	(2.7)	82.7	(2.5)	77.5	(2.4)	72.7	(3.7)	75.6	(2.1)

Despite the high percentage of feedlots that received some cattle that had individual ID, most of the animals received (71.3 percent) were not individually identified. The percentage of animals that arrived with individual ID was slightly lower in the Central region (26.5 percent) than in the Other region (39.2 percent).

D.6.b. Percentage of cattle and calves that had an individual-animal ID at arrival, by feedlot capacity and by region:

Percent Cattle and Calves

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
30.7	(2.8)	28.3	(1.8)	26.5	(1.9)	39.2	(3.1)	28.7	(1.6)

Of feedlots that received cattle with an individual-animal ID, 23.8 percent removed the ID when the animals were processed (IDs may or may not have been removed from all animals). About half of feedlots (48.1 percent) applied a new ID to animals that arrived with individual ID. These new IDs exclude those typically applied to animals that receive treatment for disease.

D.6.c. Of feedlots that received cattle or calves with individual-animal ID, percentage that removed the existing ID or applied a new individual-animal ID, by feedlot capacity and by region:

Percent Feedlots

	Feedlot capacity (number head)				Region				All feedlots	
	1,000–7,999		8,000 or more		Central		Other			
	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Individual-animal ID removed	26.5	(3.1)	18.1	(3.0)	23.1	(2.8)	24.8	(4.0)	23.8	(2.3)
New individual-animal ID applied (excluding tagging of sick animals)	45.4	(3.5)	53.5	(4.9)	48.3	(3.6)	47.7	(4.8)	48.1	(2.9)

Overall, 28.7 percent of cattle arrived at the feedlot with an individual ID (table D.6.b.). Of these, 18.9 percent had the ID removed at the feedlot.

D.6.d. Of cattle and calves that had individual-animal ID at arrival, percentage that had existing IDs removed, by feedlot capacity and by region:

Percent Cattle and Calves

Feedlot capacity (number head)				Region				All feedlots	
1,000–7,999		8,000 or more		Central		Other			
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
20.9	(4.8)	18.5	(3.9)	21.6	(4.1)	10.4	(3.3)	18.9	(3.3)

Approximately half of all feedlots (52.6 percent) applied individual-animal ID to at least some cattle, while 62.6 percent applied a group/owner ID; 75.6 percent of feedlots tagged cattle with one or the other form of ID.

D.6.e. Percentage of feedlots that tagged any cattle and calves with an individual-animal ID and/or a group/owner ID, by feedlot capacity and by region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Tagged with . . .	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Individual-animal ID	47.5	(3.0)	64.8	(3.0)	56.7	(2.7)	46.5	(4.1)	52.6	(2.3)
Group/owner ID	51.7	(2.8)	88.8	(2.8)	69.6	(2.7)	52.1	(3.7)	62.6	(2.2)
Individual and/or group ID	67.5	(2.7)	94.8	(1.5)	82.2	(2.2)	65.6	(3.8)	75.6	(2.0)

The majority of cattle (85.5 percent) received a group/owner ID, while 45.0 percent received an individual-animal ID. Some cattle received both forms of ID.

D.6.f. Percentage of cattle and calves tagged at the feedlot with an individual-animal ID and/or a group/owner ID, by feedlot capacity and by region:

Percent Cattle and Calves

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Tagged with . . .	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Individual-animal ID	47.1	(4.4)	44.6	(3.0)	45.3	(3.0)	43.8	(5.1)	45.0	(2.6)
Group/owner ID	58.1	(3.5)	90.8	(1.8)	87.2	(1.9)	77.9	(3.2)	85.5	(1.6)

D.6.g. Percentage of feedlots that hide-branded any cattle after arrival, by feedlot capacity and by region:

Percent Feedlots									
Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
20.3	(2.2)	27.6	(3.9)	28.8	(2.7)	13.0	(2.7)	22.5	(2.0)

E. Nutrition

1. Nutrition management

Feedlots can incorporate a variety of products in animal diets to improve production efficiency, reduce the cost of gain, or support food safety objectives. In some cases, combinations of ration ingredients are controlled by the Food and Drug Administration (FDA).

Nine of 10 feedlots (90.5 percent)—regardless of capacity or region—included an ionophore in cattle diets, and 90.5 percent included distiller grains in rations. Overall, 44.7 percent of feedlots fed a coccidiostat other than an ionophore to some cattle. About one of three feedlots (36.9 percent) fed a beta-agonist other than Zilmax® to improve growth. Slightly more than one of four feedlots (28.5 percent) incorporated probiotics in rations. A much higher percentage of feedlots with a capacity of 8,000 or more head (56.7 percent) fed probiotics compared with feedlots with a capacity of 1,000 to 7,999 head (16.8 percent). Some probiotics are fed, in part, as an effort to reduce the occurrence of shiga toxin-producing *E. coli* in animals, although probiotics do not have a label claim for this use.

E.1.a. Percentage of feedlots by nutrition management practice used, feedlot capacity, and region:

	Percent Feedlots									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Nutrition management practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Gave an ionophore, such as Rumensin® or Cattlyst®	90.9	(1.6)	89.4	(2.7)	90.0	(1.7)	91.3	(2.4)	90.5	(1.4)
Gave a coccidiostat other than an ionophore, such as Corid® or Deccox®	39.7	(2.8)	56.6	(3.2)	45.9	(2.7)	42.8	(3.8)	44.7	(2.2)
Provided water treated with chlorine	10.3	(1.7)	3.2	(2.0)	3.3	(1.2)	15.6	(2.9)	8.2	(1.4)
Switched from a high grain ration to a primarily hay ration at finish	3.6	(1.3)	2.5	(1.1)	3.3	(1.1)	3.2	(1.8)	3.3	(1.0)
Fed distiller grains as part of the ration	90.8	(1.8)	89.9	(1.7)	89.3	(1.5)	92.3	(2.5)	90.5	(1.3)
Fasted prior to transportation to slaughter	18.2	(2.2)	10.5	(2.8)	17.7	(2.4)	13.3	(2.7)	15.9	(1.8)
Fed seaweed extract (e.g., Tasco-14®) prior to slaughter	0.4	(0.4)	1.0	(0.9)	1.0	(0.6)	0.0	(0.0)	0.6	(0.4)
Fed a beta-agonist, OptaFlexx® or ractopamine	29.1	(2.7)	55.9	(3.9)	41.6	(2.6)	30.0	(3.8)	36.9	(2.1)
Fed a beta-agonist Zilmax®	5.7	(1.3)	22.5	(2.6)	12.4	(1.4)	8.0	(2.1)	10.6	(1.2)
Fed probiotics in feed (e.g., *Lactobacillius acidophilus*, Bovamine®)	16.8	(2.2)	56.7	(4.0)	34.3	(2.6)	19.8	(3.1)	28.5	(2.0)

Approximately 9 of 10 cattle were in feedlots that fed an ionophore and/or distiller grains (89.9 and 87.8 percent, respectively). Approximately half of cattle (53.8 percent) were in feedlots that administered a probiotic in feed.

E.1.b. Percentage of cattle and calves by nutrition management practice used at the feedlot, and by feedlot capacity and region:

Percent Cattle and Calves

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Nutrition management practice	**Pct.**	**Std error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Gave an ionophore, such as Rumensin or Cattlyst	93.3	(1.6)	89.3	(1.6)	90.4	(1.5)	87.8	(3.2)	89.9	(1.4)
Gave a coccidiostat other than an ionophore, such as Corid or Deccox	18.8	(2.8)	20.8	(2.5)	21.4	(2.5)	16.0	(3.5)	20.5	(2.1)
Provided water treated with chlorine	12.3	(3.9)	3.6	(1.9)	3.9	(1.9)	10.0	(3.7)	5.0	(1.7)
Switched from a high grain ration to a primarily hay ration at finish	3.4	(2.2)	0.9	(0.3)	1.0	(0.3)	2.3	(2.0)	1.3	(0.4)
Fed distiller grains as part of the ration	90.4	(2.2)	87.2	(1.8)	89.2	(1.6)	81.0	(4.9)	87.8	(1.6)
Fasted prior to transportation to slaughter	15.8	(3.1)	4.4	(1.1)	6.1	(1.1)	7.1	(2.6)	6.2	(1.0)
Fed seaweed extract (e.g., Tasco-14) prior to slaughter	0.1	(0.1)	0.0	(0.0)	0.1	(0.0)	0.0	(0.0)	0.0	(0.0)
Fed a beta-agonist, OptaFlexx or ractopamine	23.3	(3.3)	48.7	(3.0)	47.9	(2.9)	28.9	(5.3)	44.6	(2.6)
Fed a beta-agonist Zilmax	2.9	(1.1)	14.7	(2.0)	14.0	(1.9)	7.2	(3.7)	12.8	(1.7)
Fed probiotics in feed (e.g., *Lactobacillius acidophilus*, Bovamine)	18.9	(3.3)	60.5	(3.0)	56.5	(2.9)	40.7	(6.7)	53.8	(2.6)

2. Use of heat suppressant for heifers

Overall, 77.7 percent of feedlots placed some heifers on feed (table A.1.c.). Heifers in estrus can result in mounting and general unrest in the pen, which may be counterproductive to efficient weight gain. Orally administered heat-suppressing compounds can be fed to heifers to prevent them from cycling. Approximately two of three of feedlots that placed any heifers on feed (67.9 percent) used melengestrol acetate to suppress heat. This practice was more common in feedlots with a capacity of 8,000 or more head than in feedlots with a capacity of 1,000 to 7,999 head.

E.2.a. For feedlots that placed heifers on feed, percentage of feedlots that fed melengestrol acetate (e.g., MGA® or Heifermax®) to suppress heat in heifers, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
56.9	(3.3)	88.6	(2.1)	72.1	(2.6)	59.8	(4.7)	67.9	(2.4)

When melengestrol acetate was used to suppress heat in heifers it was generally used for all heifers. Overall, 67.9 percent of feedlots that placed heifers used any melengestrol acetate. Among those feedlots, 81.0 percent (55.0/67.9) used melengestrol acetate on 100.0 percent of heifers.

E.2.b. For feedlots that placed heifers on feed, percentage of feedlots by percentage of heifers fed melengestrol acetate (e.g., MGA or Heifermax) to suppress heat, by feedlot capacity and by region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Percent heifers	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
0	43.2	(3.3)	11.4	(2.1)	27.9	(2.6)	40.2	(4.7)	32.1	(2.4)
1–49	2.1	(0.9)	2.3	(1.2)	2.2	(0.9)	2.0	(1.2)	2.2	(0.7)
50–99	4.1	(1.5)	23.1	(4.7)	11.4	(2.7)	9.4	(3.0)	10.7	(2.0)
100	50.6	(3.4)	63.2	(4.6)	58.5	(3.3)	48.4	(4.8)	55.0	(2.7)
Total	100.0		100.0		100.0		100.0		100.0	

More than 8 of 10 heifers (85.1 percent) were treated with melengestrol acetate.

E.2.c. Percentage of heifers that were fed melengestrol acetate (e.g., MGA or Heifermax) to suppress heat, by feedlot capacity and by region:

Percent Heifers

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
63.2	(4.8)	89.0	(1.9)	87.2	(1.9)	72.5	(6.2)	85.1	(1.8)

3. Level of concentrates

Cattle placed in feedlots come from many sources, so the dietary history of these cattle can be quite varied. Some cattle may have never received any concentrates (usually grain products), whereas others may have been adapted to feed bunks and received varying levels of concentrates. In most cases, the goal of the feedlot is to provide an energy-dense diet to cattle to achieve a high rate of gain and various quality endpoints. To provide high-energy diets to cattle, a high percentage of concentrates is usually incorporated in the diet. The transition from high-roughage and low-concentrate diets to those that are more energy dense has to be managed with care. A transition that is too abrupt can result in digestive upsets, impacting health and gain or, in severe cases, causing death.

E.3. Percentage of cattle and calves by average percentage of concentrates (dry matter basis) fed upon arrival and in finishing rations, and by feedlot capacity and region:

	Percent Cattle and Calves									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Percent concentrates fed	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Upon arrival										
1–25	28.8	(4.3)	13.3	(3.0)	16.0	(3.1)	14.7	(4.0)	15.7	(2.6)
26–50	27.3	(4.3)	26.6	(2.4)	27.6	(2.4)	22.3	(4.7)	26.7	(2.2)
51–75	36.7	(5.3)	52.5	(3.8)	48.9	(3.8)	55.3	(6.9)	50.0	(3.4)
76 or more	7.2	(2.2)	7.7	(1.6)	7.5	(1.6)	7.8	(2.0)	7.6	(1.4)
Total	100.0		100.0		100.0		100.0		100.0	
In finishing rations										
1–25	6.5	(2.1)	1.7	(0.6)	2.2	(0.5)	3.3	(2.1)	2.4	(0.6)
26–50	21.7	(3.7)	13.5	(3.0)	14.6	(2.9)	15.2	(5.0)	14.7	(2.6)
51–75	43.5	(5.3)	33.5	(3.2)	32.4	(3.0)	48.2	(7.4)	35.1	(2.9)
76 or more	28.3	(4.3)	51.3	(3.7)	50.8	(3.6)	33.3	(6.3)	47.8	(3.2)
Total	100.0		100.0		100.0		100.0		100.0	

4. Feed storage

Feed-storage methods have been proposed as an important biosecurity consideration for livestock feedlots. However, the sheer volume of feedstuffs that must be stored and handled by feedlots presents challenges with regard to protecting the feed from inadvertent or intentional contamination. Still, understanding how feed is stored can help those tasked with investigating issues that result from contaminated feed. For most feedlots, regardless of capacity or region, the majority of feed ingredients are stored in relatively open storage systems, especially the bulky commodities such as hay and silage.

E.4.a. Percentage of feedlots by feedlot capacity and by primary method of storing feeds and feed supplements:

	Percent Feedlots										
	Storage Method										
	Bags		Sealed containers (silo, tanks, bins, drums)		Uncovered piles, bunks, pits		Covered piles, bunks, pits, and sheds		Does not apply		
Feedlot capacity	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
1,000–7,999 head											
Mineral supplements (stored prior to micromachine)	30.5	(2.7)	38.5	(2.8)	1.9	(0.8)	10.6	(1.7)	18.5	(2.2)	100.0
Protein supplements	1.4	(0.8)	72.1	(2.6)	6.6	(1.4)	12.6	(1.8)	7.3	(1.5)	100.0
Fat supplements	0.4	(0.4)	16.1	(2.2)	3.3	(1.1)	2.5	(0.9)	77.7	(2.5)	100.0
Feed additives (e.g., ionophores, etc.)	17.4	(2.2)	53.4	(2.9)	2.4	(0.9)	10.2	(1.7)	16.6	(2.1)	100.0
Corn	1.3	(0.6)	48.2	(2.8)	13.6	(2.1)	36.9	(2.8)	0.0	(0.0)	100.0
Co-products from ethanol production	0.0	(—)	6.4	(1.6)	61.0	(2.9)	25.8	(2.4)	6.8	(1.4)	100.0
Hay	0.0	(—)	0.4	(0.4)	64.2	(2.8)	32.1	(2.6)	3.3	(1.2)	100.0
Silage	2.5	(1.0)	5.2	(1.2)	35.4	(2.8)	30.1	(2.5)	26.8	(2.5)	100.0

E.4.a. (continued)

Percent Feedlots

Storage Method

Feedlot capacity	Bags		Sealed containers (silo, tanks, bins, drums)		Uncovered piles, bunks, pits		Covered piles, bunks, pits, and sheds		Does not apply		Total
	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	
8,000 or more head											
Mineral supplements (stored prior to micromachine)	51.3	(4.1)	23.4	(3.2)	0.9	(0.4)	3.9	(1.3)	20.5	(3.1)	100.0
Protein supplements	5.4	(2.1)	74.8	(3.4)	4.9	(1.3)	11.7	(2.1)	3.2	(0.8)	100.0
Fat supplements	0.5	(0.4)	54.3	(4.0)	1.2	(0.5)	2.8	(1.0)	41.2	(4.1)	100.0
Feed additives (e.g., ionophores, etc.)	51.0	(4.1)	26.9	(3.0)	0.5	(0.2)	6.5	(1.8)	15.1	(3.4)	100.0
Corn	0.7	(0.2)	65.0	(3.9)	8.5	(2.1)	24.3	(3.6)	1.5	(1.0)	100.0
Co-products from ethanol production	0.0	(—)	17.5	(2.0)	49.2	(3.7)	22.1	(3.2)	11.2	(3.5)	100.0
Hay	0.0	(—)	0.0	(0.0)	61.0	(4.2)	31.5	(3.6)	7.5	(3.8)	100.0
Silage	0.8	(0.3)	1.6	(0.8)	31.3	(3.8)	32.7	(3.4)	33.6	(4.0)	100.0
All feedlots											
Mineral supplements (stored prior to micromachine)	36.7	(2.3)	34.1	(2.2)	1.5	(0.6)	8.6	(1.3)	19.1	(1.8)	100.0
Protein supplements	2.6	(0.8)	72.9	(2.1)	6.1	(1.1)	12.3	(1.4)	6.1	(1.1)	100.0
Fat supplements	0.5	(0.3)	27.4	(1.9)	2.7	(0.8)	2.6	(0.7)	66.8	(2.1)	100.0
Feed additives (e.g., ionophores, etc.)	27.3	(2.0)	45.6	(2.3)	1.8	(0.6)	9.1	(1.3)	16.2	(1.8)	100.0
Corn	1.1	(0.4)	53.2	(2.3)	12.1	(1.6)	33.1	(2.3)	0.5	(0.3)	100.0
Co-products from ethanol production	0.0	(—)	9.7	(1.3)	57.5	(2.3)	24.7	(2.0)	8.1	(1.4)	100.0
Hay	0.0	(—)	0.3	(0.3)	63.3	(2.3)	31.9	(2.1)	4.5	(1.4)	100.0
Silage	2.0	(0.7)	4.1	(0.9)	34.3	(2.2)	30.8	(2.1)	28.8	(2.1)	100.0

E.4.b. Percentage of feedlots by region and by primary method of storing feeds and feed supplements:

	Percent Feedlots										
	Storage Method										
	Bags		Sealed containers (silo, tanks, bins, drums)		Uncovered piles, bunks, pits		Covered piles, bunks, pits, and sheds		Does not apply		
Region	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Central											
Mineral supplements (stored prior to micromachine)	43.7	(3.0)	28.6	(2.6)	0.8	(0.5)	6.8	(1.4)	20.1	(2.4)	100.0
Protein supplements	2.9	(1.1)	72.9	(2.6)	5.5	(1.3)	14.0	(1.8)	4.7	(1.2)	100.0
Fat supplements	0.8	(0.5)	33.6	(2.5)	2.2	(0.9)	1.9	(0.7)	61.5	(2.7)	100.0
Feed additives (e.g., ionophores, etc.)	31.8	(2.7)	40.2	(2.7)	1.1	(0.7)	8.7	(1.6)	18.2	(2.4)	100.0
Corn	0.8	(0.5)	59.3	(2.9)	10.6	(1.9)	28.5	(2.7)	0.8	(0.5)	100.0
Co-products from ethanol production	0.0	(—)	11.9	(1.6)	57.1	(2.9)	20.1	(2.3)	10.9	(2.1)	100.0
Hay	0.0	(—)	0.5	(0.5)	66.5	(2.8)	29.2	(2.6)	3.8	(1.8)	100.0
Silage	1.4	(0.6)	1.7	(0.7)	39.8	(2.9)	26.5	(2.5)	30.6	(2.8)	100.0
Other											
Mineral supplements (stored prior to micromachine)	25.7	(3.4)	42.5	(3.9)	2.8	(1.2)	11.4	(2.4)	17.6	(2.6)	100.0
Protein supplements	2.1	(1.3)	72.8	(3.4)	7.0	(1.9)	9.9	(2.2)	8.2	(2.0)	100.0
Fat supplements	0.0	(—)	17.9	(3.0)	3.4	(1.4)	3.6	(1.3)	75.1	(3.4)	100.0
Feed additives (e.g., ionophores, etc.)	20.6	(3.2)	53.9	(3.9)	2.8	(1.2)	9.6	(2.2)	13.1	(2.7)	100.0
Corn	1.5	(0.9)	43.7	(3.8)	14.6	(2.8)	40.2	(3.9)	0.0	(0.0)	100.0
Co-products from ethanol production	0.0	(—)	6.3	(2.1)	58.1	(3.9)	31.7	(3.4)	3.9	(1.7)	100.0
Hay	0.0	(—)	0.0	(0.0)	58.5	(3.9)	36.0	(3.6)	5.5	(2.4)	100.0
Silage	2.9	(1.5)	7.7	(1.9)	25.9	(3.4)	37.4	(3.6)	26.1	(3.4)	100.0

5. Water source

Most feedlots (91.9 percent) obtained water for cattle from a well. Only 11.2 percent of feedlots used a municipal water supply, although this water source was used more commonly in the Other region and in feedlots with a capacity of 1,000 to 7,999 head. Surface water was rarely used as a water supply for cattle.

E.5. Percentage of feedlots by water source used for cattle, and by feedlot capacity and region:

	Percent Feedlots									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Water source	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Ground water (well)	90.2	(1.7)	95.8	(1.0)	96.8	(1.0)	84.5	(2.8)	91.9	(1.3)
Surface water (ponds,lakes, streams)	4.4	(1.3)	7.7	(1.5)	3.6	(1.0)	8.1	(1.9)	5.4	(1.0)
Municipal water supply	13.8	(1.9)	4.9	(1.7)	4.9	(1.3)	20.5	(3.1)	11.2	(1.5)

6. Use of a nutritionist

Meeting the nutritional needs of cattle is key to preserving animal health and growth. Furthermore, the cost of gain for cattle in feedlots is highly dependent on the cost and combination of ingredients in the diet. A nutritionist can help determine the optimum, least-cost rations needed to support growth and finishing objectives for a particular group of cattle. The vast majority of feedlots (95.2 percent) used a nutritionist at some level, regardless of capacity or region.

E.6.a. Percentage of feedlots that used a nutritionist, by feedlot capacity and by region:

Percent Feedlots									
Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
93.3	(1.4)	100.0	(—)	96.3	(1.1)	93.6	(1.8)	95.2	(1.0)

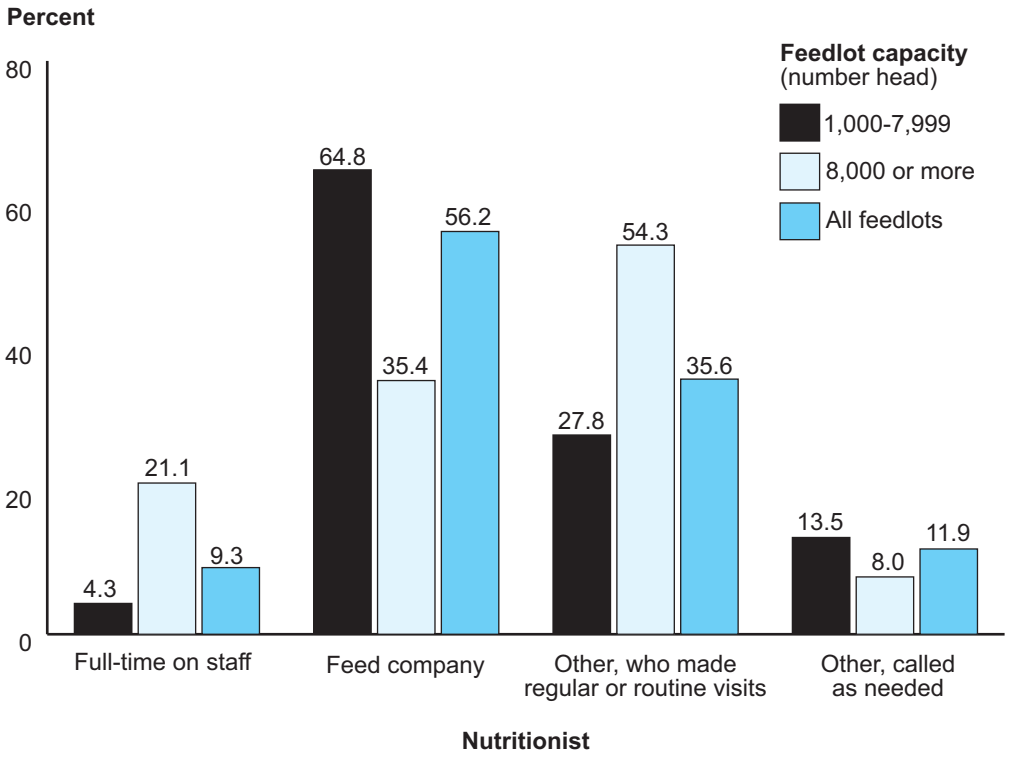
The majority of feedlots with a capacity of 1,000 to 7,999 head (64.8 percent) used a nutritionist from a feed company, whereas the majority of feedlots with a capacity of 8,000 or more head (54.3 percent) used a consulting nutritionist who made regular visits to the feedlot. Some feedlots with a capacity of 8,000 or more head (21.1 percent) had a full-time nutritionist on staff. In some cases, feedlots used more than one type of nutritionist.

E.6.b. For feedlots that used a nutritionist, percentage of feedlots by type of nutritionist used, feedlot capacity, and region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Nutritionist	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Full-time on staff	4.3	(1.2)	21.1	(3.3)	9.9	(1.5)	8.3	(2.4)	9.3	(1.3)
Feed company	64.8	(2.6)	35.4	(4.3)	45.7	(2.9)	71.9	(3.3)	56.2	(2.2)
Other, who made regular or routine visits	27.8	(2.5)	54.3	(3.7)	45.6	(2.7)	20.6	(3.1)	35.6	(2.0)
Other, called as needed	13.5	(2.1)	8.0	(1.6)	9.9	(1.7)	14.9	(3.0)	11.9	(1.6)

For feedlots that used a nutritionist, percentage of feedlots by type of nutritionist used and by feedlot capacity



F. Health Management

1. Frequency of pen-riding or walking

Most sickness in feedlots occurs early in the feeding period. Animals arriving at the feedlot must transition from their home environment to that of the feedlot. This transition frequently involves transport, sometimes over long distances; mixing with or exposure to animals from other sources; diet changes; and handling during processing. The transition can be stressful and result in exposure to pathogens the cattle are not immune to. Feedlots typically observe cattle (via pen-riding or walking) for signs of illness on a regular basis in order to provide timely treatment. Since the highest risk period for illness or nonadaptation to the feedlot environment occurs soon after arrival, some feedlots use protocols for observing animals early in the feeding period that differ from those used later in the feeding period.

Nearly all feedlots (96.9 percent) observed animals at least once a day during the cattle's first 14 days in the feedlot. One of five feedlots (20.3 percent) observed new animals more than twice a day. For animals that had been in the feedlot at least 30 days, the usual observation frequency on 70.2 percent of feedlots was once a day.

F.1. Percentage of feedlots by frequency pen-riding or walking procedures were conducted, and by number of days cattle had been at the feedlot and feedlot capacity:

	Percent Feedlots										
	Frequency										
	More than twice a day		Twice a day		Once a day		Less than once a day		No standard procedure		
Number of days cattle at feedlot	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Feedlot capacity: 1,000–7,999 head											
Less than 15	20.4	(2.3)	49.1	(2.9)	26.7	(2.6)	1.2	(0.6)	2.6	(0.9)	100.0
15–29	6.1	(1.3)	34.8	(2.8)	51.1	(2.9)	5.0	(1.3)	3.0	(1.0)	100.0
30 or more	4.9	(1.2)	18.1	(2.2)	61.8	(2.8)	10.4	(1.8)	4.8	(1.2)	100.0
Feedlot capacity: 8,000 or more head											
Less than 15	20.0	(4.4)	33.6	(3.9)	44.9	(3.5)	0.9	(0.4)	0.6	(0.5)	100.0
15–29	6.9	(3.0)	24.7	(3.8)	68.4	(3.5)	0.0	(0.0)	0.0	(0.0)	100.0
30 or more	7.1	(3.0)	2.5	(1.0)	90.4	(3.2)	0.0	(0.0)	0.0	(0.0)	100.0
All feedlots											
Less than 15	20.3	(2.1)	44.5	(2.4)	32.1	(2.1)	1.1	(0.4)	2.0	(0.7)	100.0
15–29	6.3	(1.3)	31.8	(2.2)	56.2	(2.3)	3.6	(0.9)	2.1	(0.7)	100.0
30 or more	5.5	(1.2)	13.5	(1.6)	70.2	(2.2)	7.4	(1.3)	3.4	(0.9)	100.0

2. Training for drug and medication treatments

Most feedlots (84.7 percent) had employees that helped treat sick cattle. All feedlots with a capacity of 8,000 or more head had employees that treated sick cattle.

F.2.a. Percentage of feedlots in which employees helped treat sick cattle, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
78.3	(2.3)	100.0	(—)	89.5	(1.8)	77.4	(3.1)	84.7	(1.6)

Most feedlots in which employees treated cattle provided the employees with either some training and/or written guidelines (89.1 percent of feedlots). Nearly all feedlots with a capacity of 8,000 or more head (97.6 percent) provided employees with training and/or written guidelines. In some cases, feedlots might not have provided training and/or written guidelines because they had highly experienced employees in charge of treatments. Written guidelines were less common in feedlots with a capacity of 1,000 to 7,999 head than in feedlots with a capacity of 8,000 or more head. The difference might be a reflection of the number of employees involved in animal treatment or the smaller number of animals requiring treatment on the smaller feedlots.

F.2.b. For feedlots in which employees helped treat sick cattle, percentage of feedlots that provided employees with training and/or written guidelines on what drugs or medications to use when treating cattle for disease, by feedlot capacity and by region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Training	80.8	(2.5)	97.0	(1.3)	91.6	(1.7)	77.5	(3.5)	86.4	(1.7)
Written guidelines	50.3	(3.2)	82.0	(3.3)	68.1	(2.8)	49.5	(4.4)	61.3	(2.4)
Training and/or written guidlines	84.6	(2.2)	97.6	(1.2)	95.8	(1.3)	77.5	(3.5)	89.1	(1.5)

3. Sick-animal records

Record-keeping systems in feedlots may take a variety of forms, ranging from paper-based systems on index cards or in logbooks to sophisticated electronic systems. A variety of parameters can be recorded for sick animals at the time of treatment. Some parameters were less frequently recorded (e.g., weight at time of treatment), but that does not mean that those parameters were not used in determining the appropriate course of treatment. Some parameters (e.g., date treated and treatment given) were always recorded on a high percentage of feedlots because they can affect the required withdrawal time before the animals can be slaughtered.

F.3.a. Percentage of feedlots by frequency that the following parameters for sick animals were recorded:

	Percent Feedlots								
	Frequency								
	Always		Most of the time		Sometimes		Never		
Parameter	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Body temperature	40.4	(2.3)	19.7	(1.8)	19.9	(1.9)	20.0	(1.9)	100.0
Date treated	77.1	(1.9)	11.3	(1.6)	6.1	(1.1)	5.5	(1.1)	100.0
Weight at time of treatment	35.7	(2.1)	7.8	(1.2)	14.6	(1.7)	41.9	(2.2)	100.0
Treatment given	78.7	(1.9)	11.7	(1.5)	3.6	(0.9)	6.0	(1.1)	100.0
Treatment withdrawal period	67.9	(2.2)	6.4	(1.1)	8.1	(1.3)	17.6	(1.8)	100.0
Disease condition (shipping fever, lameness, pneumonia, etc.)	62.4	(2.1)	12.8	(1.6)	10.3	(1.4)	14.5	(1.6)	100.0
Outcome of treatment (returned to pen, died, culled, etc.)	63.8	(2.1)	8.6	(1.3)	13.6	(1.7)	14.0	(1.6)	100.0

In general, recording information and treatments given was more common in feedlots with a capacity of 8,000 or more head than in feedlots with a capacity of 1,000 to 7,999 head.

F.3.b. Percentage of feedlots that **always** or **most of the time** recorded the following parameters for sick animals, by feedlot capacity and by region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Information	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Body temperature	52.2	(2.8)	79.0	(3.1)	69.4	(2.6)	46.1	(3.8)	60.1	(2.2)
Date treated	84.4	(2.0)	98.0	(0.7)	92.8	(1.5)	81.8	(2.9)	88.4	(1.5)
Weight at time of treatment	29.3	(2.6)	77.6	(2.5)	53.2	(2.7)	28.8	(3.6)	43.5	(2.1)
Treatment given	86.8	(1.9)	98.9	(0.4)	93.2	(1.5)	86.1	(2.6)	90.4	(1.4)
Treatment withdrawal period	65.4	(2.7)	95.8	(2.1)	78.5	(2.5)	68.1	(3.6)	74.3	(2.1)
Disease condition (shipping fever, lameness, pneumonia, etc.)	66.0	(2.6)	97.3	(0.9)	82.6	(2.2)	64.0	(3.6)	75.2	(1.9)
Outcome of treatment (returned to pen, died, culled, etc.)	62.7	(2.7)	96.0	(2.1)	77.0	(2.4)	65.6	(3.6)	72.4	(2.0)

4. Use of a veterinarian

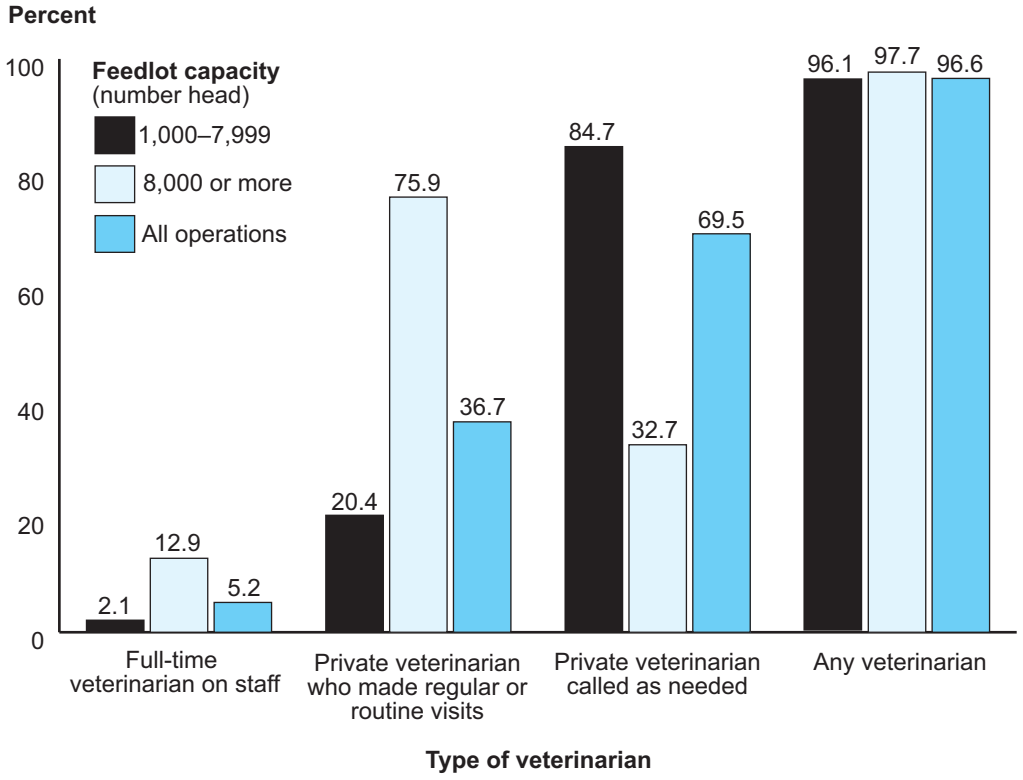
Only 5.2 percent of feedlots employed a veterinarian full time. Nearly all feedlots (96.6 percent), however, used the services of a veterinarian in some way to ensure the health of their cattle. The type of veterinarian used differed by capacity: feedlots with a capacity of 8,000 or more head were likely to have a full-time veterinarian or private veterinarian who made regular visits, while feedlots with a capacity of 1,000 to 7,999 head were more likely to use a veterinarian on an as-needed basis.

F.4. Percentage of feedlots that used a veterinarian, by type of veterinarian used, feedlot capacity, and region:

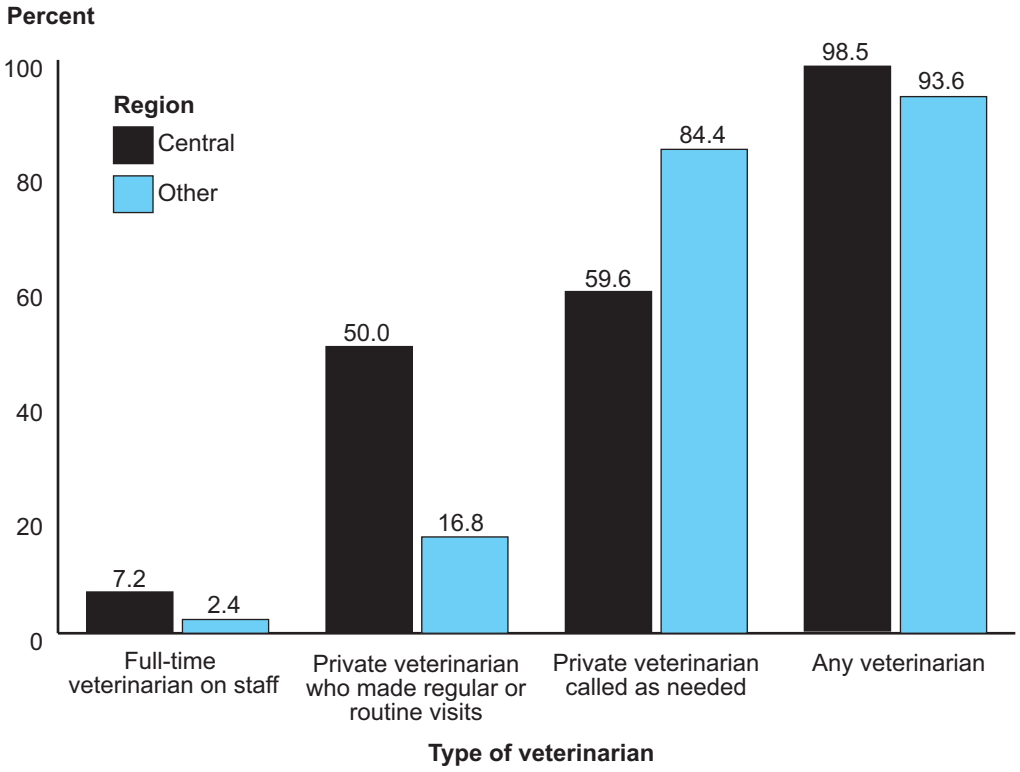
Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Type of veterinarian	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Full-time veterinarian on staff	2.1	(0.8)	12.9	(2.5)	7.2	(1.4)	2.4	(0.9)	5.2	(0.9)
Private veterinarian who made regular or routine visits	20.4	(2.2)	75.9	(3.5)	50.0	(2.7)	16.8	(2.8)	36.7	(2.0)
Private veterinarian called as needed	84.7	(2.0)	32.7	(4.3)	59.6	(2.6)	84.4	(2.9)	69.5	(1.9)
Any veterinarian	96.1	(1.3)	97.7	(2.1)	98.5	(0.7)	93.6	(2.5)	96.6	(1.1)

Percentage of feedlots that used a veterinarian, by type of veterinarian used and by feedlot capacity



Percentage of feedlots that used a veterinarian, by type of veterinarian used and by region



5. Postmortems performed

F.5.a. Death loss percentage,* by feedlot capacity and by region:

Percent Cattle and Calves

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
1.4	(0.2)	1.6	(0.1)	1.6	(0.1)	1.5	(0.1)	1.6	(0.1)

*Number of deaths as a percentage of number of cattle and calves placed on feed for slaughter.

Postmortem examinations are a useful aid in diagnosing disease, monitoring disease occurrence, and assessing treatment efficacy. Approximately two of three feedlots (67.2 percent) had postmortem examinations done on some or all mortalities. Four of 10 feedlots with a capacity of 1,000 to 7,999 head (41.6 percent) did not perform any postmortems, which might be a reflection of a lack of mortalities, a lack of training in how to do postmortem examinations and interpret the results, or a perception that postmortem examinations have no value.

F.5.b. Percentage of feedlots by whether postmortem examinations were performed on cattle that died, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Postmortem performed on . . .	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
No dead cattle	41.6	(2.8)	12.1	(2.7)	26.1	(2.4)	43.1	(4.0)	32.8	(2.2)
Some dead cattle	55.8	(2.9)	77.3	(2.9)	68.5	(2.5)	52.6	(4.0)	62.2	(2.2)
All dead cattle	2.6	(0.9)	10.6	(1.5)	5.4	(0.8)	4.2	(1.5)	5.0	(0.8)
Total	100.0		100.0		100.0		100.0		100.0	

Because postmortem examinations were more common in feedlots with a capacity of 8,000 or more head, nearly half of all animals that died (48.7 percent) had a postmortem examination. Only about one of five animals that died in feedlots with a capacity of 1,000 to 7,999 head (21.3 percent) had a postmortem examination.

F.5.c. Percentage of dead cattle and calves that had a postmortem examination, by feedlot capacity and by region:

Percent Cattle and Calves

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
21.3	(6.2)	53.8	(2.9)	50.7	(2.8)	38.6	(6.8)	48.7	(2.6)

6. Use of antibiotics[3]

Antibiotics used for animals in food production are evaluated and approved by the FDA. Antibiotics can be given to food-production animals for a variety of reasons, including disease treatment, disease prevention, or growth promotion. Regardless of the reason for administration, antibiotics can be given orally or by injection to individual animals, or they may be incorporated in the feed or water of groups of animals.

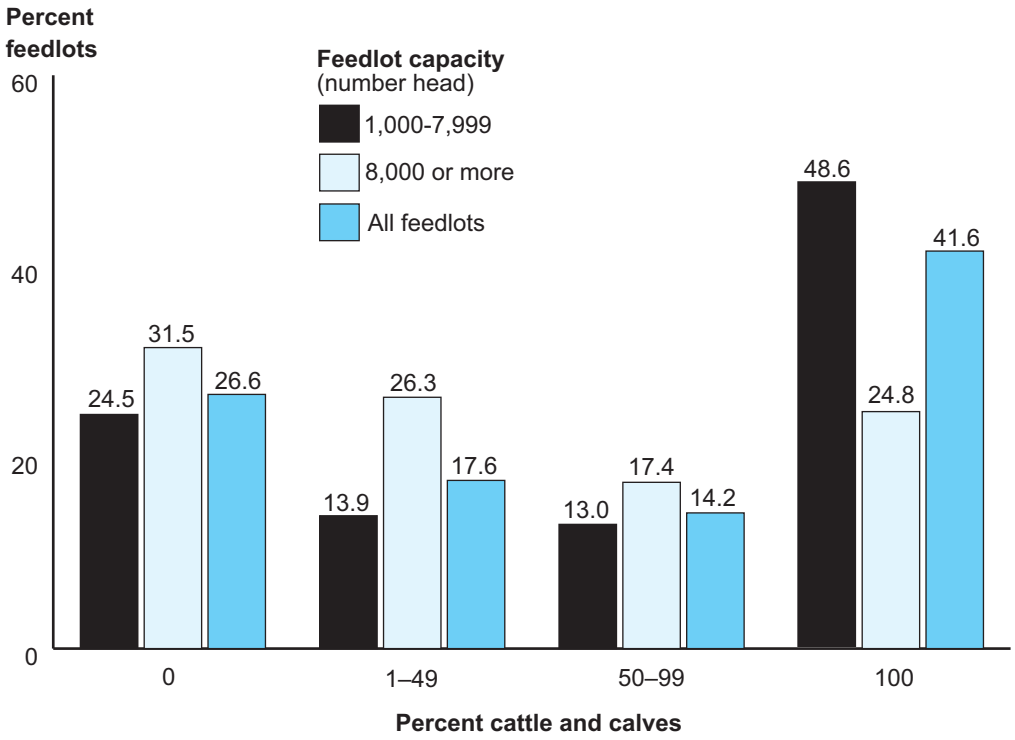
Overall, 26.6 percent of feedlots did not give antibiotics in feed for health or production reasons. When antibiotics were provided in feed, feedlots with a capacity of 1,000 to 7,999 head most often gave them to all animals fed, whereas feedlots with a capacity of 8,000 or more head were more likely to give antibiotics to selected groups of animals. Only 4.7 percent of feedlots provided antibiotics in water to any animals.

[3]In some cases ionophores are included in discussions of antibiotic use. For this section ionophores were excluded.

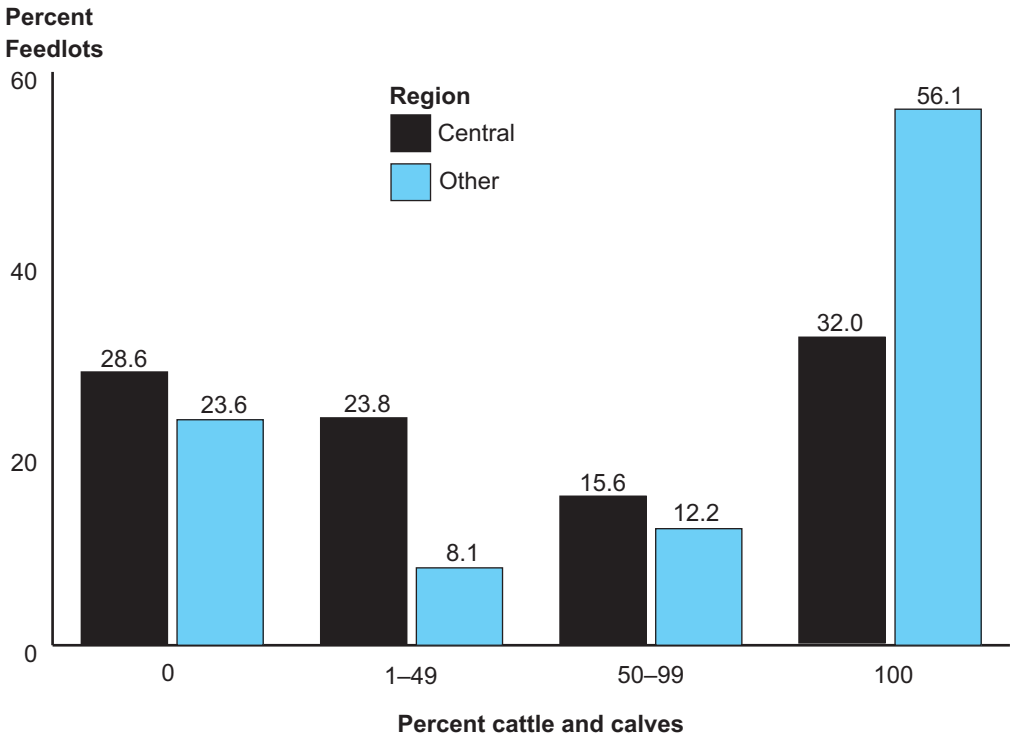
F.6.a. Percentage of feedlots that gave an antibiotic in feed or water as a health- or production-management tool, by percentage of cattle and calves that received the antibiotic, and by feedlot capacity and region:

	Percent Feedlots							
	Feedlot capacity (number head)				Region			
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Percent cattle and calves given antibiotics in…	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Feed										
0	24.5	(2.5)	31.5	(3.2)	28.6	(2.4)	23.6	(3.4)	26.6	(2.0)
1–49	13.9	(1.9)	26.3	(3.6)	23.8	(2.4)	8.1	(2.2)	17.6	(1.7)
50–99	13.0	(1.9)	17.4	(3.5)	15.6	(2.4)	12.2	(2.4)	14.2	(1.7)
100	48.6	(2.9)	24.8	(3.3)	32.0	(2.7)	56.1	(4.0)	41.6	(2.3)
Total	100.0		100.0		100.0		100.0		100.0	
Water										
0	94.5	(1.3)	97.6	(1.3)	96.3	(1.2)	94.1	(1.8)	95.3	(1.0)
1–49	4.3	(1.2)	2.4	(1.3)	3.2	(1.1)	4.5	(1.6)	3.8	(0.9)
50–99	0.4	(0.4)	0.0	(0.0)	0.5	(0.5)	0.0	(0.0)	0.3	(0.3)
100	0.8	(0.5)	0.0	(0.0)	0.0	(0.0)	1.4	(0.9)	0.6	(0.4)
Total	100.0		100.0		100.0		100.0		100.0	

Percentage of feedlots that gave an antibiotic in feed as a health- or production-management tool, by percentage of cattle and calves that received the antibiotic, and by feedlot capacity



Percentage of feedlots that gave an antibiotic in feed as a health- or production-management tool, by percentage of cattle and calves that received the antibiotic, and by region



F.6.b. Percentage of cattle and calves that received an antibiotic in feed and/or water as a health- or production-management tool, by feedlot capacity and by region:

	Percent Cattle and Calves									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Antibiotics in…	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Feed	51.2	(3.8)	47.7	(3.0)	45.5	(2.8)	61.4	(5.7)	48.3	(2.6)
Water	0.8	(0.3)	0.2	(0.1)	0.3	(0.1)	0.5	(0.2)	0.3	(0.1)

When antibiotics are approved for use in feed or water, the duration and level of inclusion are regulated by the FDA. These levels and duration vary by type of product and the reason for use. For two-thirds of feedlots (66.9 percent) the average duration of antibiotic inclusion was 7 days or less. In only 6.4 percent of feedlots was the average duration longer than 30 days. Average duration of use was similar regardless of feedlot capacity or region.

F.6.c. For feedlots that administered any antibiotics in feed or water, percentage of feedlots by average number of days antibiotics were included in the feed or water, and by feedlot capacity and region:

	Percent Feedlots									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Average number of days antibiotics were included in…	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Feed										
1–7	71.2	(3.1)	55.5	(5.6)	69.1	(3.6)	63.7	(4.4)	66.9	(2.8)
8–30	25.2	(3.0)	30.7	(5.8)	24.8	(3.6)	29.5	(4.2)	26.7	(2.7)
More than 30	3.6	(1.7)	13.7	(2.1)	6.1	(1.2)	6.8	(2.8)	6.4	(1.4)
Total	100.0		100.0		100.0		100.0		100.0	
Water*										

*Too few to report.

7. Carcass disposal

Carcass disposal can present biosecurity and environmental concerns. Three-fourths of feedlots (76.4 percent) used a renderer to dispose of some carcasses. While 18.9 percent of feedlots buried some animals on-site, only a low percentage of carcasses were disposed of in this way (table F.7.b). Only 2.7 percent of feedlots took any carcasses to a landfill. Overall, composting was the disposal method used on 11.8 percent of feedlots.

F.7.a. Percentage of feedlots by method of carcass disposal, feedlot capacity, and region:

	Percent Feedlots									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Disposal method	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Renderer	74.9	(2.3)	79.9	(3.7)	83.2	(2.1)	65.9	(3.7)	76.4	(1.9)
Buried on the feedlot	20.6	(2.5)	15.0	(3.5)	19.1	(2.5)	18.6	(3.4)	18.9	(2.0)
Landfill	2.9	(1.1)	2.2	(1.1)	1.8	(0.8)	4.1	(1.8)	2.7	(0.8)
Composting	13.1	(1.8)	8.9	(1.6)	5.7	(1.0)	21.3	(3.0)	11.8	(1.3)
Other	1.2	(0.6)	2.3	(2.1)	0.5	(0.4)	3.1	(1.8)	1.5	(0.8)

The majority of cattle carcasses (80.2 percent) were disposed of by rendering. A higher percentage of carcasses on feedlots with a capacity of 8,000 or more head were rendered compared with carcasses on feedlots with a capacity of 1,000 to 7,999 head.

F.7.b. Percentage of cattle carcasses by method of disposal, feedlot capacity, and region:

Percent Carcasses

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Disposal method	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Renderer	60.9	(5.5)	83.7	(2.9)	82.4	(3.0)	69.0	(5.8)	80.2	(2.6)
Buried on the feedlot	13.6	(3.9)	7.4	(2.7)	8.2	(2.8)	9.1	(2.6)	8.4	(2.4)
Landfill	2.8	(2.0)	2.5	(0.8)	0.0	(0.0)	15.3	(4.3)	2.5	(0.7)
Composting	22.5	(7.3)	6.3	(1.4)	9.4	(2.0)	5.9	(1.3)	8.8	(1.7)
Other	0.2	(0.2)	0.1	(0.1)	0.0	(0.0)	0.8	(0.5)	0.1	(0.1)
Total	100.0		100.0		100.0		100.0		100.0	

G. Outcome and Destination of Cattle

1. Outcome

The vast majority of cattle placed on feed reached the intended outcome and were marketed for slaughter at their expected slaughter weight. Only 1.6 percent of cattle died in the feedlot, and very few were lost or removed for other reasons. The percentages of cattle by outcome were not different by feedlot capacity or region.

G. 1. Percentage of cattle and calves by outcome, feedlot capacity, and region:

	Percent Cattle and Calves									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Outcome	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Marketed for slaughter	94.9	(1.1)	97.3	(0.1)	97.2	(0.2)	95.5	(0.8)	96.9	(0.2)
Died	1.4	(0.2)	1.6	(0.1)	1.6	(0.1)	1.5	(0.1)	1.6	(0.1)
Returned to grazing	0.5	(0.1)	0.4	(0.1)	0.4	(0.1)	0.7	(0.2)	0.4	(0.1)
Shipped to another feedlot	2.9	(0.9)	0.2	(0.0)	0.5	(0.2)	1.6	(0.7)	0.7	(0.2)
Sent to market prior to reaching expected slaughter weight	0.4	(0.2)	0.4	(0.1)	0.3	(0.0)	0.7	(0.2)	0.4	(0.1)
Stolen	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)
Lost for other reasons	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Total	100.0		100.0		100.0		100.0		100.0	

2. Destination of shipments

As expected, nearly all cattle shipments leaving the feedlot (98.1 percent) went directly to slaughter rather than to another beef feedlot or other interim handling facility. Since handling and transportation present injury risks as well as weight loss for animals, expedited delivery to the slaughter facility is expected.

G.2. Percentage of cattle shipments that left the feedlot, by shipment destination, feedlot capacity, and region:

Percent Shipments*

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Shipment destination	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Direct to slaughter	93.2	(1.4)	98.7	(0.4)	98.1	(0.5)	98.1	(0.6)	98.1	(0.4)
Sales/auction	3.4	(0.9)	0.1	(0.1)	0.3	(0.1)	1.3	(0.5)	0.5	(0.1)
Another feedlot	3.2	(1.0)	1.1	(0.5)	1.5	(0.5)	0.5	(0.2)	1.3	(0.4)
Direct to another beef operation (e.g., cow-calf or stocker feedlot)	0.2	(0.2)	0.1	(0.0)	0.1	(0.0)	0.1	(0.1)	0.1	(0.0)
Total	100.0		100.0		100.0		100.0		100.0	

*One group of cattle moved all at once, no matter how many vehicles were required to move them.

3. Average distance shipments traveled to destination

Cattle feeding and slaughter facilities tend to be regionally co-located in order to allow expedited delivery for slaughter and minimum transport time and stress for cattle. The average distance for shipments moving directly to slaughter was 166 miles and was only slightly less for feedlots with a capacity of 8,000 or more head (119 miles) than for feedlots with a capacity of 1,000 to 7,999 head (184 miles).

G.3. Average distance (miles) per shipment to destination, by destination, feedlot capacity, and region:

	Average Number of Miles per Shipment*									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Destination	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error
Direct to slaughter	184	(12)	119	(7)	120	(6)	232	(19)	166	(9)
Sales/auction	74	(15)	79	(31)	85	(21)	60	(10)	76	(14)
Another feedlot	177	(26)	152	(26)	148	(24)	200	(32)	171	(21)
Direct to another beef operation (e.g., cow-calf or stocker feedlot)	38	(18)	56	(10)	52	(14)	40	(0)	48	(10)
All	173	(10)	118	(7)	119	(6)	214	(16)	158	(8)

*Weighted by number of shipments.

4. Shipments crossing State lines

Approximately one of four shipments leaving feedlots to any destination (27.3 percent) crossed State lines.

G.4. Percentage of shipments that crossed State lines, by destination, feedlot capacity, and region:

	Percent Shipments									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Destination	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Direct to slaughter	46.3	(3.8)	25.7	(2.2)	14.3	(1.6)	82.9	(3.2)	27.7	(2.1)
Sales/auction	21.9	(9.7)	0.2	(0.1)	28.2	(13.4)	6.6	(5.0)	16.3	(7.4)
Another feedlot	8.8	(5.0)	0.3	(0.2)	0.2	(0.2)	27.1	(11.6)	2.4	(1.5)
Direct to another beef operation (e.g., cow-calf or stocker feedlot)	0.0	(0.0)	6.3	(3.1)	4.9	(3.1)	3.5	(2.5)	4.4	(2.2)
Any	44.2	(3.7)	25.4	(2.2)	14.1	(1.6)	81.5	(3.2)	27.3	(2.1)

H. Quality Assurance

1. Familiarity with Beef Quality Assurance (BQA) program

The beef industry has been extremely interested in enhancing beef quality since the first National Beef Quality Audit identified areas for improvement. A national BQA program was developed and refined to address issues associated with inferior beef quality. Today, the BQA program has national leadership and coordination and is administered through a State-based network of resource personnel. From the implementation of routine management practices to appropriate use of pharmaceuticals and biologics, the BQA program provides guidelines for almost all aspects of production. The BQA program has been expanded to include steps all along the continuum, from birth to harvest.

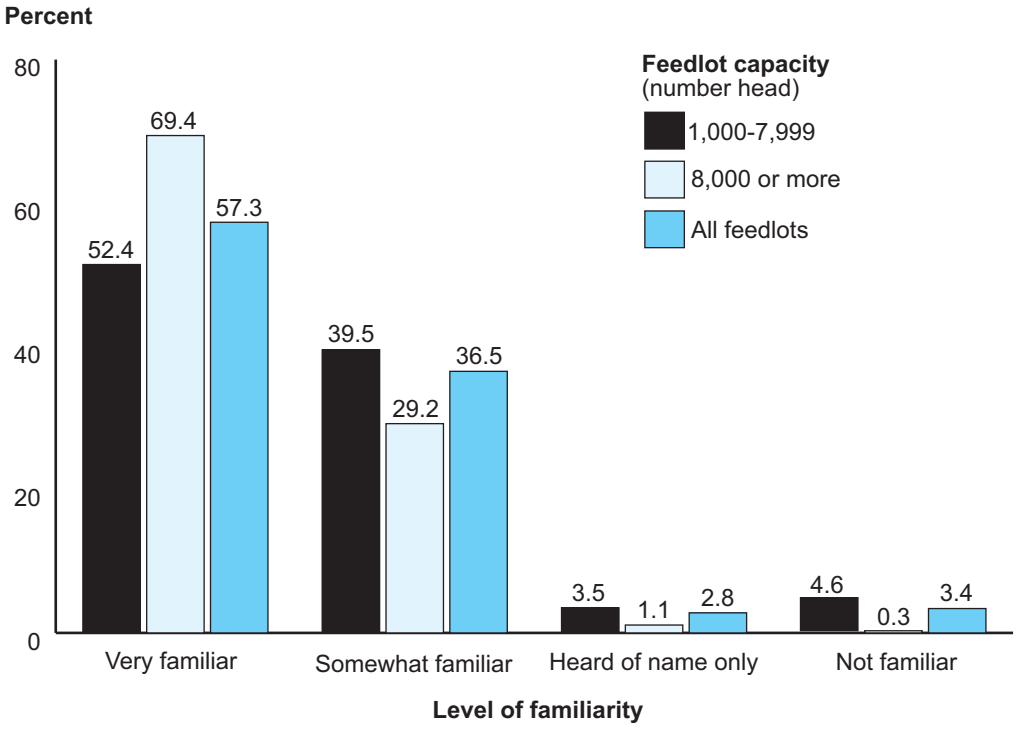
Overall, 96.6 percent of feedlot operators had heard of the BQA program. Operators on almost all feedlots with a capacity of 8,000 or more head (99.7 percent) had heard of the name or were familiar with the program.

H.1.a. Percentage of feedlots by level of familiarity with either the State or the National Cattlemen's Beef Association BQA program, and by feedlot capacity and region:

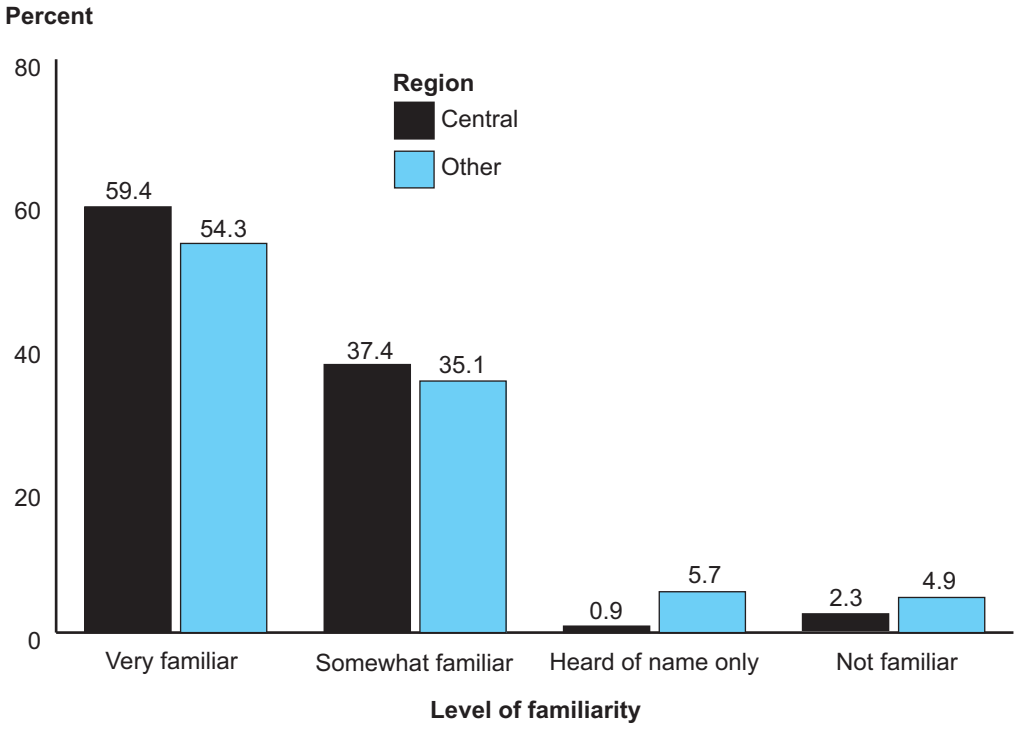
Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Level of familiarity	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Very familiar	52.4	(2.9)	69.4	(3.9)	59.4	(2.9)	54.3	(3.8)	57.3	(2.3)
Somewhat familiar	39.5	(2.8)	29.2	(4.0)	37.4	(2.9)	35.1	(3.8)	36.5	(2.3)
Heard of name only	3.5	(1.0)	1.1	(1.0)	0.9	(0.5)	5.7	(1.7)	2.8	(0.8)
Not familiar	4.6	(1.2)	0.3	(0.2)	2.3	(0.9)	4.9	(1.6)	3.4	(0.9)
Total	100.0		100.0		100.0		100.0		100.0	

Percentage of feedlots by level of familiarity with either the State or the National Cattlemen's Beef Association BQA program, and by feedlot capacity



Percentage of feedlots by level of familiarity with either the State or the National Cattlemen's Beef Association BQA program, and by region



Nearly all cattle placed on feedlots with 1,000 head or more capacity (98.1 percent) were in feedlots in which the operator was very familiar or somewhat familiar with the BQA program.

H.1.b. Percentage of cattle and calves by operator's familiarity with the BQA program, and by feedlot capacity and region:

Percent Cattle and Calves

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Level of familiarity	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Very familiar	55.9	(4.5)	76.2	(2.6)	72.9	(2.7)	72.8	(4.9)	72.9	(2.4)
Somewhat familiar	38.2	(4.5)	22.7	(2.6)	25.6	(2.6)	23.5	(5.0)	25.2	(2.3)
Heard of name only	3.0	(1.3)	0.2	(0.2)	0.3	(0.2)	2.5	(1.2)	0.7	(0.3)
Not familiar	2.9	(1.1)	0.9	(0.5)	1.2	(0.5)	1.3	(0.5)	1.2	(0.4)
Total	100.0		100.0		100.0		100.0		100.0	

Nearly two of three feedlots (65.5 percent) had someone attend a BQA meeting within the past 5 years. A higher percentage of feedlots with a capacity of 8,000 or more head sent someone to a BQA meeting compared with feedlots with a capacity of 1,000 to 7,999 head (82.0 and 58.4 percent, respectively).

H.1.c. Percentage of feedlots that had someone representing the feedlot attend a national, State, or local BQA meeting or training session during the previous 5 years, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
58.4	(2.9)	82.0	(3.3)	66.8	(2.7)	63.5	(3.8)	65.5	(2.2)

One component of the BQA program is avoiding antibiotic residues. Feedlots address residue avoidance largely through record keeping and projecting adequate withdrawal periods before treated animals are presented for harvest. In addition, 5.9 percent of feedlots tested some cattle for antibiotic residues before shipment for slaughter.

H.1.d. Percentage of feedlots that tested any cattle for antibiotic residues prior to shipment for slaughter, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
4.2	(1.1)	10.0	(1.6)	6.4	(1.1)	5.2	(1.6)	5.9	(0.9)

2. Importance of BQA practices

About 9 of 10 feedlot operators rated the following BQA practices as very important, regardless of feedlot capacity or region. While in general operators that were very or somewhat familiar with the BQA program (table H.2.b.) ranked the practices more important than operators not familiar with the program, even operators not familiar with the program ranked the practices as having relatively high importance (table H.2.d.).

H.2.a. Percentage of feedlots by importance operator placed on the following BQA practices:

	Percent Feedlots								
	Importance								
	Very		Somewhat		Not		Don't know		
Practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Location used for administration of injectable products (e.g., in neck, shoulder, side, or leg)	96.1	(0.9)	3.1	(0.8)	0.8	(0.4)	0.0	(—)	100.0
Route used for administration of injectable products (intramuscular, intravenous, subcutaneous)	92.1	(1.3)	7.2	(1.3)	0.6	(0.3)	0.1	(0.1)	100.0
Implanting strategy	89.0	(1.5)	5.6	(1.1)	2.5	(0.7)	2.9	(0.8)	100.0
Antibiotic selection to manage disease (e.g., type of FDA-approved antibiotic used or duration of action)	92.1	(1.3)	6.6	(1.3)	0.6	(0.3)	0.7	(0.4)	100.0
Residue avoidance	93.5	(1.3)	4.5	(1.0)	2.0	(0.8)	0.0	(—)	100.0

H.2.b. For feedlots in which the operator was **very** or **somewhat familiar** with the BQA program, percentage of feedlots by importance operator placed on the following BQA practices:

	Percent Feedlots								
	Importance								
	Very		Somewhat		Not		Don't know		
Practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Location used for administration of injectable products (e.g., in neck, shoulder, side, or leg)	97.1	(0.8)	2.6	(0.7)	0.3	(0.2)	0.0	(—)	100.0
Route used for administration of injectable products (intramuscular, intravenous, subcutaneous)	93.5	(1.3)	6.1	(1.2)	0.3	(0.2)	0.0	(—)	100.0
Implanting strategy	90.4	(1.5)	5.1	(1.2)	1.7	(0.6)	2.7	(0.8)	100.0
Antibiotic selection to manage disease (e.g., type of FDA-approved antibiotic used or duration of action)	92.6	(1.4)	6.3	(1.3)	0.3	(0.2)	0.7	(0.5)	100.0
Residue avoidance	93.7	(1.3)	4.5	(1.0)	1.8	(0.8)	0.0	(—)	100.0

H.2.c. For feedlots in which the operator was **very** or **somewhat familiar** with the BQA program, percentage of cattle and calves by importance operator placed on the following BQA practices:

	Percent Cattle and Calves								
	Importance								
	Very		Somewhat		Not		Don't know		
Practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Location used for administration of injectable products (e.g., in neck, shoulder, side, or leg)	95.8	(1.6)	4.0	(1.6)	0.2	(0.1)	0.0	(—)	100.0
Route used for administration of injectable products (intramuscular, intravenous, subcutaneous)	95.3	(1.6)	4.5	(1.6)	0.2	(0.1)	0.0	(—)	100.0
Implanting strategy	94.7	(1.5)	4.4	(1.5)	0.3	(0.1)	0.6	(0.2)	100.0
Antibiotic selection to manage disease (e.g., type of FDA-approved antibiotic used or duration of action)	95.5	(1.5)	4.3	(1.5)	0.2	(0.1)	0.0	(0.0)	100.0
Residue avoidance	94.7	(1.7)	2.3	(0.7)	3.0	(1.6)	0.0	(—)	100.0

H.2.d. For feedlots in which the operator was **not familiar** with the BQA program, percentage of feedlots by importance operator placed on the following BQA practices:

	Percent Feedlots								
	Importance								
	Very		Somewhat		Not		Don't know		
Practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Location used for administration of injectable products (e.g., in neck, shoulder, side, or leg)	81.4	(7.3)	10.0	(5.9)	8.6	(5.0)	0.0	(—)	100.0
Route used for administration of injectable products (intramuscular, intravenous, subcutaneous)	68.2	(8.9)	24.3	(8.3)	5.4	(4.7)	2.1	(1.1)	100.0
Implanting strategy	66.9	(9.0)	12.1	(6.0)	15.5	(7.2)	5.4	(4.7)	100.0
Antibiotic selection to manage disease (e.g., type of FDA-approved antibiotic used or duration of action)	84.1	(7.3)	10.5	(6.2)	5.4	(4.7)	0.0	(—)	100.0
Residue avoidance	89.2	(6.3)	5.4	(4.7)	5.4	(4.7)	0.0	(—)	100.0

H.2.e. For feedlots in which the operator was **not familiar** with BQA program, percentage of cattle and calves by importance operator placed on the following of BQA practices:

	Percent Cattle and Calves								
	Importance								
	Very		Somewhat		Not		Don't know		
Practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Location used for administration of injectable products (e.g., in neck, shoulder, side, or leg)	94.5	(2.9)	2.2	(1.5)	3.3	(2.4)	0.0	(—)	100.0
Route used for administration of injectable products (intramuscular, intravenous, subcutaneous)	80.5	(9.9)	14.2	(9.2)	0.9	(0.8)	4.4	(3.8)	100.0
Implanting strategy	81.2	(9.0)	6.6	(4.2)	11.3	(8.0)	1.0	(0.9)	100.0
Antibiotic selection to manage disease (e.g., type of FDA-approved antibiotic used or duration of action)	87.3	(9.1)	11.8	(9.1)	0.9	(0.8)	0.0	(—)	100.0
Residue avoidance	98.0	(1.4)	1.2	(1.1)	0.9	(0.8)	0.0	(—)	100.0

H.2.f. Percentage of feedlots in which the operator considered the following BQA practices **somewhat** or **very important**, by feedlot capacity and by region:

	Percent Feedlots									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Location used for administration of injectable products (e.g., in neck, shoulder, side, or leg)	99.0	(0.5)	99.6	(0.2)	99.8	(0.1)	98.2	(0.9)	99.2	(0.4)
Route used for administration of injectable products (intramuscular, intravenous, subcutaneous)	99.1	(0.5)	99.6	(0.2)	99.8	(0.1)	98.4	(0.8)	99.2	(0.3)
Implanting strategy	93.1	(1.4)	98.1	(1.0)	97.7	(0.9)	89.8	(2.3)	94.6	(1.1)
Antibiotic selection to manage disease (e.g., type of FDA-approved antibiotic used or duration of action)	98.3	(0.7)	99.6	(0.2)	99.2	(0.5)	97.9	(1.1)	98.7	(0.5)
Residue avoidance	99.1	(0.5)	95.2	(2.4)	98.2	(1.1)	97.6	(1.2)	98.0	(0.8)

H.2.g. Percentage of cattle and calves in feedlots in which the operator considered the following BQA practices **somewhat** or **very important**, by feedlot capacity and by region:

	Percent Cattle and Calves									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Location used for administration of injectable products (e.g., in neck, shoulder, side, or leg)	99.6	(0.3)	99.8	(0.1)	99.8	(0.1)	99.6	(0.3)	99.8	(0.1)
Route used for administration of injectable products (intramuscular, intravenous, subcutaneous)	99.4	(0.5)	99.8	(0.2)	99.8	(0.1)	99.4	(0.4)	99.7	(0.1)
Implanting strategy	97.1	(0.8)	99.3	(0.3)	97.7	(0.1)	95.2	(1.6)	98.9	(0.3)
Antibiotic selection to manage disease (e.g., type of FDA-approved antibiotic used or duration of action)	99.7	(0.2)	99.8	(0.1)	99.8	(0.1)	99.7	(0.1)	99.8	(0.1)
Residue avoidance	97.5	(1.7)	95.1	(4.1)	98.2	(1.1)	97.6	(1.2)	97.1	(1.6)

3. Training provided for BQA practices

Almost all feedlots with a capacity of 8,000 or more head (96.1 percent) had a formal employee training program on one or more of the listed BQA areas of emphasis, compared with 70.1 percent of feedlots with a capacity of 1,000 to 7,999 head. The difference might be related to the fewer number of employees on feedlots with a capacity of 1,000 to 7,999 head or the lack of a perceived need for a formal training program on these feedlots.

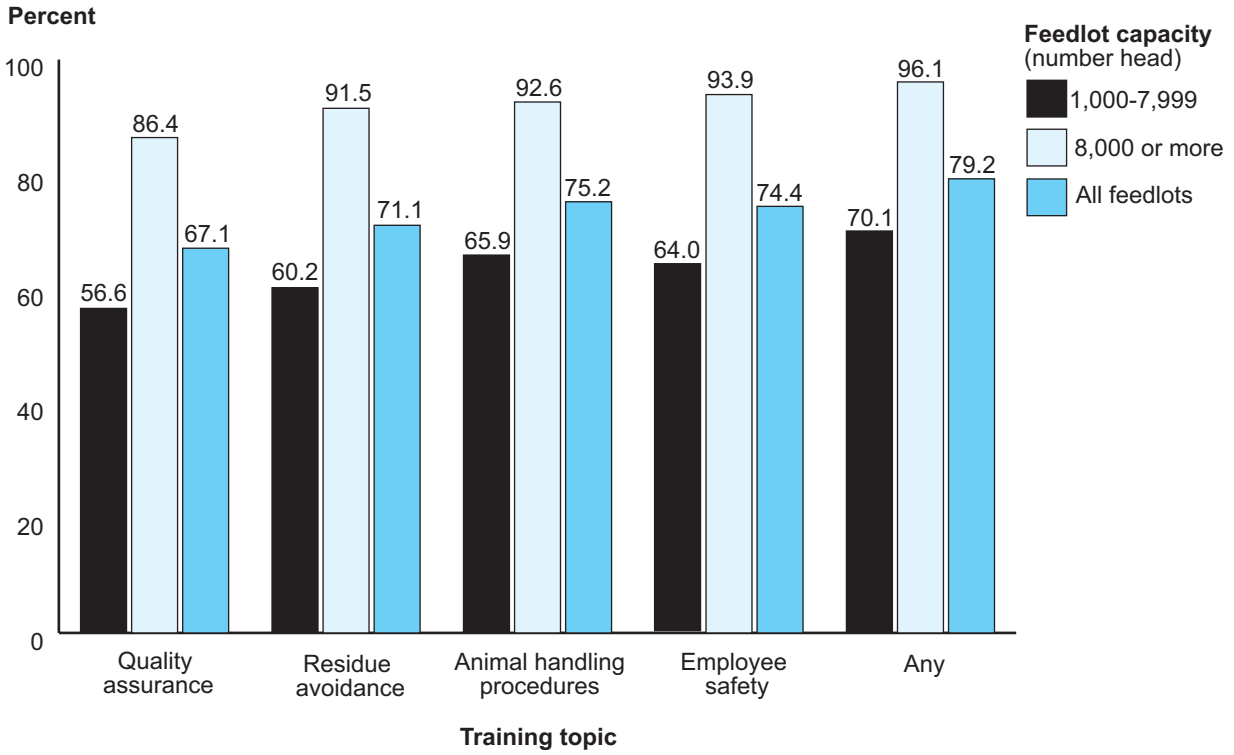
H.3.a. Percentage of feedlots that had a formal employee training program for BQA areas of emphasis, by training topic, feedlot capacity, and region:

Percent Feedlots*

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Training topic	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Quality assurance	56.6	(3.3)	86.4	(3.2)	75.0	(2.8)	53.5	(4.7)	67.1	(2.5)
Residue avoidance	60.2	(3.2)	91.5	(2.1)	77.5	(2.5)	60.2	(4.5)	71.1	(2.3)
Animal handling procedures	65.9	(3.0)	92.6	(2.0)	79.7	(2.5)	67.6	(4.1)	75.2	(2.1)
Employee safety	64.0	(3.1)	93.9	(2.0)	79.3	(2.5)	66.1	(4.2)	74.4	(2.2)
Any	70.1	(3.0)	96.1	(1.4)	83.8	(2.3)	71.4	(4.0)	79.2	(2.0)

*Of feedlots with employees.

Percentage of feedlots* that had a formal employee training program for BQA areas of emphasis, by training topic and by feedlot capacity



*Of feedlots with employees.

In addition to formal training programs, feedlots are encouraged to have written guidelines on BQA practices. Most feedlots with a capacity of 8,000 or more head (83.9 percent) had written guidelines for employees on one or more of the BQA areas of emphasis, compared with 38.4 percent of feedlots with a capacity of 1,000 to 7,999 head.

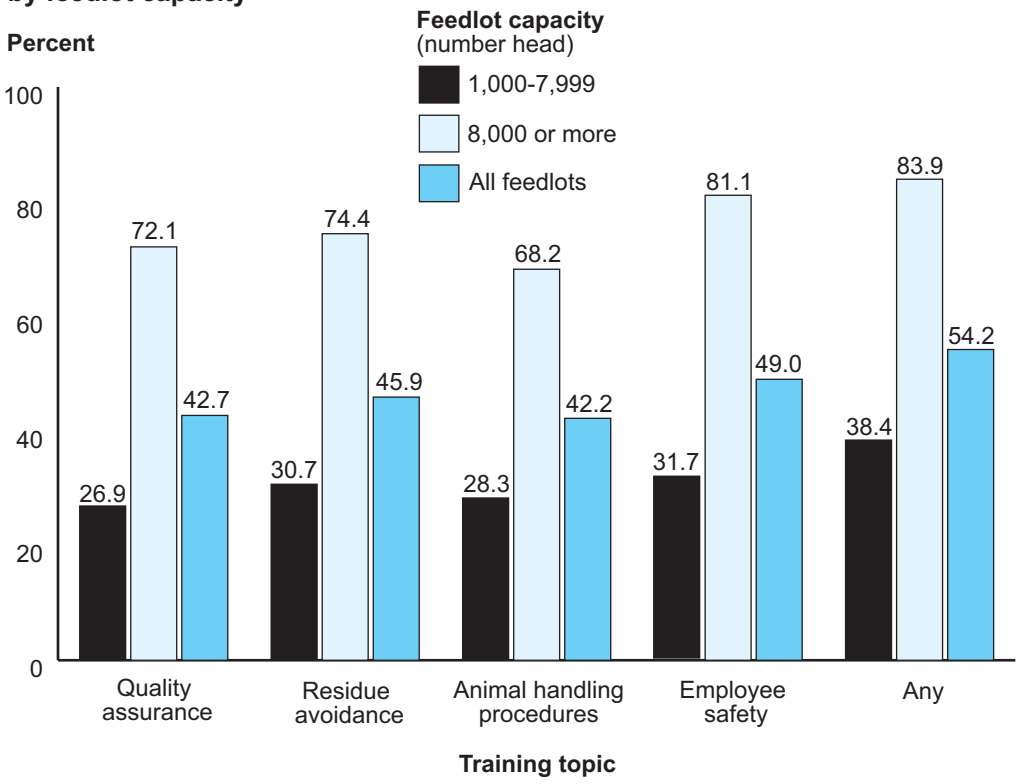
H.3.b. Percentage of feedlots that had a formal employee training program that included **written guidelines** on BQA areas of emphasis, by training topic, feedlot capacity, and region:

Percent Feedlots*

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Training topic	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Quality assurance	26.9	(2.8)	72.1	(3.6)	49.9	(3.1)	30.2	(4.0)	42.7	(2.4)
Residue avoidance	30.7	(2.9)	74.4	(3.6)	53.1	(3.1)	33.5	(4.2)	45.9	(2.5)
Animal handling procedures	28.3	(3.0)	68.2	(3.7)	47.6	(3.1)	33.0	(4.3)	42.2	(2.5)
Employee safety	31.7	(3.0)	81.1	(3.4)	58.0	(3.1)	33.4	(4.1)	49.0	(2.5)
Any	38.4	(3.1)	83.9	(3.3)	62.3	(3.0)	40.5	(4.4)	54.2	(2.5)

*Of feedlots with employees.

Percentage of feedlots* that had a formal employee training program that included written guidelines on BQA areas of emphasis, by training topic and by feedlot capacity



*Of operations with employees.

I. Biosecurity

1. Housing management

Biosecurity has become a topic of increased interest and importance, as the beef industry continues to deal with a variety of endemic diseases and the potential threat of catastrophic foreign animal diseases. Understanding the demographics of the population in various livestock sectors can inform risk evaluators and suggest optimum control or intervention strategies and resource requirements for a particular incident response.

Since feedlots aggregate animals from many sources, and since there is limited biocontainment within feedlots, animals exiting feedlots for purposes other than slaughter represent a potential avenue for introducing pathogens to another herd. For example, in some cases replacement heifers are brought to the feedlot to be grown to a certain size, bred, and returned to a breeding herd when confirmed pregnant. These animals present a risk of introducing pathogens acquired at the feedlot to the breeding herd. Overall, 12.2 percent of feedlots had some animals leave the feedlot and return to a breeding herd or to grazing (stocker cattle).

I.1.a. Percentage of feedlots that fed any dairy breeding cattle, beef breeding cattle, or cattle returned to grazing (stocker cattle), by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
14.5	(2.0)	6.9	(1.3)	15.0	(2.0)	8.1	(2.1)	12.2	(1.5)

Biocontainment practices, primarily segregation, could mitigate pathogen exposure to animals destined to return to breeding or grazing operations. In most cases, cattle destined to return to breeding or grazing were housed adjacent to animals on feed for slaughter.

I.1.b. Of feedlots that fed any dairy breeding cattle, beef breeding cattle, or cattle returned to grazing (stocker cattle), percentage of feedlots by type of housing:

Housing type	Percent feedlots	Std. error
Dairy breeding cattle*		
Beef breeding cattle		
Segregated area with no direct contact with cattle on feed for slaughter	49.6	(8.4)
Pens adjacent to cattle on feed for slaughter (nose-to-nose contact)	70.2	(7.2)
Pens with cattle on feed for slaughter (commingled)	4.4	(2.1)
Hospital pens with cattle on feed for slaughter for any length of time	10.0	(4.1)
Returned to grazing (stocker cattle)		
Segregated area with no direct contact with cattle on feed for slaughter	44.1	(9.8)
Pens adjacent to cattle on feed for slaughter (nose-to-nose contact)	59.3	(8.4)
Pens with cattle on feed for slaughter (commingled)	5.6	(2.9)
Hospital pens with cattle on feed for slaughter for any length of time	33.5	(9.7)

*Too few to report.

I.1.c. For feedlots that fed any dairy breeding cattle, beef breeding cattle, or cattle returned to grazing (stocker cattle), percentage of feedlots that fed these cattle leftover feed from bunk cleaning:

Percent Feedlots	Std. error
0.0	(—)

2. Vaccination protocols and testing

Vaccination is another potential biocontainment practice for feedlots that house animals destined to return to breeding. Approximately half of feedlots (53.4 percent) modified vaccination protocols for beef breeding cattle leaving the feedlot.

I.2.a. Of feedlots that fed any dairy breeding or beef breeding cattle, percentage of feedlots that modified or implemented vaccination protocols for these cattle, by cattle type, feedlot capacity, and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Cattle type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Dairy breeding*										
Beef breeding	50.8	(9.6)	70.3	(10.3)	59.7	(9.3)	36.1	(17.6)	53.4	(8.5)

*Too few to report.

In some cases, cattle can be tested to determine if they pose a risk for carrying pathogens when leaving the feedlot. Typically, these testing protocols focus on specific pathogens of interest. Nearly one of three feedlots (30.6 percent) did some testing for pathogens in beef breeding cattle destined to be returned to breeding.

I.2.b. Of feedlots that fed any dairy breeding cattle or beef breeding cattle, percentage of feedlots that tested these cattle for disease (e.g., bovine viral diarrhea) before cattle left the feedlot, by cattle type, feedlot capacity, and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Cattle type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Dairy breeding*										
Beef breeding	27.8	(8.6)	49.6	(11.8)	30.5	(8.5)	30.8	(16.0)	30.6	(7.6)

*Too few to report.

3. Management of Mexican-origin cattle

Historically, Mexican-origin cattle in feedlots have been a concern, because some of these cattle are perceived to be at greater risk of being infected with certain pathogens such as *Mycobacterium bovis.* In response to these concerns, some States have implemented programs that require feedlots to obtain a permit to feed animals of Mexican origin. Overall, 11.4 percent of feedlots fed some cattle of Mexican origin. A higher percentage of feedlots with a capacity of 8,000 or more head (33.1 percent) had cattle of Mexican origin than feedlots with a capacity of 1,000 to 7,999 head (2.5 percent). A higher percentage of feedlots in the Central region than in the Other region had cattle of Mexican origin (15.8 and 4.9 percent, respectively).

I.3.a. Percentage of feedlots that fed any Mexican-origin cattle, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
2.5	(0.8)	33.1	(2.7)	15.8	(1.3)	4.9	(1.3)	11.4	(0.9)

I.3.b. Percentage of feedlots that fed Mexican-origin cattle and cattle destined to be returned to breeding or grazing, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
1.5	(0.8)	3.3	(0.7)	2.3	(0.6)	1.6	(1.3)	2.0	(0.6)

Biocontainment practices in feedlots that had cattle of Mexican origin and cattle destined to return to breeding or grazing were similar to those used in feedlots without cattle of Mexican origin (table I.1.b). Overall, 2.0 percent of feedlots fed both types of cattle (table I.3.b.) and, of those, 55.8 percent housed them in adjacent pens some of the time.

I.3.c. For feedlots that fed Mexican-origin cattle and any breeding or stocker cattle, percentage of feedlots by housing for breeding or stocker cattle:

Housing for breeding or stocker cattle	Percent feedlots	Std. error
Segregated area with no direct contact with Mexican-origin cattle on feed for slaughter	36.1	(13.5)
Pens adjacent to Mexican-origin cattle on feed for slaughter (nose-to-nose contact)	55.8	(14.5)
Pens with Mexican-origin cattle on feed for slaughter (commingled)	0.0	(—)
Hospital pens with Mexican-origin cattle on feed for slaughter for any length of time	21.3	(10.0)

4. Presence of other animals

Animals other than cattle in the feedlot can present biosecurity or biocontainment concerns. Rarely were animals other than dogs, cats, or equids present in the feedlot facility.

I.4.a. Percentage of feedlots by type of animals at the feedlot other than feedlot cattle, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Animal type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Dogs	73.6	(2.4)	38.5	(4.3)	58.3	(2.8)	70.7	(3.3)	63.3	(2.1)
Cats	82.7	(2.1)	64.2	(3.8)	76.9	(2.3)	77.8	(3.1)	77.2	(1.8)
Horses, donkeys, mules, etc.	49.9	(2.7)	90.2	(2.0)	75.2	(2.5)	41.6	(3.6)	61.7	(2.1)
Sheep	2.1	(0.8)	2.1	(1.3)	1.6	(0.8)	3.0	(1.3)	2.1	(0.7)
Goats	2.6	(0.9)	0.8	(0.3)	2.1	(0.8)	2.0	(1.0)	2.1	(0.6)
Feral pigs	1.7	(0.4)	4.3	(0.9)	4.1	(0.7)	0.0	(0.0)	2.4	(0.4)
Domestic pigs	8.7	(1.7)	0.0	(0.0)	4.0	(1.2)	9.3	(2.3)	6.1	(1.2)
Chickens or other poultry	8.5	(1.6)	3.9	(1.2)	5.2	(1.2)	10.0	(2.4)	7.1	(1.2)
Captive deer or elk	1.7	(0.8)	0.4	(0.2)	1.7	(0.7)	0.8	(0.7)	1.3	(0.5)
Llamas, alpacas	0.0	(0.0)	2.3	(2.1)	0.0	(0.0)	1.7	(1.5)	0.7	(0.6)
Bison	0.4	(0.4)	1.6	(1.1)	1.1	(0.7)	0.4	(0.3)	0.8	(0.4)

Feedlots are relatively open environments, usually without substantial perimeter fencing. It is not uncommon to see wildlife or evidence of wildlife (e.g., scat, tracks) within the feedlot facility. Many feedlots see evidence of coyotes, foxes, and stray dogs (41.8 percent) and small animals (72.8 percent) on at least a monthly basis.

I.4.b. Percentage of feedlots by frequency wild animals and/or signs of wild animals (e.g., scat, tracks) were observed in the feedlot, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Frequency	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Wild ruminants (e.g., deer and elk)										
Monthly	41.7	(2.7)	13.9	(2.5)	24.5	(2.5)	46.9	(3.6)	33.5	(2.1)
Less than monthly	30.3	(2.6)	34.9	(4.2)	36.0	(2.9)	25.1	(3.4)	31.6	(2.2)
Never	28.0	(2.5)	51.2	(3.9)	39.5	(2.8)	28.0	(3.0)	34.9	(2.1)
Total	100.0		100.0		100.0		100.0		100.0	
Coyotes, foxes, and stray dogs										
Monthly	43.5	(2.8)	37.9	(3.7)	45.5	(2.8)	36.3	(3.7)	41.8	(2.3)
Less than monthly	38.7	(2.8)	52.4	(3.7)	41.5	(2.7)	44.7	(3.9)	42.8	(2.2)
Never	17.8	(2.2)	9.7	(1.8)	13.0	(1.9)	19.0	(2.9)	15.4	(1.6)
Total	100.0		100.0		100.0		100.0		100.0	
Feral swine										
Monthly	2.0	(0.6)	4.2	(1.0)	4.2	(0.9)	0.3	(0.2)	2.7	(0.5)
Less than monthly	0.7	(0.4)	3.3	(1.0)	2.4	(0.6)	0.0	(0.0)	1.4	(0.4)
Never	97.3	(0.6)	92.5	(1.1)	93.4	(0.9)	99.7	(0.2)	95.9	(0.5)
Total	100.0		100.0		100.0		100.0		100.0	
Small animals (e.g., raccoons, squirrels, skunks, rabbits)										
Monthly	75.9	(2.5)	65.5	(3.1)	70.2	(2.5)	76.7	(3.2)	72.8	(2.0)
Less than monthly	17.8	(2.2)	28.1	(2.9)	24.3	(2.3)	15.6	(2.7)	20.9	(1.8)
Never	6.3	(1.4)	6.4	(1.5)	5.5	(1.2)	7.7	(1.9)	6.3	(1.1)
Total	100.0		100.0		100.0		100.0		100.0	

I.4.c. For feedlots that observed wild ruminants or signs of wild ruminants in the feedlot, percentage of feedlots by frequency wild ruminants were observed in feed storage areas, bunks, or lots, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Frequency	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Monthly	57.7	(3.2)	60.3	(5.8)	64.5	(3.7)	50.4	(4.4)	58.2	(2.8)
Less than monthly	22.7	(3.0)	22.5	(5.1)	20.4	(3.2)	25.6	(4.3)	22.7	(2.6)
Never	19.6	(2.8)	17.2	(4.2)	15.1	(2.7)	24.0	(4.2)	19.1	(2.4)
Total	100.0		100.0		100.0		100.0		100.0	

Birds in feedlots consume feed intended for cattle and are a potential vector for disease agents. Feedlots use various control strategies that lessen the impact birds have on profitability and mitigate the risk of disease transmission. The most common method of control is shooting some of the birds (25.4 percent of feedlots).

I.4.d. Percentage of feedlots by control strategies used for birds, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Control strategy	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Chemical repellents	6.4	(1.4)	16.9	(3.5)	11.1	(1.9)	7.0	(2.2)	9.5	(1.4)
Shooting	27.7	(2.6)	19.7	(4.2)	20.1	(2.7)	33.2	(3.9)	25.4	(2.2)
Trapping/ capture devices	5.2	(1.3)	6.3	(2.4)	6.2	(1.6)	4.5	(1.6)	5.5	(1.1)
Visual or noise deterrents	6.6	(1.4)	10.1	(2.6)	7.0	(1.6)	8.6	(2.0)	7.7	(1.2)
Any	34.0	(2.8)	38.7	(4.2)	30.6	(2.9)	42.6	(4.0)	35.4	(2.3)

5. Visitor management

Visitors to feedlots can represent a security threat, a biosecurity concern, and a potential hazard. Despite these concerns, only 25.1 percent of feedlots had signage directing all visitors to the feedlot office prior to entry.

I.5.a. Percentage of feedlots that had signage posted directing all visitors to the office facility prior to entering the feedlot, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
10.3	(1.6)	60.6	(4.1)	33.3	(2.6)	12.7	(2.2)	25.1	(1.8)

Feedlots in both capacity catergories were visited by a number of individuals for a variety of purposes. Understanding patterns of visitation can help operators develop a biosecurity or emergency response plan.

I.5.b. Percentage of feedlots in which visitors had contact with cattle on feed, by type of visitor, feedlot capacity, and region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Visitor type	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Veterinarian	94.8	(1.4)	96.6	(2.3)	97.1	(1.0)	92.8	(2.6)	95.3	(1.2)
Nutritionist	85.4	(2.1)	97.8	(0.9)	93.6	(1.4)	82.2	(3.1)	89.0	(1.5)
University/ extension personnel	15.9	(2.1)	28.3	(3.7)	20.6	(2.4)	18.1	(3.1)	19.6	(1.9)
Livestock hauler	91.1	(1.6)	93.4	(1.4)	89.7	(1.7)	94.9	(1.6)	91.8	(1.2)
Renderer	68.5	(2.6)	73.6	(3.6)	77.2	(2.3)	59.2	(3.9)	70.0	(2.1)
4-H group/FFA	14.4	(2.2)	28.8	(3.0)	16.7	(1.8)	21.6	(3.5)	18.7	(1.8)
Contract vaccine/ processing crews	4.5	(1.3)	34.7	(4.0)	18.6	(2.3)	5.5	(1.9)	13.4	(1.6)
Contract pen-riders or animal checkers	1.2	(0.8)	12.2	(1.8)	6.0	(0.9)	2.0	(1.3)	4.4	(0.8)
Government officials	38.5	(2.7)	72.0	(3.5)	57.2	(2.8)	35.0	(3.8)	48.4	(2.3)
Other	8.3	(1.6)	13.7	(2.9)	13.4	(2.1)	4.5	(1.3)	9.9	(1.4)

I.5.c. For feedlots in which visitors had contact with cattle on feed, average number of visits per month, by type of visitor, feedlot capacity, and region:

	Average Number of Visits per Month									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Visitor type	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error
Veterinarian	2.6	(0.9)	2.9	(0.3)	2.2	(0.2)	3.6	(1.6)	2.7	(0.6)
Nutritionist	2.6	(0.6)	1.8	(0.2)	1.7	(0.1)	3.4	(1.1)	2.3	(0.4)
University/ extension personnel	0.2	(0.0)	1.1	(0.1)	0.8	(0.1)	0.2	(0.1)	0.6	(0.0)
Livestock hauler	5.7	(0.8)	70.5	(7.0)	30.9	(2.7)	15.8	(3.5)	24.7	(2.1)
Renderer	3.5	(0.7)	19.3	(1.2)	10.0	(0.7)	5.6	(1.3)	8.6	(0.6)
4-H group/FFA	1.0	(0.5)	2.0	(0.6)	1.3	(0.4)	1.6	(0.7)	1.5	(0.4)
Contract vaccine/ processing crews	4.0	(2.6)	16.4	(2.6)	12.6	(1.4)	15.7	(9.7)	13.2	(2.1)
Contract pen-riders or animal checkers	11.0	(8.9)	21.5	(2.4)	22.2	(2.3)	0.0	(0.0)	19.4	(3.0)
Government officials	1.6	(0.9)	1.2	(0.1)	1.6	(0.7)	1.0	(0.6)	1.4	(0.5)
Other	1.3	(0.3)	12.3	(2.9)	6.5	(1.4)	2.4	(1.0)	5.8	(1.2)

I.5.d. For feedlots in which visitors had contact with cattle on feed, percentage of feedlots by type of visitor and by frequency of visits:

	Percent Feedlots										
	Frequency										
	Daily		Weekly		Monthly		Semi-annually		Annually		
Visitor type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Veterinarian	1.2	(0.4)	11.8	(1.2)	51.1	(2.3)	19.5	(1.9)	16.3	(1.7)	100.0
Nutritionist	0.3	(0.2)	10.6	(1.5)	66.1	(2.3)	8.0	(1.3)	15.0	(1.8)	100.0
University/ extension personnel	0.4	(0.0)	0.0	(—)	6.8	(2.2)	22.8	(5.5)	70.0	(5.5)	100.0
Livestock hauler	19.6	(1.8)	35.6	(2.3)	27.5	(2.0)	4.7	(1.1)	12.6	(1.7)	100.0
Renderer	21.6	(1.9)	19.2	(2.1)	39.0	(2.7)	4.1	(1.2)	16.1	(2.1)	100.0
4-H group/FFA	3.1	(1.0)	1.0	(0.7)	3.8	(1.5)	21.6	(3.8)	70.6	(4.2)	100.0
Contract vaccine/ processing crews	24.4	(3.8)	39.5	(6.6)	16.1	(7.3)	12.2	(5.2)	7.8	(3.0)	100.0
Contract pen-riders or animal checkers	66.4	(7.2)	20.1	(5.7)	2.8	(1.4)	8.1	(4.6)	2.6	(1.5)	100.0
Government officials	1.7	(0.7)	0.8	(0.4)	11.3	(2.4)	26.1	(2.9)	60.2	(3.2)	100.0
Other	6.5	(1.9)	20.9	(6.0)	30.1	(7.1)	5.2	(2.9)	37.2	(7.2)	100.0

While most feedlots did not provide footbaths or clean boots for visitors, many did limit access to animal areas (65.7 percent) or restrict vehicles from animal areas (59.9 percent). Generally, access restrictions were more common in feedlots with a capacity of 8,000 or more head.

I.5.e. Percentage of feedlots by biosecurity management practices generally used for visitors, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Practice	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Access control for visitors entering animal areas	56.3	(2.7)	88.1	(2.8)	72.6	(2.7)	55.2	(3.6)	65.7	(2.1)
Restrictions on vehicles entering animal area	51.6	(2.9)	79.8	(3.7)	67.4	(2.8)	48.6	(3.8)	59.9	(2.3)
Disposable or clean boots for visitors entering animal areas	12.6	(1.8)	8.3	(1.6)	10.2	(1.6)	13.0	(2.5)	11.3	(1.4)
Footbaths for visitors entering animal areas	1.7	(0.7)	6.2	(1.4)	3.4	(0.7)	2.4	(1.2)	3.0	(0.7)

I.5.f. Percentage of feedlots by other biosecurity management practices generally used, and by feedlot capacity and region:

	Percent Feedlots									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Restrict movement of horses onto the feedlot premises	18.4	(2.1)	65.7	(3.9)	43.6	(2.8)	15.4	(2.5)	32.4	(2.0)
Insect control (e.g., sprays, foggers, treated ear tags, products administered to animal [topical/oral], etc.)	68.1	(2.7)	91.4	(1.4)	82.8	(2.1)	63.1	(3.8)	74.9	(2.0)
Rodent control (e.g., cats, traps, chemical/bait, etc.)	83.5	(2.2)	92.7	(2.3)	88.9	(1.8)	82.1	(3.2)	86.2	(1.7)

6. Equipment sharing and cleaning

Using the same equipment to handle manure and cattle feed can facilitate transmission of pathogens. Nearly two-thirds of feedlots with a capacity of 8,000 or more head (64.8 percent) never used the same equipment to handle manure and cattle feed, and 32.8 percent rarely used the same equipment to handle manure and cattle feed. For feedlots with a capacity of 1,000 to 7,999 head, 36.8 percent never used the same equipment to handle manure and cattle feed, and 32.1 percent rarely did so.

I.6.a. Percentage of feedlots by frequency that the same equipment was used to handle manure and cattle feed, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Frequency	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Routinely	31.1	(2.6)	2.4	(0.6)	19.4	(2.1)	27.6	(3.4)	22.7	(1.9)
Rarely	32.1	(2.8)	32.8	(3.9)	33.3	(2.8)	30.9	(3.8)	32.3	(2.3)
Never	36.8	(2.9)	64.8	(4.0)	47.3	(3.0)	41.5	(4.0)	45.0	(2.4)
Total	100.0		100.0		100.0		100.0		100.0	

Most feedlots that rarely or routinely used the same equipment to handle manure and cattle feed took some rudimentary precautions to clean the equipment between uses. Cleaning equipment with water or steam only was the most common method used (81.1 percent of feedlots). About one of four feedlots with a capacity of 8,000 or more head (23.1 percent) cleaned and chemically disinfected equipment between uses.

I.6.b. For feedlots that rarely or routinely used the same equipment to handle manure and cattle feed, percentage of feedlots by cleaning procedures usually used on equipment after handling manure and prior to handling feed, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Cleaning procedure	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Wash equipment with water or steam only	84.8	(2.5)	64.8	(6.9)	79.6	(3.4)	83.1	(3.5)	81.1	(2.5)
Chemically disinfect only	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)
Wash equipment and chemically disinfect	2.5	(1.1)	23.1	(4.7)	7.7	(1.8)	4.6	(1.6)	6.3	(1.2)
Other	8.5	(1.9)	10.8	(6.0)	9.2	(2.8)	8.5	(2.6)	8.9	(1.9)
No procedures done	4.2	(1.5)	1.3	(0.8)	3.5	(1.5)	3.8	(1.9)	3.7	(1.2)
Total	100.0		100.0		100.0		100.0		100.0	

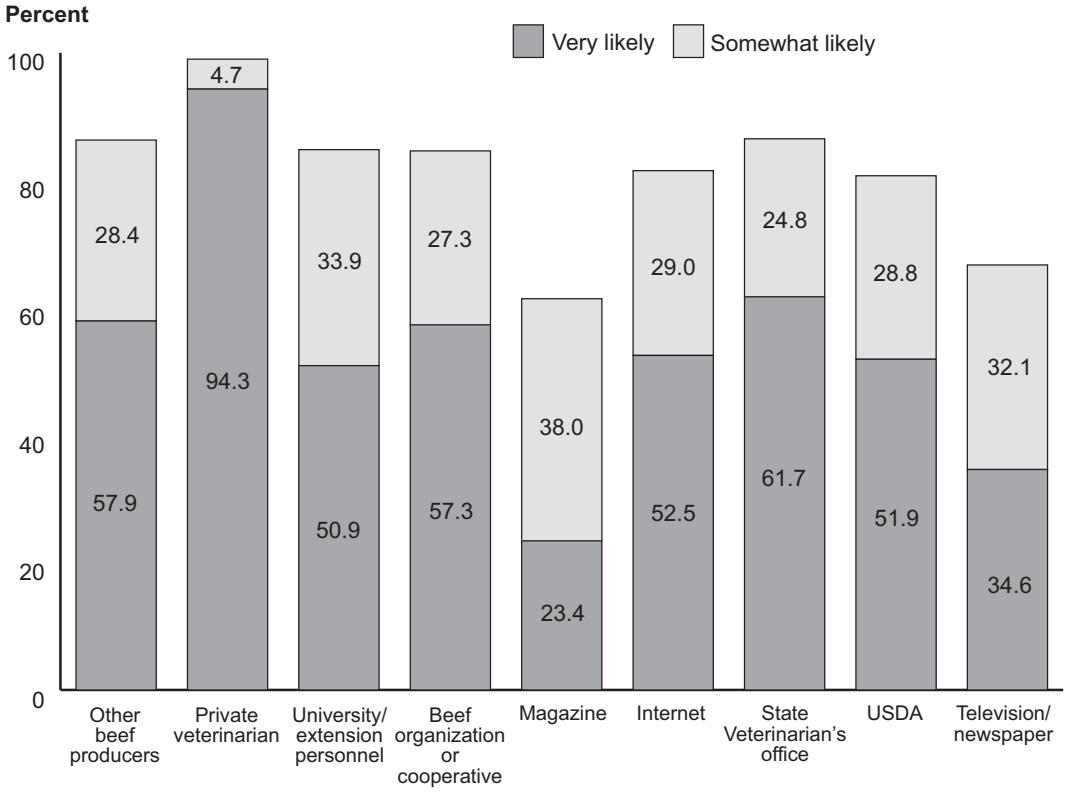
7. Information sources and contacts during an outbreak

Knowing where feedlot operators are likely to seek information in the event of an outbreak of a foreign animal disease (e.g., foot-and-mouth disease) can facilitate the timely development and delivery of information and producer confidence in the information received. The highest percentage of feedlot operators would seek information from a private veterinarian.

I.7.a. Percentage of feedlots by likelihood that the operator would use the following information sources in the event of an outbreak of a foreign animal disease (e.g., foot-and-mouth disease):

	Percent Feedlots						
	Likelihood of Using Source						
	Very		Somewhat		Not		
Information source	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Other beef producers	57.9	(2.4)	28.4	(2.0)	13.7	(1.7)	100.0
Private veterinarian	94.3	(1.1)	4.7	(1.1)	0.9	(0.7)	100.0
University/extension personnel	50.9	(2.4)	33.9	(2.3)	15.2	(1.8)	100.0
Beef organization or cooperative	57.3	(2.3)	27.3	(2.1)	15.4	(1.9)	100.0
Magazine	23.4	(1.9)	38.0	(2.3)	38.6	(2.3)	100.0
Internet	52.5	(2.5)	29.0	(2.3)	18.5	(1.9)	100.0
State Veterinarian’s office	61.7	(2.3)	24.8	(2.2)	13.5	(1.6)	100.0
U.S. Department of Agriculture	51.9	(2.4)	28.8	(2.3)	19.4	(1.8)	100.0
Television/newspaper	34.6	(2.2)	32.1	(2.2)	33.3	(2.2)	100.0

Percentage of feedlots by likelihood that the operator would use the following information sources in the event of an outbreak of a foreign animal disease (e.g., foot-and-mouth disease)



I.7.b. Percentage of feedlots that were **very likely** or **somewhat likely** to use the following information sources in the event of an outbreak of a foreign animal disease (e.g., foot-and-mouth disease), by feedlot capacity and by region:

	Percent Feedlots									
	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Information source	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Other beef producers	87.4	(2.0)	83.7	(3.2)	86.5	(2.1)	85.9	(2.9)	86.3	(1.7)
Private veterinarian	99.0	(0.9)	99.2	(0.3)	99.6	(0.2)	98.3	(1.6)	99.1	(0.7)
University/extension personnel	85.9	(2.1)	82.2	(3.5)	85.9	(2.1)	83.1	(3.2)	84.8	(1.8)
Beef organization or cooperative	82.9	(2.2)	88.7	(3.3)	88.0	(2.0)	79.6	(3.4)	84.6	(1.9)
Magazine	63.6	(2.8)	56.3	(4.1)	60.0	(2.9)	63.6	(4.0)	61.4	(2.3)
Internet	79.7	(2.5)	86.0	(2.9)	85.8	(2.0)	75.1	(3.8)	81.5	(1.9)
State Veterinarian's office	82.3	(2.2)	96.7	(0.9)	92.3	(1.5)	77.7	(3.2)	86.5	(1.6)
U.S. Department of Agriculture	76.3	(2.4)	91.1	(2.6)	84.6	(2.1)	74.6	(3.4)	80.6	(1.8)
Television/newspapers	67.1	(2.8)	65.7	(3.7)	67.8	(2.6)	65.0	(4.0)	66.7	(2.2)

Operators on nearly all feedlots, regardless of feedlot capacity or region, would contact a private veterinarian if they suspected the presence of a foreign animal disease (e.g., foot-and-mouth disease). Support in terms of disease awareness, recognition, and reporting protocols could enhance the timeliness of disease recognition and response in the event of an outbreak.

I.7.c. Percentage of feedlots in which the operator would contact the following information resources if they suspected an animal on their feedlot had a foreign animal disease (e.g., foot-and-mouth disease), by feedlot capacity and by region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Information resource	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Private veterinarian	99.1	(0.5)	98.0	(0.8)	99.0	(0.4)	98.5	(1.0)	98.8	(0.4)
University/extension personnel	32.8	(2.8)	15.1	(2.4)	24.5	(2.4)	32.3	(3.9)	27.6	(2.1)
State Veterinarian's office	51.1	(3.0)	63.0	(4.4)	56.5	(3.0)	51.7	(4.1)	54.6	(2.4)
U.S. Department of Agriculture	37.6	(2.8)	41.7	(3.8)	41.5	(2.8)	34.6	(3.8)	38.8	(2.2)

8. Feedlot size, animal density, and proximity to another feedlot with livestock

A good understanding of feedlot size, animal density, and the proximity to other feedlots can help with planning for emergencies. Such data are useful in modeling efforts for evaluating the potential for animal disease spread and what strategies might be useful in disease control efforts.

I.8.a. Percentage of feedlots by proximity to another feedlot with livestock, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Proximity	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Shared fence line	4.6	(1.2)	15.8	(2.8)	9.0	(1.4)	6.3	(2.1)	7.9	(1.2)
Less than 0.25 mi	11.6	(1.8)	11.4	(2.0)	11.0	(1.7)	12.3	(2.4)	11.5	(1.4)
0.25 to less than 1 mi	29.2	(2.6)	15.2	(3.7)	21.4	(2.6)	30.6	(3.6)	25.1	(2.1)
1 mi to less than 5 mi	45.9	(2.9)	33.7	(3.9)	41.0	(2.9)	44.3	(3.9)	42.3	(2.4)
5 mi or more	8.7	(1.6)	23.9	(3.4)	17.6	(2.2)	6.5	(1.8)	13.2	(1.5)
Total	100.0		100.0		100.0		100.0		100.0	

I.8.b. Percentage of feedlots by number of acres occupied by feedlot,* and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Number of acres	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Less than 20	43.6	(2.7)	1.0	(0.5)	21.5	(2.3)	45.2	(3.6)	31.0	(2.0)
20–49	35.0	(2.9)	6.6	(2.1)	24.5	(2.5)	29.8	(3.8)	26.6	(2.2)
50–99	14.6	(2.1)	14.6	(2.5)	16.5	(2.1)	11.8	(2.7)	14.6	(1.6)
100 or more	6.8	(1.5)	77.9	(2.7)	37.5	(2.2)	13.2	(2.5)	27.8	(1.7)
Total	100.0		100.0		100.0		100.0		100.0	

*Including feed mill storage facilities directly related to the feedlot and pens, but excluding cropland, pasture, etc.

I.8.c. Feedlot average number of head on feed for slaughter per acre, July 1, 2011:

Average Number of Head on Feed* (per acre)

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Avg.	Std. error	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error
85.7	(6.9)	99.3	(7.6)	77.1	(4.9)	108.4	(11.0)	89.7	(5.3)

*Based on July 1, 2011, inventory.

9. Labor

Feedlots are efficient with regard to labor, especially feedlots with a capacity of 8,000 or more head in which an average of 1.4 employees per 1,000 head of cattle accomplished all clerical and animal-care tasks. The ratio of people to cattle in feedlots with a capacity of 1,000 to 7,999 head was higher (4.2 per 1,000 head). For both feedlot sizes, about half the personnel were involved in handling cattle in some fashion.

I.9.a. Feedlot average number of paid or unpaid full-time employees per 1,000 head of cattle on July 1, 2011, by feedlot capacity and by region:

Feedlot Average Number of Employees*

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Employee category	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
All employees, including clerical and managerial personnel and those who handled cattle	4.2	(1.0)	1.4	(0.1)	4.2	(1.1)	2.0	(0.2)	3.3	(0.7)
Employees who only handled cattle (e.g., pen-riders, doctoring crew, processors)	2.3	(0.8)	0.7	(0.1)	2.7	(0.9)	0.5	(0.1)	1.8	(0.6)

*Per 1,000 head of cattle on July 1, 2011.

In general, full-time employees with animal-handling responsibilities had little contact with animals on other operations or had no livestock of their own. For 53.2 percent of feedlots, no employees had contact with animals on another feedlot, and for 59.7 percent of feedlots, no employees had livestock of their own.

I.9.b. Of full-time employees on June 30, 2011, who only handled cattle, percentage of feedlots by percentage of employees who had contact with livestock on other operations or who owned livestock at another location, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Percent full-time cattle-handling employees who. . .	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Had contact with livestock on other operations										
0	56.8	(4.2)	48.5	(4.5)	54.6	(3.5)	49.2	(6.6)	53.2	(3.1)
1–19	0.9	(0.8)	6.3	(2.0)	4.2	(1.3)	0.5	(0.0)	3.2	(1.0)
20–49	8.1	(2.4)	14.5	(3.2)	9.9	(2.0)	13.6	(4.8)	10.9	(2.0)
50 or more	34.2	(4.1)	30.7	(4.2)	31.3	(3.2)	36.7	(6.5)	32.7	(2.9)
Total	100.0		100.0		100.0		100.0		100.0	
Owned livestock at another location										
0	64.5	(4.1)	53.5	(4.3)	61.4	(3.4)	54.9	(6.4)	59.7	(3.0)
1–19	1.8	(1.1)	11.2	(2.2)	6.9	(1.5)	3.1	(1.6)	5.9	(1.2)
20–49	10.8	(2.8)	16.0	(3.3)	12.2	(2.2)	15.5	(5.1)	13.0	(2.1)
50 or more	22.9	(3.5)	19.3	(3.7)	19.5	(2.9)	26.5	(5.5)	21.4	(2.5)
Total	100.0		100.0		100.0		100.0		100.0	

I.9.c. Of full-time employees on June 30, 2011, who only handled cattle, percentage of employees who had contact with livestock on other operations or who owned livestock at another location, by feedlot capacity and by region:

Percent Employees

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Percent full-time cattle-handling employees who . . .	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Had contact with livestock on other feedlots	31.1	(4.0)	28.0	(2.4)	28.6	(2.2)	30.2	(5.5)	28.9	(2.1)
Owned livestock at another location	23.3	(3.1)	16.9	(1.4)	17.8	(1.4)	22.3	(3.7)	18.7	(1.3)

I.9.d. Feedlot average number of paid or unpaid full-time employees per 1,000 head of cattle on July 1, 2011, who left their jobs for any reason (e.g., retired, quit, fired, or injured) from July 1, 2010, through June 30, 2011, by employee category, feedlot capacity, and region:

Feedlot Average Number of Employees*

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Employee category	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
All employees, including clerical and managerial personnel and those who handled cattle	0.3	(0.2)	0.2	(0.0)	0.4	(0.2)	0.1	(0.0)	0.3	(0.1)
Employees who only handled cattle (e.g., pen-riders, doctoring crew, processors)	0.2	(0.1)	0.2	(0.0)	0.3	(0.1)	0.0	(0.0)	0.2	(0.1)

*Per 1,000 head of cattle on July 1, 2011.

J. Emergency Preparedness

1. Written plans, training, and relationships

Having thought about and developed a plan for an emergency situation can reduce confusion and ensure a better outcome. Overall, only 34.1 percent of feedlots had any written emergency procedure; however, 65.8 percent of feedlots with a capacity of 8,000 or more head had such a plan.

J.1.a. Percentage of feedlots that had a written emergency procedure plan, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
21.0	(2.3)	65.8	(4.1)	43.6	(2.8)	19.9	(3.0)	34.1	(2.1)

J.1.b. Percentage of feedlots that had a written contingency plan for feeding and watering livestock should the facility be impacted by a utility outage (electricity, natural gas, domestic water supply, etc.), by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
37.8	(2.8)	67.1	(4.5)	49.1	(2.9)	42.2	(3.9)	46.3	(2.3)

J.1.c. Percentage of feedlots that had someone from the feedlot attend an educational meeting during the previous 3 years regarding food security, terrorism threats, or the recognition of potential terrorist activities and actions, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
41.5	(2.9)	64.3	(4.0)	55.6	(2.9)	37.1	(3.8)	48.2	(2.4)

J.1.d. Percentage of feedlots that encouraged employees or others to report what they would consider unusual circumstance or activities, by feedlot capacity and by region:

Percent Feedlots									
Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
85.1	(2.1)	96.6	(2.0)	93.0	(1.7)	81.8	(3.2)	88.5	(1.6)

J.1.e. Percentage of feedlots that had developed an active working relationship with local county or regional emergency management officials, by feedlot capacity and by region:

Percent Feedlots									
Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
39.3	(2.9)	70.3	(4.2)	57.0	(3.0)	35.5	(3.9)	48.4	(2.4)

2. Emergency resources

Knowing the ability of feedlots to continue to provide for the basic feed and water needs of animals in their care is helpful to emergency management planners to ensure the welfare of the animals if an event were to interrupt normal transportation routines.

J.2.a. Percentage of feedlots by average number of days of feed that would be available on premises to provide basic nutrition should it not be possible to bring in additional supplies, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Average number of days of feed	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Less than 15	28.4	(2.6)	53.8	(4.1)	37.9	(2.9)	32.5	(3.5)	35.8	(2.2)
15–29	4.1	(1.1)	4.1	(1.0)	5.7	(1.3)	1.6	(0.7)	4.1	(0.8)
30–59	14.9	(2.1)	17.8	(3.2)	17.7	(2.3)	12.9	(2.6)	15.7	(1.7)
60 or more	52.6	(2.8)	24.3	(3.6)	38.7	(2.9)	53.0	(3.7)	44.4	(2.3)
Total	100.0		100.0		100.0		100.0		100.0	

J.2.b. Percentage of feedlots by average number of days the facility would have the capability to generate backup power (fuel on hand) sufficient to maintain critical operations such as water and feed delivery, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Average number of days of power-generation capacity	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Less than 3	3.5	(0.9)	13.3	(1.8)	6.0	(1.0)	6.8	(1.5)	6.3	(0.8)
3–7	12.9	(1.9)	27.1	(3.7)	18.8	(2.2)	14.3	(2.7)	17.0	(1.7)
8–14	16.3	(2.2)	17.3	(2.5)	16.7	(2.0)	16.5	(3.0)	16.6	(1.7)
15 or more	67.3	(2.7)	42.3	(4.3)	58.5	(2.8)	62.4	(3.7)	60.1	(2.2)
Total	100.0		100.0		100.0		100.0		100.0	

J.2.c. Percentage of feedlots by number of animals per hour that could be processed for vaccination using only feedlot staff should all animals in the facility need to be vaccinated, and by feedlot capacity and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Average number of animals per hour	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Less than 75	31.5	(2.6)	6.7	(1.5)	22.6	(2.4)	26.7	(3.2)	24.2	(1.9)
76–100	39.3	(2.9)	43.6	(4.3)	37.7	(3.0)	44.8	(4.0)	40.6	(2.4)
More than 100	29.2	(2.6)	49.7	(4.1)	39.7	(2.8)	28.5	(3.6)	35.2	(2.2)
Total	100.0		100.0		100.0		100.0		100.0	

K. Environment

1. Training and testing

Environmental issues are a concern for feedlot operators. In some cases, feedlots that meet certain criteria are required to have permits that address environmental quality issues, including manure management and dust control. Overall, 69.4 percent of feedlots had a training program and written guidelines for employees regarding one or more of the listed environmental issues; 15.3 percent of feedlots had no employees.

K.1.a. Percentage of feedlots that had a formal training program that included written guidelines for employees regarding the listed environmental issues, by feedlot capacity and by region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Environmental issue training program	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Manure management	57.1	(3.1)	66.1	(4.2)	58.6	(3.2)	62.7	(4.1)	60.2	(2.5)
Dust control	20.6	(2.7)	48.5	(4.1)	36.0	(2.9)	20.3	(3.6)	30.1	(2.2)
Lagoon overflow	47.2	(3.1)	81.7	(2.7)	68.8	(2.8)	42.4	(4.4)	58.9	(2.4)
Other environmental training program	9.8	(1.9)	8.8	(1.3)	13.2	(1.9)	3.3	(1.5)	9.4	(1.3)
Any of the above	59.9	(3.1)	88.3	(2.2)	71.8	(2.7)	65.5	(4.0)	69.4	(2.3)
No employees	21.7	(2.3)	0.0	(0.0)	10.5	(1.8)	22.6	(3.1)	15.3	(1.6)

More than 9 of 10 feedlots with a capacity of 8,000 or more head (93.6 percent), and more than 8 of 10 feedlots with a capacity of 1,000 to 7,999 head (84.2 percent), conducted some environmental tests to ensure environmental quality.

K.1.b. Percentage of feedlots that performed environmental tests, by feedlot capacity and by region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1,000–7,999		**8,000 or more**		**Central**		**Other**		**All feedlots**	
Material tested	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Ground water* (i.e., well water)	52.1	(2.9)	79.5	(3.3)	66.6	(2.6)	49.8	(4.2)	60.2	(2.3)
Surface water* (e.g., ponds, lakes, or streams)	19.0	(2.9)	48.5	(5.0)	34.0	(3.1)	17.7	(4.0)	28.0	(2.5)
Nutrient content of manure (e.g., nitrogen level)	70.7	(2.7)	86.8	(2.8)	80.7	(2.3)	67.6	(3.8)	75.4	(2.1)
Air quality	4.5	(1.4)	11.6	(1.7)	6.8	(1.2)	6.3	(2.0)	6.6	(1.1)
Any of the above	84.2	(2.3)	93.6	(2.5)	89.8	(1.8)	82.7	(3.5)	87.0	(1.8)

*For feedlots with the specified water source

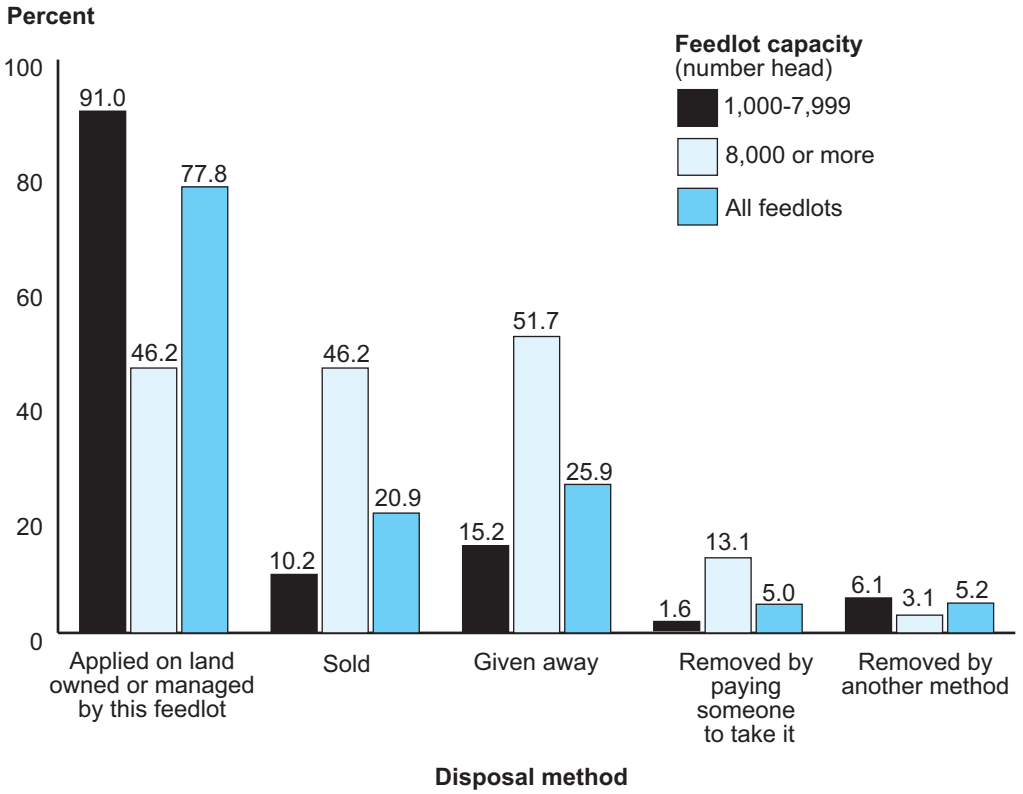
2. Manure management

K.2.a. Percentage of feedlots that used the following manure disposal methods, by feedlot capacity and by region:

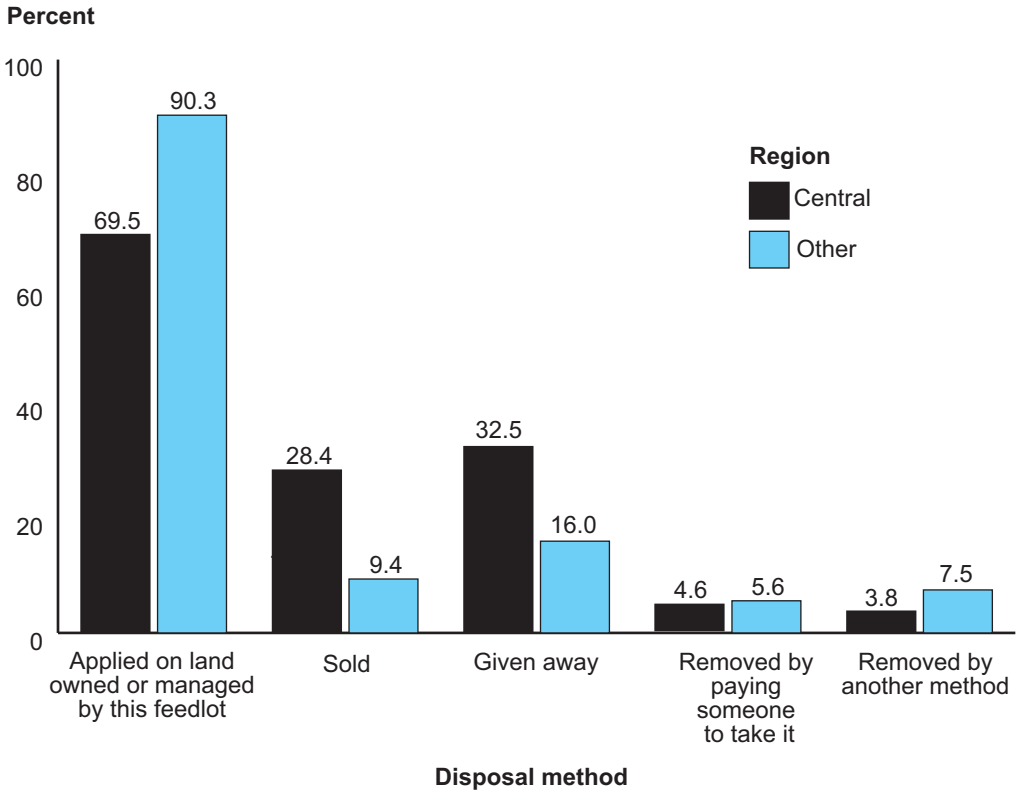
Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Disposal method	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Applied on land owned or managed by this feedlot	91.0	(1.6)	46.2	(4.1)	69.5	(2.4)	90.3	(1.9)	77.8	(1.6)
Sold	10.2	(1.5)	46.2	(4.0)	28.4	(2.4)	9.4	(1.8)	20.9	(1.6)
Given away	15.2	(1.9)	51.7	(3.7)	32.5	(2.3)	16.0	(2.7)	25.9	(1.7)
Removed by paying someone to take it	1.6	(0.9)	13.1	(4.0)	4.6	(2.0)	5.6	(1.9)	5.0	(1.4)
Removed by another method	6.1	(1.6)	3.1	(1.4)	3.8	(1.1)	7.5	(2.5)	5.2	(1.2)

Percentage of feedlots that used the following manure disposal methods, by feedlot capacity



Percentage of feedlots that used the following manure disposal methods, by region



K.2.b. For feedlots that applied manure on land owned or managed by the feedlot, percentage of feedlots that tested the nutrient content of soil where manure was applied, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
93.7	(1.6)	88.3	(5.0)	92.2	(1.9)	93.3	(2.7)	92.7	(1.6)

K.2.c. For feedlots that tested the nutrient content of soil where manure was applied, percentage of feedlots that tested the soil to determine the manure application rate, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
89.3	(1.9)	88.9	(5.0)	88.1	(2.6)	90.7	(2.5)	89.3	(1.8)

3. Water management and dust control

Concentrated animal feeding operations have been a concern with regard to waste management and air quality. Data on how feedlots dispose of waste and address dust control can be helpful to regulators and the public as they seek to ensure that best policies are in place to minimize untoward impacts of feedlots on environmental quality.

K.3.a. Percentage of feedlots that applied waste water on land owned or managed by the feedlot, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
43.4	(2.7)	61.3	(3.9)	56.0	(2.8)	37.5	(3.7)	48.7	(2.2)

K.3.b. For feedlots that applied waste water on land owned or managed by the feedlot, percentage of feedlots that tested the nutrient content of the soil to determine the waste water application rate, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1,000–7,999		8,000 or more		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
91.7	(2.4)	90.1	(3.7)	89.5	(2.6)	94.8	(2.7)	91.1	(2.0)

K.3.c. Percentage of feedlots that used the following runoff/erosion control measures, by feedlot capacity and by region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Control measure	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Lagoons to capture runoff	65.3	(2.5)	94.8	(1.2)	83.8	(2.0)	59.2	(3.7)	74.1	(1.9)
Berms to control runoff	73.7	(2.6)	77.1	(3.0)	74.4	(2.4)	75.2	(3.6)	74.7	(2.0)
Fencing/landscaping to enhance wildlife management or minimize erosion	52.8	(2.9)	47.0	(4.3)	49.0	(3.0)	54.2	(3.9)	51.1	(2.4)
Any	91.3	(1.7)	97.1	(0.8)	93.0	(1.4)	92.9	(2.3)	93.0	(1.2)

K.3.d. Percentage of feedlots that used the following practices to control dust in any pens or on the feedlot, by feedlot capacity and by region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1,000–7,999		8,000 or more		Central		Other		All feedlots	
Dust control practice	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Permanent sprinklers	14.3	(2.1)	22.2	(3.5)	16.6	(2.2)	16.7	(3.0)	16.6	(1.8)
Mobile sprinklers (water truck)	29.2	(2.7)	53.9	(4.1)	41.5	(2.8)	29.0	(3.6)	36.5	(2.2)
Mechanical scrapers	56.2	(2.8)	81.9	(2.6)	71.8	(2.6)	51.5	(3.9)	63.7	(2.2)
Increased cattle density	13.4	(1.9)	27.1	(3.4)	21.8	(2.4)	10.8	(2.2)	17.5	(1.7)
Other	2.9	(1.0)	0.6	(0.5)	2.4	(0.9)	2.1	(1.1)	2.3	(0.7)
Any dust control	66.8	(2.7)	92.3	(1.8)	82.9	(2.2)	61.2	(3.8)	74.3	(2.0)

Section II: Methodology

A. Needs Assessment

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, government agencies, animal health officials, and many others. The objective of the needs assessment for the NAHMS Feedlot 2011 study was to collect information about the most important animal health and production management productivity issues of beef feedlots. 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 identify 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 20, 2010, through February 14, 2011. The survey was promoted via electronic newsletters, magazines, and Web sites. Organizations/magazines promoting the study included "Beef Business Bulletin," "Beef Magazine," "Bovine Veterinarian," "Cattle Network," "Drovers," "Farm Industry News," "Farm Press," "Feedlot Magazine," "Feedstuffs," "Iowa Farmer Today," "Progressive Farmer," "The National Cattleman," and "Weekly Livestock Reporter." 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. There were 134 responses to the SurveyMonkey needs assessment survey. Stakeholders represented in the respondents included Federal government personnel, university and extension personnel, service providers for the beef industry (e.g., veterinarians, nutritionists), and beef producers or producer organizations.

Objectives for the Feedlot 2011 study, using input from interviews, literature searches, and the online survey, were drafted and circulated to stakeholder groups. Following this review, five final study objectives were identified:

1. Describe changes in management practices and animal health in feedlots.
2. Describe the management practices in feedlots that impact product quality.
3. Identify factors associated with shedding of potential foodborne pathogens or commensal organisms by feedlot cattle.
4. Describe antimicrobial usage in feedlots.
5. Describe biosecurity practices and capabilities in feedlots.

B. Sampling and Estimation

1. State selection

The preliminary selection of States to be included in the study was done using the National Agricultural Statistics Service (NASS) “Cattle on Feed” reports. 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 of States identified 12 major States with feedlots with a capacity of 1,000 or more head, and 13 States with feedlots with a capacity of fewer than 1,000 head. The States with large feedlots were: Arizona, California, Colorado, Idaho, Iowa, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Washington.

2. Feedlot selection

The list sampling frame was provided by NASS. Within each State a stratified random sample was selected, where strata were defined by size. The size indicator was the list sampling frame number of head capacity for each feedlot.

3. Population inferences

Inferences cover the population of feedlots with a capacity of at least 1,000 head in the 12 participating States. As of January 1, 2011, these States accounted for 96.2 percent of cattle on feed in feedlots with a capacity of at least 1,000 head. According to the latest State-level published number of feedlots (NASS Census of Agriculture 2007), the 12 States accounted for 86.1 percent of U.S. feedlots with a capacity of at least 1,000 head (see Appendix II 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 feedlot 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 period

From August 1 through 30, 2011, NASS enumerators administered the General Feedlot Management questionnaire. The interview took slightly over 1 hour.

D. Data Analysis

1. Validation

Initial data entry and validation for the General Feedlot Management questionnaire 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.

E. Sample Evaluation

The purpose of this section is to provide various performance measurement parameters. Historically, the term “response rate” was used as a catch-all 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.

A total of 995 feedlots were selected for the survey. Of these feedlots, 871 (87.5 percent) were contacted. There were 517 feedlots that provided usable inventory information (52.0 percent of the total selected and 59.4 percent of those contacted). In addition, there were 403 feedlots (40.5 percent of total selected) that provided "complete" information for the questionnaire. Of feedlots that provided complete information, 195 (48.4 percent) consented to be contacted for consideration/discussion about further participation in Phase II (VS collection) of the study.

Phase I: General Feedlot Management Questionnaire

			Measurement Parameter		
Response category	**Number feedlots**	**Percent feedlots**	**Contacts**	**Usable[1]**	**Complete[2]**
Survey complete and VMO consent	195	19.6	x	x	x
Survey complete, refused VMO consent	208	20.9	x	x	x
No cattle on feed on July 1, 2011	107	10.8	x	x	
Out of business	7	0.7	x	x	
Out of scope	33	3.3			
Refusal of GFMQ	354	35.6	x		
Office hold (NASS elected not to contact)	44	4.4			
Inaccessible	47	4.7			
Total	995	100.0	871	517	403
Percent of total feedlots			87.5	52.0	40.5
Percent of total feedlots weighted[3]			87.1	51.2	37.5

[1]Useable feedlot—respondent provided answers to inventory questions for the feedlot (either zero or positive number on hand).
[2]Survey complete feedlot—respondent provided answers to all or nearly all questions.
[3]Weighted response—the rate was calculated using the initial selection weights.

Appendix I: Sample Profile

1. Number of responding feedlots, by feedlot capacity and by region

	Feedlot Capacity		
Region	**1,000–7,999**	**8,000 or more**	**Total**
Central	121	145	266
Other	116	21	137
Total	237	166	403

Appendix II: Number of and Inventory for Feedlots with a Capacity of 1,000 or More Head in Selected States

			Inventory (1,000 head)			
Region	State	Number of lots 2007[1]	Jan. 1, 2010	July 1, 2010	Jan. 1, 2011[2]	July 1, 2011[3]
Central	CO	132	1,010	920	1,080	1,000
	KS	200	2,250	2,010	2,280	2,030
	NE	770	2,360	2,000	2,430	2,020
	OK	23	365	350	375	350
	TX	128	2,680	2,590	2,840	2,700
	Total	1,253	8,665	7,870	9,005	8,100
Other	AZ	6	287	255	258	287
	CA	21	440	430	470	470
	ID	39	215	200	240	215
	IA	345	570	570	640	590
	NM	8	(D)	(D)	(D)	(D)
	SD	176	235	215	260	210
	WA	12	166	168	209	200
	Total	607	1,913	1,838	2,077	1,972
Total 12 States		1,860	10,578	9,708	11,082	10,072
Other States		300	405[4]	363[5]	432[4]	379[5]
Total U.S. (50 States)		2,160	10,983	10,071	11,514	10,451

(D)=Withheld to avoid disclosing data for individual feedlots.
[1]Latest State-level published lots available.
[2]February 18, 2011, NASS Cattle on Feed.
[3]July 22, 2011, NASS Cattle on Feed.
[4]New Mexico inventory unpublished beginning July 2009. Other Region total used New Mexico published inventory for January 2009 of 164,000 head.
[5]New Mexico inventory unpublished beginning July 2009. Other Region total used New Mexico published inventory for June 2009 of 105,000 head.

Appendix III: U.S. Feedlots and Inventory, by Capacity

	Number of feedlots				
Feedlot capacity	**2007[1]**	**2008[2]**	**2009[3]**	**2010[4]**	**2011[4]**
Fewer than 1,000	85,000	80,000	80,000	75,000	75,000
1,000 or more	2,160	2,170	2,170	2,140	2,120
1,000–7,999	1,713	1,730	1,725	1,685	1,675
8,000 or more	447	440	445	455	445
All feedlots in United States	87,160	82,170	82,170	77,140	77,120
	January 1 inventory (x1,000 head)				
	2008[1]	**2009[2]**	**2010[3]**	**2011[4]**	**2012[4]**
Fewer than 1,000	2,734.7	2,621.7	2,659.2	2,499	2,260
1,000 or more	12,092	11,234	10,983	11,514	11,861
1,000–7,999	2,413	1,850	2,243	2,283	2,256
8,000 or more	9,679	9,384	8,740	9,230	9,605
All U.S. feedlots	14,826.7	13,855.7	13,642.2	14,012	14,121
	Marketings (x1,000 head)				
	2007[1]	**2008[2]**	**2009[3]**	**2010[4]**	**2011[4]**
Fewer than 1,000	4,285	4,045	3,914	4,032	3,170
1,000 or more	22,461	22,404	21,692	22,078	22,577
1,000–7,999	4,149	4,139	3,932	3,938	3,957
8,000 or more	18,312	18,265	17,760	18,140	18,620
All U.S. feedlots	26,746	26,449	25,606	26,110	25,747

[1]February 20, 2009, NASS Cattle on Feed.
[2]February 19, 2010, NASS Cattle on Feed.
[3]February 18, 2011, NASS Cattle on Feed.
[4]February 24, 2012, NASS Cattle on Feed

Appendix IV: Study Objectives and Related Outputs

1. Describe changes in management practices and animal health in feedlots:
    - Part I: Management Practices on U.S. Feedlots with a Capacity of 1,000 or More Head, March 2013
    - Part II: Management Practices on U.S. Feedlots with a Capacity of Fewer than 1,000 Head, March 2013
    - Part III: Health and Management Practice Trends for U.S. Feedlots, 1994–2011, expected May 2013
    - Part IV: Health and Health Management on U.S. Feedlots with Capacity of 1,000 or More Head, expected May 2013
    - Importance of Pre-arrival Management Practices to Operators of U.S. Feedlots, info sheet, July 2012
    - Emergency Preparedness and Management on U.S. Feedlots, info sheet, September 2012
    - U.S. Feedlots Processing Practices for Arriving Cattle, info sheet, October 2012
    - Implant Usage, info sheet, expected spring 2013
    - Respiratory Disease in Feedlot Cattle, info sheet, expected spring 2013
    - Vaccination of Cattle Against Respiratory Disease Pathogens, info sheet, expected spring 2013
2. Describe the management practices in feedlots that impact product quality:
    - Part I: Management Practices on U.S. Feedlots with a Capacity of 1,000 or More Head, March 2013
    - Quality Assurance on U.S. Feedlots, 2011, info sheet, July 2012
    - Awareness of the Beef Quality Assurance Program Among Operators of Small Feedlots, info sheet, April 2013
3. Identify factors associated with shedding of potential foodborne pathogens or commensal organisms by feedlot cattle:
    - Management Strategies Used to Control Food Safety Pathogens in Feedlot Cattle, info sheet, expected spring 2013
    - *Salmonella* Prevalence and Resistance, info sheet, expected summer 2013
    - *Campylobacter* Prevalence and Resistance, info sheet, expected summer 2013
4. Describe antimicrobial usage in feedlots:
    - Part I: Management Practices on U.S. Feedlots with a Capacity of 1,000 or More Head, March 2013
    - Part II: Management Practices on U.S. Feedlots with a Capacity of Fewer than 1,000 Head, March 2013
    - Part III: Health and Management Practice Trends for U.S. Feedlots, 1994–2011, expected May 2013
    - Part IV: Health and Health Management on U.S. Feedlots with Capacity of 1,000 or More Head, expected May 2013

5. Describe biosecurity practices and capabilities in feedlots:

- Part I: Management Practices on U.S. Feedlots with a Capacity of 1,000 or More Head, March 2013
- Biosecurity on U.S. Feedlots, info sheet, September 2012

Feedlot 2011 Part I

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