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Animal and Plant Health Inspection Service

Veterinary Services

National Animal Health Monitoring System

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Feedlot 2011

Part II: Management Practices on U.S. Feedlots with a Capacity of Fewer than 1,000 Head

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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://www.aphis.usda.gov/animal_health/nahms/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 region of the United States. One component of Feedlot 2011 focused on small feedlots with a capacity of fewer than 1,000 head located in 13 States. The other component of Feedlot 2011 focused on large feedlots (1,000 or more head capacity) in 12 States. This report provides estimates for feedlots with a capacity of fewer than 1,000 head. Study results for feedlots with a capacity of 1,000 or more head are available in "Part I: Management Practices on U.S. Feedlots with Capacity of 1,000 or More Head" available 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.

The majority of feedlots with a capacity of fewer than 1,000 head (77.0 percent) placed only beef breed or cross-breed cattle (p 5). Most of the animals placed in these feedlots (76.0 percent) were less than 700 lb at placement (p 8). Less than 10 percent of animals placed in feedlots with a capacity of fewer than 1,000 head were placed for purposes other than slaughter, such as for development of breeding animals (p12). Nearly half of the cattle placed in these feedlots (42.8 percent) were sourced from auction markets (p 14).

Overall, 83.4 percent of cattle placed in feedlots with a capacity of fewer than 1,000 head were processed as a group after arrival (p 20). Over 80 percent of these cattle (83.8 percent) received a treatment for parasites and/or were vaccinated against respiratory diseases (92.6 percent) [p 23]. Relatively few of these feedlots used any feed additives such as ionophores, or coccidiostats in the rations of cattle placed (p 30).

Most of the cattle shipments leaving feedlots with a capacity of fewer than 1,000 head (67.3 percent) went directly to slaughter (p 40). However, 32.2 percent of shipments went to a sales/auction facility.

Approximately half of operators on feedlots with a capacity of fewer than 1,000 head (51.6 percent) were somewhat familiar or very familiar with the Beef Quality Assurance (BQA) program (p 43). Only 29.0 percent were not at all familiar with the BQA program. The perceived importance of various BQA practices was higher among feedlots more familiar with the program (p 48).

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Acknowledgments

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

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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.

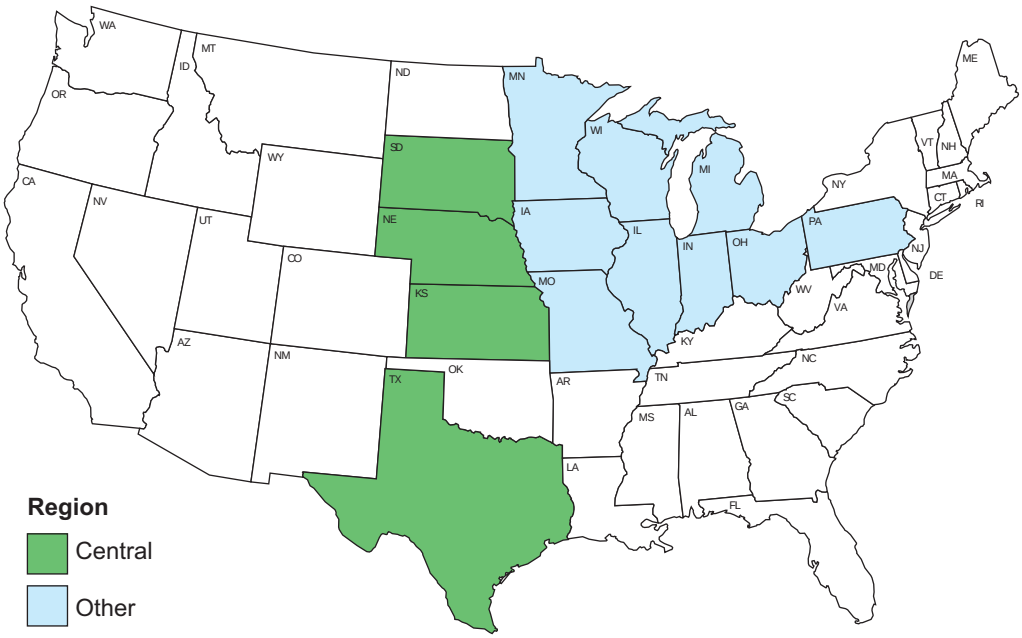
The NAHMS 1994 Cattle on Feed Evaluation (COFE) provided the first national information on the health and management practices of feedlots in the United States. Data were collected from 3,214 feedlots from 13 major cattle-on-feed States, which accounted for 85.8 percent of the U.S. cattle-on-feed inventory 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 or more head capacity) in 12 States* and small feedlots (fewer than 1,000 head capacity) in 13 States (see map, next page). Small feedlots accounted for 16.0 percent of the January 1, 2011, inventory in all U.S. feedlots but 92.9 percent of all feedlots. The 13 States accounted for 85.4 percent of U.S. farms with fewer than 500 cattle on feed and 90.5 percent of the inventory on farms with fewer than 500 cattle on feed (source: NASS 2007 Census of Agriculture). Study results in this report reflect only small feedlots, which were divided into two groups: those with a capacity of 1 to 499 head and those with a capacity of 500 to 999 head.

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

Participating States for feedlots with a capacity of fewer than 1,000 head



Terms Used in This Report

Antibiotic: A chemical compound generally produced by molds that has the ability to inhibit growth of or kill certain bacteria. Antibiotics are 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 additive that promotes growth.

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: Animals having a common origin and distinguishing characteristics.

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 put in a feedlot, fed a high-energy ration, and intended for the slaughter market.

Coccidiostat: Drug that controls coccidiosis.

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

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.

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

Intramuscular injection: An injection given in a muscle.

Intravenous injection: An injection given in a vein.

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

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. 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 (—).

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 animal health.

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

Ration: The amount of feed an animal receives in 24 hours.

Regions:

Central: Kansas, Nebraska, South Dakota, Texas.
Other: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Pennsylvania, and Wisconsin.

Residue: The small amounts of veterinary medicines that can remain in animals after treatment has ceased.

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

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

Subcutaneous injection: An injection given under the skin.

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

Section I: Population Estimates*

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.

A. Placement Profile

1. Cattle type

Most feedlots with a capacity of fewer than 1,000 head (77.0 percent) placed only beef or beef crossbreed cattle during the period July 1, 2010, through June 30, 2011. Just 16.9 percent placed only dairy breeds. The placement profile was not different by size category among feedlots. However, feedlots with fewer than 1,000 head capacity in the Central region were much more likely than feedlots in the Other region to place only beef and beef crossbreed cattle.

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					
	1–499		500–999		Central		Other		All feedlots	
Cattle type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Beef breeds or beef cross-breeds only	76.6	(2.8)	85.5	(3.0)	98.1	(1.7)	67.9	(3.6)	77.0	(2.7)
Dairy breeds only	17.4	(2.6)	6.7	(1.9)	1.7	(1.7)	23.5	(3.4)	16.9	(2.5)
Beef and dairy breeds	6.0	(1.6)	7.8	(2.6)	0.2	(0.2)	8.6	(2.1)	6.1	(1.5)
Total	100.0		100.0		100.0		100.0		100.0	

*Unless otherwise specified, all estimates for cattle placed refer to the period of July 1, 2010, through June 30, 2011.

Most cattle placed on feedlots (87.9 percent) were beef breeds or beef crossbreeds. Virtually all cattle placed in the Central region (99.9 percent) were beef breeds or beef crossbreeds.

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

Percent Cattle and Calves

	Feedlot capacity (number head)				**Region**					
	1–499		**500–999**		**Central**		**Other**		**All feedlots**	
Cattle type	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Beef breeds or beef cross-breeds	86.8	(2.6)	91.0	(2.3)	99.9	(0.1)	78.5	(3.9)	87.9	(1.9)
Dairy breeds	13.2	(2.6)	9.0	(2.3)	0.1	(0.1)	21.5	(3.9)	12.1	(1.9)
Total	100.0		100.0		100.0		100.0		100.0	

A higher percentage of feedlots placed cattle less than 700 lb than placed cattle 700 lb or more, regardless of cattle type. Very few feedlots placed any cows or bulls on feed. The placement profile by gender and weight was not different by feedlot capacity or by region.

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					
	1–499		500–999		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 cross breeds	63.7	(4.3)	66.4	(5.6)	66.2	(10.1)	62.8	(4.0)	63.9	(4.1)
Dairy breeds	19.2	(2.6)	11.2	(2.5)	0.0	(0.0)	27.0	(3.5)	18.9	(2.5)
Any steers <700 lb	77.7	(3.9)	73.1	(5.5)	66.2	(10.1)	82.4	(3.2)	77.5	(3.8)
Steers 700 lb or more										
Beef breeds or cross breeds	18.7	(4.1)	36.7	(6.1)	22.5	(10.6)	18.3	(3.1)	19.5	(3.9)
Dairy breeds	6.8	(1.6)	5.3	(2.2)	1.9	(1.7)	8.8	(2.1)	6.8	(1.5)
Any steers ≥700 lb	24.6	(4.2)	39.0	(6.1)	24.2	(10.7)	25.7	(3.5)	25.3	(4.0)
Any steers	**91.9**	**(2.5)**	**97.8**	**(1.2)**	**87.5**	**(6.8)**	**94.2**	**(1.9)**	**92.1**	**(2.4)**
Heifers less than 700 lb										
Beef breeds or cross breeds	39.0	(4.5)	44.8	(6.1)	47.7	(11.0)	35.6	(4.0)	39.2	(4.3)
Dairy breeds	2.9	(1.0)	2.7	(1.3)	0.0	(0.0)	4.1	(1.4)	2.9	(1.0)
Any heifers <700 lb	40.6	(4.6)	46.5	(6.2)	47.7	(11.0)	37.9	(4.1)	40.9	(4.4)
Heifers 700 lb or more										
Beef breeds or cross breeds	7.9	(1.7)	17.2	(4.5)	3.8	(1.5)	10.3	(2.2)	8.4	(1.6)
Dairy breeds	0.8	(0.7)	1.9	(1.7)	0.2	(0.2)	1.1	(0.9)	0.8	(0.6)
Any heifers ≥700 lb	8.7	(1.8)	17.5	(4.5)	3.8	(1.5)	11.4	(2.3)	9.1	(1.7)
Any heifers	**46.2**	**(4.6)**	**60.9**	**(6.0)**	**50.0**	**(11.0)**	**45.5**	**(4.2)**	**46.9**	**(4.4)**
Cows										
Beef breeds or cross breeds	2.6	(1.4)	4.9	(2.3)	6.2	(4.2)	1.2	(0.6)	2.7	(1.3)
Dairy breeds	0.7	(0.7)	0.0	(0.0)	0.0	(0.0)	1.0	(0.9)	0.7	(0.6)
Any cows	3.3	(1.6)	4.9	(2.3)	6.2	(4.2)	2.2	(1.1)	3.4	(1.5)
Bulls										
Beef breeds or cross breeds	0.5	(0.5)	2.6	(1.9)	1.9	(1.7)	0.1	(0.1)	0.6	(0.5)
Any bulls	0.5	(0.5)	2.6	(1.9)	1.9	(1.7)	0.1	(0.1)	0.6	(0.5)

The placement profiles by gender and weight class are similar to the percentages of feedlots by gender and weight class.

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

Percent Cattle and Calves

	Feedlot capacity (number head)				**Region**					
	1–499		**500–999**		**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	39.3	(6.4)	41.6	(5.1)	42.8	(5.2)	37.7	(7.9)	39.9	(4.9)
Dairy breeds	9.6	(2.0)	7.4	(2.2)	0.0	(0.0)	16.1	(3.2)	9.0	(1.6)
Steers 700 lb or more										
Beef breeds or crossbreeds	13.9	(4.3)	20.6	(4.5)	18.3	(6.7)	13.5	(3.0)	15.6	(3.4)
Dairy breeds	2.7	(0.9)	1.3	(0.8)	0.1	(0.1)	4.0	(1.3)	2.3	(0.7)
Heifers less than 700 lb										
Beef breeds or crossbreeds	28.3	(4.9)	21.4	(4.5)	33.1	(4.9)	21.5	(5.4)	26.6	(3.8)
Dairy breeds	0.5	(0.2)	0.4	(0.3)	0.0	(0.0)	0.8	(0.3)	0.5	(0.2)
Heifers 700 lb or more										
Beef breeds or crossbreeds	4.0	(1.1)	5.9	(1.9)	3.2	(1.5)	5.4	(1.3)	4.5	(1.0)
Dairy breeds	0.1	(0.1)	0.1	(0.0)	0.0	(0.0)	0.2	(0.1)	0.1	(0.1)
Cows										
Beef breeds or crossbreeds	1.1	(0.9)	1.1	(0.7)	2.2	(1.6)	0.3	(0.1)	1.1	(0.7)
Dairy breeds	0.4	(0.4)	0.0	(0.0)	0.0	(0.0)	0.5	(0.5)	0.3	(0.3)
Bulls										
Beef breeds or crossbreeds	0.1	(0.1)	0.2	(0.2)	0.4	(0.3)	0.0	(0.0)	0.2	(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	

About 8 of 10 feedlots (81.3 percent) placed steers or heifers less than 700 lb. About 3 of 10 feedlots (28.3 percent) placed steers or heifers 700 lb or more. Feedlots in the Other region were more likely to place dairy breed steers or heifers compared with feedlots in the Central region.

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**					
	1–499		**500–999**		**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	67.0	(4.4)	67.6	(5.6)	71.4	(10.7)	65.1	(3.9)	67.0	(4.2)
Dairy breeds	19.9	(2.6)	11.2	(2.5)	0.0	(0.0)	28.0	(3.5)	19.5	(2.5)
Any breed	81.6	(4.0)	74.3	(5.4)	71.4	(10.7)	85.5	(2.9)	81.3	(3.8)
Steers and/or heifers 700 lb or more										
Beef breeds or crossbreeds	21.2	(4.1)	38.7	(6.1)	22.5	(10.6)	21.7	(3.3)	22.0	(4.0)
Dairy breeds	7.5	(1.7)	5.3	(2.2)	1.9	(1.7)	9.8	(2.2)	7.4	(1.6)
Any breed	27.8	(4.3)	39.9	(6.1)	24.2	(10.7)	30.1	(3.7)	28.3	(4.1)

The majority of beef cattle placed (63.2 percent) were steers, and nearly all dairy cattle placed (93.0 percent) were steers.

A.1.f. Percentage of beef cattle and percentage of dairy cattle, by cattle type, feedlot capacity, and region:

	Percent Cattle and Calves									
	Feedlot capacity (number head)				Region					
	1–499		500–999		Central		Other		All feedlots	
Cattle type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Beef										
Steers	61.3	(5.9)	68.5	(4.9)	61.2	(5.1)	65.3	(7.2)	63.2	(4.5)
Heifers	37.2	(5.8)	30.1	(4.8)	36.3	(5.1)	34.3	(7.2)	35.3	(4.4)
Cows	1.3	(1.1)	1.2	(0.7)	2.2	(1.6)	0.4	(0.2)	1.3	(0.8)
Bulls	0.2	(0.2)	0.2	(0.2)	0.4	(0.3)	0.0	(0.0)	0.2	(0.1)
Total	100.0		100.0		100.0		100.0		100.0	
Dairy										
Steers	92.6	(3.3)	95.1	(3.2)	92.5	(2.6)	93.0	(2.7)	93.0	(2.7)
Heifers	4.6	(1.7)	4.9	(3.2)	7.5	(2.6)	4.6	(1.5)	4.6	(1.5)
Cows	2.9	(2.8)	0.0	(0.0)	0.0	(0.0)	2.3	(2.3)	2.3	(2.3)
Bulls	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. Placements not intended for slaughter

In some cases, cattle are placed in feedlots for purposes other than slaughter, such as backgrounding animals that will be returned to grazing prior to placement for finishing in another feedlot. Cattle—usually heifers—can also be placed in feedlots as part of a development program for replacing breeding animals. Only 17.5 percent of feedlots placed any cattle not intended for slaughter.

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

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1–499		500–999		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	12.1	(2.5)	8.9	(3.9)	7.6	(3.8)	13.7	(2.9)	12.0	(2.4)
Dairy animals to be used for breeding stock	2.8	(1.2)	0.2	(0.2)	0.0	(0.0)	3.7	(1.6)	2.7	(1.2)
Other cattle and calves	4.1	(1.3)	5.3	(3.1)	1.9	(0.8)	5.0	(1.8)	4.2	(1.3)
Any nonslaughter	17.7	(2.8)	13.3	(4.5)	8.7	(3.9)	21.0	(3.3)	17.5	(2.7)

Overall, only 8.2 percent of cattle were placed for reasons other than slaughter. Approximately half of these cattle (4.1 percent) were beef animals to be used for breeding stock.

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					
	1–499		500–999		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	5.0	(1.7)	1.6	(0.8)	2.6	(1.3)	5.3	(2.0)	4.1	(1.3)
Dairy animals to be used for breeding stock	1.6	(0.9)	0.1	(0.1)	0.0	(0.0)	2.1	(1.2)	1.3	(0.7)
Other cattle and calves	2.9	(1.4)	2.6	(1.7)	2.7	(1.9)	2.8	(1.3)	2.8	(1.1)
All nonslaughter	9.5	(2.5)	4.3	(1.9)	5.3	(2.4)	10.2	(2.8)	8.2	(1.9)

A.2.c. Of cattle and calves 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					
	1–499		500–999		Central		Other		All feedlots	
Cattle type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Beef animals to be used for breeding stock	52.8	(12.5)	36.7	(18.6)	49.0	(21.0)	51.3	(13.1)	50.7	(11.2)
Dairy animals to be used for breeding stock	17.2	(8.7)	2.8	(2.9)	0.0	(0.0)	21.0	(10.1)	15.3	(7.7)
Other cattle and calves	30.0	(11.6)	60.4	(19.2)	51.0	(21.0)	27.8	(11.1)	34.0	(10.6)
Total	100.0		100.0		100.0		100.0		100.0	

B. Source of Cattle

1. Description of origin and source

The majority of feedlots (56.6 percent) placed cattle that were either born on the feedlot or on another operation operated by the feedlot. Approximately one-fourth of feedlots sourced cattle from auction markets (26.7 percent) and/or by direct sale (28.8 percent). Only 1.5 percent of feedlots custom fed cattle for another owner.

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

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1–499		**500–999**		**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	1.2	(0.5)	8.6	(3.6)	1.6	(1.0)	1.4	(0.6)	1.5	(0.5)
Purchased by feedlot via auction	25.0	(3.2)	62.3	(5.9)	20.1	(5.2)	29.5	(3.7)	26.7	(3.1)
Purchased by feedlot via direct sale (cash or video, private treaty)	28.2	(4.3)	40.3	(5.9)	20.7	(10.8)	32.2	(3.8)	28.8	(4.1)
Born on feedlot or another operation operated solely by feedlot	57.1	(4.5)	46.0	(5.5)	67.4	(11.2)	52.0	(4.1)	56.6	(4.3)
Obtained from other sources	0.5	(0.3)	0.4	(0.3)	0.0	(—)	0.7	(0.3)	0.5	(0.2)

*Producer-retained ownership or investor owned.

Nearly half of cattle placed in feedlots (42.8 percent) were purchased from auction markets. While the majority of these feedlots (56.6 percent; table B.1.a.) placed cattle born on the feedlot or another operation operated solely by the feedlot, only 29.6 percent of cattle placed were from internal sources.

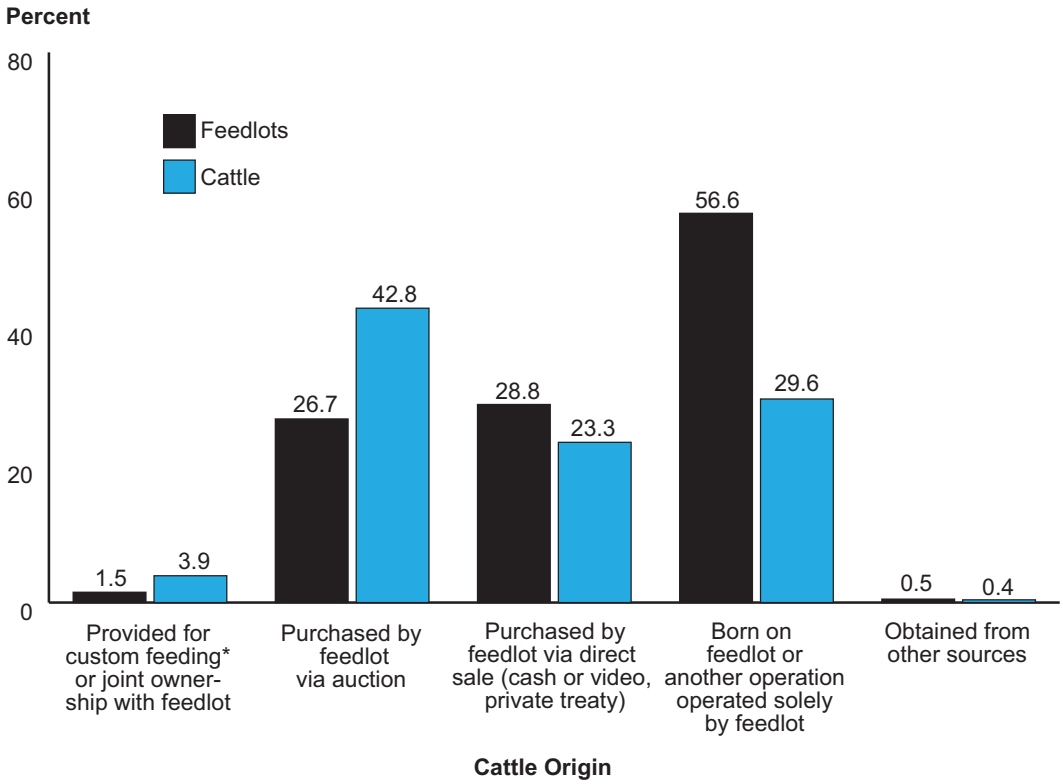
B.1.b. Percentage of cattle and calves by origin of cattle, feedlot capacity, and region:

Percent Cattle and Calves

	Feedlot capacity (number head)				Region					
	1–499		500–999		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	2.6	(1.8)	7.8	(3.0)	5.1	(3.1)	3.1	(1.4)	3.9	(1.5)
Purchased by feedlot via auction	41.4	(7.3)	46.8	(4.7)	33.3	(5.3)	50.0	(7.7)	42.8	(5.4)
Purchased by feedlot via direct sale (cash or video, private treaty)	23.1	(5.9)	23.9	(3.1)	20.0	(8.8)	25.8	(4.7)	23.3	(4.4)
Born on feedlot or another operation operated solely by feedlot	32.5	(6.1)	21.4	(3.9)	41.7	(9.2)	29.6	(3.9)	29.6	(4.5)
Obtained from other sources	0.5	(0.3)	0.1	(0.1)	0.0	(—)	0.6	(0.4)	0.4	(0.2)
Total	100.0		100.0		100.0		100.0		100.0	

*Producer-retained ownership or investor owned.

Percentage of feedlots and percentage of cattle and calves, by origin of cattle



*Producer-retained ownership or investor owned.

2. Source of arriving shipments*

Feedlots most commonly sourced animals from other beef operations and auction markets (45.1 and 38.0 percent of shipments, respectively). The use of auction markets as a source for cattle was most common in feedlots in the Central region (86.1 percent) and for feedlots with a capacity of 500 to 999 head (62.5 percent).

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

	Percent Shipments									
	Feedlot capacity (number head)				Region					
	1–499		500–999		Central		Other		All feedlots	
Shipment source	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Auction	36.1	(10.9)	62.5	(8.7)	86.1	(7.4)	30.4	(10.9)	38.0	(10.1)
Another beef operation (e.g., cow-calf or stocker operation)	46.9	(10.5)	21.9	(6.8)	12.9	(7.1)	50.2	(10.7)	45.1	(9.8)
Another feedlot	2.9	(1.9)	6.3	(5.9)	0.0	(—)	3.6	(2.1)	3.1	(1.8)
Other	14.1	(4.8)	9.3	(4.2)	1.0	(0.8)	15.8	(5.2)	13.8	(4.4)
Total	100.0		100.0		100.0		100.0		100.0	

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

3. Average distance shipments traveled to feedlot

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

	Average Distance per Shipment (Miles)									
	Feedlot capacity (number head)				**Region**					
	1–499		**500–999**		**Central**		**Other**		**All feedlots**	
Shipment source	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
Auction	134	(53)	223	(53)	425	(204)	81	(13)	142	(48)
Another beef operation (e.g., cow-calf or stocker operation)	51	(13)	233	(41)	105	(29)	45	(7)	61	(12)
Another feedlot	68	(60)	[1]		[1]		88	(66)	88	(66)
Other	36	(10)	170	(77)	20	(22)	45	(12)	43	(11)
All[2]	92	(28)	237	(37)	238	(124)	67	(9)	101	(26)

[1]Too few observations to report.
[2]Weighted by number of shipments by source.

4. Shipments crossing State lines

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					
	1–499		500–999		Central		Other		All feedlots	
Source	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Auction	54.5	(15.9)	49.9	(8.5)	40.2	(8.2)	60.0	(17.7)	54.0	(14.2)
Another beef feedlot (e.g., cow-calf or stocker feedlot)	6.9	(3.6)	30.1	(11.4)	31.3	(17.5)	6.8	(3.5)	7.7	(3.6)
Another feedlot	0.6	(0.7)	*		*		0.8	(0.9)	0.8	(0.9)
Other	11.4	(9.6)	26.7	(15.5)	45.5	(35.0)	11.8	(9.2)	12.2	(9.1)
All	24.6	(10.4)	40.2	(7.4)	39.1	(7.5)	23.5	(11.1)	25.7	(9.6)

*Too few observations to report.

C. Arrival Management

1. Timing of initial processing

Some feedlots apply management procedures to newly arrived cattle that include vaccination, deworming, or the application of a growth-promoting implant. Only half of feedlots (47.8 percent) processed cattle within 72 hours of arrival. When arrival processing was done, it was commonly done within the first 24 hours. Overall, 40.0 percent of cattle did not process cattle as a group.

C.1.a. Percentage of feedlots that initially processed 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**					
	1–499		**500–999**		**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	34.4	(4.0)	56.8	(6.4)	30.0	(7.4)	38.0	(4.4)	35.5	(3.8)
25–72	11.4	(2.4)	29.7	(6.1)	15.7	(4.7)	10.8	(2.5)	12.3	(2.3)
More than 72	19.6	(4.4)	23.0	(5.2)	22.2	(11.0)	18.7	(3.5)	19.8	(4.2)
Ever processed	58.7	(4.6)	87.5	(4.2)	65.0	(11.3)	57.9	(4.1)	60.0	(4.4)

Though 40.0 percent of feedlots did not do any initial processing of cattle (table C.1.a.), only 16.6 percent of cattle placed in feedlots were not processed.

C.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**					
	1–499		**500–999**		**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	26.7	(5.0)	52.9	(6.5)	30.6	(7.4)	36.1	(5.8)	33.7	(4.6)
25–72	26.2	(8.8)	18.0	(4.3)	24.4	(7.7)	23.8	(10.3)	24.0	(6.7)
More than 72	27.5	(8.5)	20.8	(4.7)	30.3	(12.8)	22.1	(4.7)	25.7	(6.5)
Not processed	19.6	(5.1)	8.3	(3.3)	14.7	(6.5)	18.0	(4.2)	16.6	(3.7)
Total	100.0		100.0		100.0		100.0		100.0	

2. Cattle processing procedures

Of the 60.0 percent of feedlots that initially processed cattle and calves as a group (table C.1.a.), 57.7 percent processed some cattle a second time.

C.2.a. For feedlots that initially processed any cattle and calves as a group, percentage of feedlots that used a second processing, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1–499		500–999		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
57.0	(5.6)	67.4	(6.1)	71.9	(10.2)	51.0	(5.4)	57.7	(5.2)

The two most common initial processing management practices were treatment for parasites (84.6 percent of feedlots) and vaccination for respiratory disease (76.7 percent). Overall, 42.0 percent of feedlots gave some cattle an injectable antibiotic during initial processing.

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

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1–499		**500–999**		**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	75.6	(4.6)	92.3	(3.4)	75.4	(9.3)	77.3	(4.5)	76.7	(4.3)
Vaccinated against clostridial diseases	65.9	(4.8)	72.7	(5.8)	73.6	(8.1)	62.7	(5.2)	66.4	(4.5)
Given an injectable antibiotic	41.6	(6.1)	48.1	(6.9)	50.7	(12.9)	37.7	(5.1)	42.0	(5.7)
Implanted	41.1	(4.4)	56.6	(6.6)	43.9	(10.9)	41.2	(4.9)	42.1	(4.8)
Treated for parasites	84.4	(3.5)	88.3	(3.9)	89.9	(5.7)	82.1	(4.0)	84.6	(3.3)
Second processing										
Vaccinated against respiratory diseases	62.6	(7.3)	72.2	(7.4)	57.3	(13.1)	66.6	(7.2)	63.4	(6.6)
Vaccinated against clostridial diseases	44.5	(7.9)	44.1	(8.6)	29.0	(12.4)	52.9	(8.0)	44.5	(7.2)
Given an injectable antibiotic	46.9	(9.7)	26.0	(7.3)	48.9	(17.3)	42.2	(8.0)	45.1	(9.0)
Implanted	31.8	(7.0)	62.3	(8.2)	24.2	(10.7)	40.8	(7.5)	34.1	(6.7)
Treated for parasites	67.2	(6.6)	54.5	(8.3)	79.2	(6.8)	59.1	(7.7)	66.0	(6.0)

More than 90 percent of the cattle initially processed (92.6 percent) were vaccinated for respiratory disease and 83.8 percent were treated for parasites. Approximately one-third of the cattle initially processed (31.0 percent) received an injectable antibiotic.

C.2.c. For cattle 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					
	1–499		500–999		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	90.6	(2.7)	97.4	(1.2)	96.5	(2.2)	89.3	(2.9)	92.6	(1.8)
Vaccinated against clostridial diseases	72.2	(10.3)	76.3	(5.8)	82.0	(6.4)	66.2	(11.7)	73.4	(7.6)
Given an injectable antibiotic	30.9	(10.3)	31.2	(5.9)	22.0	(7.2)	38.5	(11.3)	31.0	(7.5)
Implanted	52.4	(9.2)	65.9	(7.3)	71.1	(7.1)	44.4	(9.1)	56.2	(7.2)
Treated for parasites	79.9	(10.6)	93.5	(2.9)	97.3	(1.8)	72.8	(12.4)	83.8	(7.8)
Second processing										
Vaccinated against respiratory diseases	61.7	(8.2)	67.8	(7.2)	68.3	(9.4)	59.2	(5.9)	63.9	(5.9)
Vaccinated against clostridial diseases	32.1	(6.4)	38.6	(9.6)	26.9	(8.5)	43.0	(4.9)	34.5	(5.3)
Given an injectable antibiotic	17.5	(6.4)	6.9	(2.8)	13.1	(7.6)	14.4	(2.7)	13.7	(4.3)
Implanted	33.6	(10.0)	57.8	(9.1)	47.5	(12.4)	35.4	(8.8)	41.8	(8.1)
Treated for parasites	49.1	(12.4)	47.9	(9.7)	54.6	(12.3)	42.1	(10.5)	48.6	(8.6)

3. Modification of antibiotic and vaccination procedures

Overall, a relatively small percentage of feedlots modified antibiotic or vaccination procedures based on the criteria listed in the following table (19.6 and 19.7 percent of feedlots, respectively). These percentages could be a reflection of the relatively small number of shipments these feedlots received or may reflect the sourcing of cattle from the same origins over time, resulting in little variation in the listed criteria.

Overall, fewer than one of five feedlots modified their antibiotic or vaccination procedures for new arrivals based on any of the listed criteria. However, a higher percentage of feedlots with a capacity of 500 to 999 head modified their antibiotic or vaccination procedures compared with feedlots with a capacity of 1 to 499 head.

C.3. For feedlots that processed new arrivals as a group, percentage of feedlots 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					
	1–499		500–999		Central		Other		All feedlots	
Criteria*	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Antibiotic										
Arrival weight	11.6	(2.2)	15.5	(4.5)	9.8	(3.6)	12.5	(2.5)	11.8	(2.1)
Distance transported or percent shrinkage	1.3	(0.6)	7.6	(2.6)	3.1	(1.8)	0.9	(0.3)	1.5	(0.5)
Source of cattle	4.9	(1.2)	29.7	(5.1)	7.6	(2.3)	5.3	(1.3)	5.9	(1.1)
Preconditioning	8.9	(2.0)	29.0	(5.5)	10.5	(4.2)	9.4	(2.2)	9.7	(2.0)
Dairy cattle breed (compared with beef breeds)	1.0	(0.6)	2.5	(1.3)	0.0	(0.0)	1.5	(0.8)	1.1	(0.6)
History of previous antibiotic treatment	6.3	(1.7)	24.0	(5.1)	4.1	(1.3)	8.2	(2.2)	7.1	(1.6)
Any of the above	18.5	(2.7)	45.4	(5.9)	16.1	(5.2)	20.9	(3.0)	19.6	(2.6)
Vaccination										
Arrival weight	12.9	(2.5)	23.5	(5.3)	13.2	(5.1)	13.5	(2.7)	13.4	(2.4)
Distance transported or percent shrinkage	1.8	(0.7)	12.4	(3.1)	3.5	(1.9)	1.7	(0.6)	2.2	(0.7)
Source of cattle	4.8	(1.2)	26.7	(5.0)	5.7	(2.1)	5.7	(1.4)	5.7	(1.2)
Preconditioning	8.0	(2.0)	23.0	(5.0)	8.6	(4.2)	8.6	(2.2)	8.6	(1.9)
Dairy cattle breed (compared with beef breeds)	1.0	(0.6)	1.8	(1.2)	0.0	(0.0)	1.4	(0.8)	1.0	(0.6)
History of previous antibiotic treatment	5.4	(1.6)	26.3	(5.1)	4.1	(1.3)	7.1	(1.9)	6.3	(1.4)
Any of the above	18.7	(2.8)	43.4	(5.6)	18.5	(5.8)	20.2	(3.0)	19.7	(2.7)

*Feedlots that did not modify procedures include those for which the factor did not apply. For example, feedlots that did not place dairy breeds would be classified as not modifying processing procedures.

4. Animal identification

Only 37.5 percent of feedlots placed any cattle that had an individual-animal identification (ID) at arrival.

C.4.a. Percentage of feedlots that had any cattle or calves that arrived with an individual-animal ID, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1–499		500–999		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
36.0	(3.8)	69.4	(6.1)	29.0	(6.8)	41.1	(4.2)	37.5	(3.6)

Overall, 40.3 percent of cattle placed arrived with an individual-animal ID.

C.4.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					
1–499		500–999		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
36.0	(5.6)	52.5	(6.1)	39.6	(7.0)	40.8	(5.9)	40.3	(4.5)

Of the 37.5 percent of feedlots that received cattle with individual-animal ID (table C.4.a.), 10.6 percent removed the ID from at least some of the animals. Nearly one of five of these feedlots (18.3 percent) added new individual-animal IDs to at least some animals.

C.4.c. Of feedlots that received cattle and calves with an individual-animal ID at arrival, percentage of feedlots 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					
	1–499		500–999		Central		Other		All feedlots	
	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Removed individual-animal ID	11.0	(3.5)	6.5	(3.1)	10.5	(6.3)	10.6	(3.7)	10.6	(3.2)
Added new individual-animal ID (excluding tagging of sick animals)	17.1	(4.6)	31.1	(6.9)	17.2	(7.1)	18.6	(5.2)	18.3	(4.3)

Of the 40.3 percent of cattle that arrived at feedlots with individual-animal ID (table C.4.b.), 8.1 percent had the ID removed; 23.1 percent had a new individual ID applied, either in addition to the existing ID or to replace the existing ID.

C.4.d. Of cattle and calves that had an individual-animal ID at arrival, percentage of cattle and calves that had existing ID removed and percentage that received a new individual-animal ID, by feedlot capacity and by region:

Percent Cattle and Calves

	Feedlot capacity (number head)				Region					
	1–499		500–999		Central		Other		All feedlots	
	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Individual-animal ID removed	8.2	(3.0)	7.9	(5.5)	7.6	(5.1)	8.5	(2.8)	8.1	(2.7)
New individual-animal ID applied (excluding tagging of sick animals)	19.2	(5.5)	30.6	(7.3)	25.7	(9.0)	21.1	(4.2)	23.1	(4.4)

Overall, 36.4 percent of feedlots tagged some cattle with an individual-animal ID (excluding the tagging of individual sick animals) and 17.0 percent of feedlots used some group/owner ID.

C.4.e. Percentage of feedlots that tagged cattle and calves with an individual-animal ID or group/owner ID, by feedlot capacity and by region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1–499		500–999		Central		Other		All feedlots	
	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Individual-animal ID	36.3	(4.5)	37.7	(6.0)	45.5	(11.1)	32.6	(4.0)	36.4	(4.3)
Group/owner ID	16.3	(2.7)	33.8	(6.0)	21.2	(5.2)	15.3	(3.0)	17.0	(2.6)
Either	43.0	(4.6)	54.2	(6.1)	55.5	(11.5)	38.5	(4.1)	43.5	(4.4)

C.4.f. Percentage of cattle and calves tagged at the feedlot with an individual-animal ID and percentage tagged with group/owner ID, by feedlot capacity and by region:

Percent Cattle and Calves

	Feedlot capacity (number head)				Region					
	1–499		500–999		Central		Other		All feedlots	
	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Individual-animal ID	27.6	(6.8)	44.6	(6.9)	32.1	(8.3)	32.0	(7.5)	32.0	(5.6)
Group/owner ID	24.5	(7.2)	33.5	(6.8)	29.0	(8.5)	25.2	(7.5)	26.8	(5.6)

Only 10.2 percent of feedlots applied a hide brand to any cattle. Hide-branding was more common in the Central region than in the Other region.

C.4.g. Percentage of feedlots that hide-branded any cattle after arrival, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1–499		500–999		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
9.9	(3.4)	17.3	(4.7)	33.4	(10.8)	0.6	(0.3)	10.2	(3.3)

D. Nutrition Management

1. Feed additives

Less than 30 percent of feedlots used any of the listed nutritional management practices. About 3 of 10 feedlots (28.7 percent) included an ionophore in cattle diets. Only one of four feedlots (25.6 percent) used any distiller grains in cattle rations.

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

	Percent Feedlots									
	Feedlot capacity (number head)				Region					
	1–499		500–999		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®	26.7	(3.1)	70.9	(6.0)	30.1	(4.9)	28.1	(3.7)	28.7	(3.0)
Gave a coccidiostat other than an ionophore, such as Corid® or Deccox®	16.1	(3.3)	36.3	(6.1)	22.7	(8.2)	14.6	(2.9)	17.1	(3.2)
Provided water that was treated with chlorine	8.0	(2.2)	6.4	(2.2)	12.8	(5.9)	6.0	(1.7)	7.9	(2.1)
Switched from a high-grain ration to a primarily hay ration at finish	7.3	(2.1)	7.6	(3.0)	10.5	(5.4)	6.0	(1.9)	7.3	(2.1)
Fed distiller grains as part of the cattle ration	23.0	(3.1)	80.6	(4.3)	35.4	(6.3)	21.4	(3.3)	25.6	(2.9)
Fasted prior to transportation to slaughter	11.0	(2.4)	19.1	(4.7)	10.7	(4.4)	11.6	(2.8)	11.3	(2.3)
Fed seaweed extract (e.g., Tasco-14®) prior to slaughter	0.0	(—)	0.7	(0.7)	0.0	(—)	0.0	(0.0)	0.0	(0.0)
Fed a beta-agonist, OptaFlexx® or ractopamine	3.5	(1.5)	11.0	(3.6)	4.5	(3.2)	3.6	(1.5)	3.9	(1.4)
Fed beta-agonist Zilmax®	1.5	(0.9)	2.7	(1.3)	0.3	(0.3)	2.1	(1.2)	1.6	(0.8)
Fed probiotics in feed (e.g., *Lactobacillius acidophilus*, Bovamine®)	8.1	(2.2)	12.2	(3.7)	14.5	(6.0)	5.7	(1.7)	8.3	(2.1)

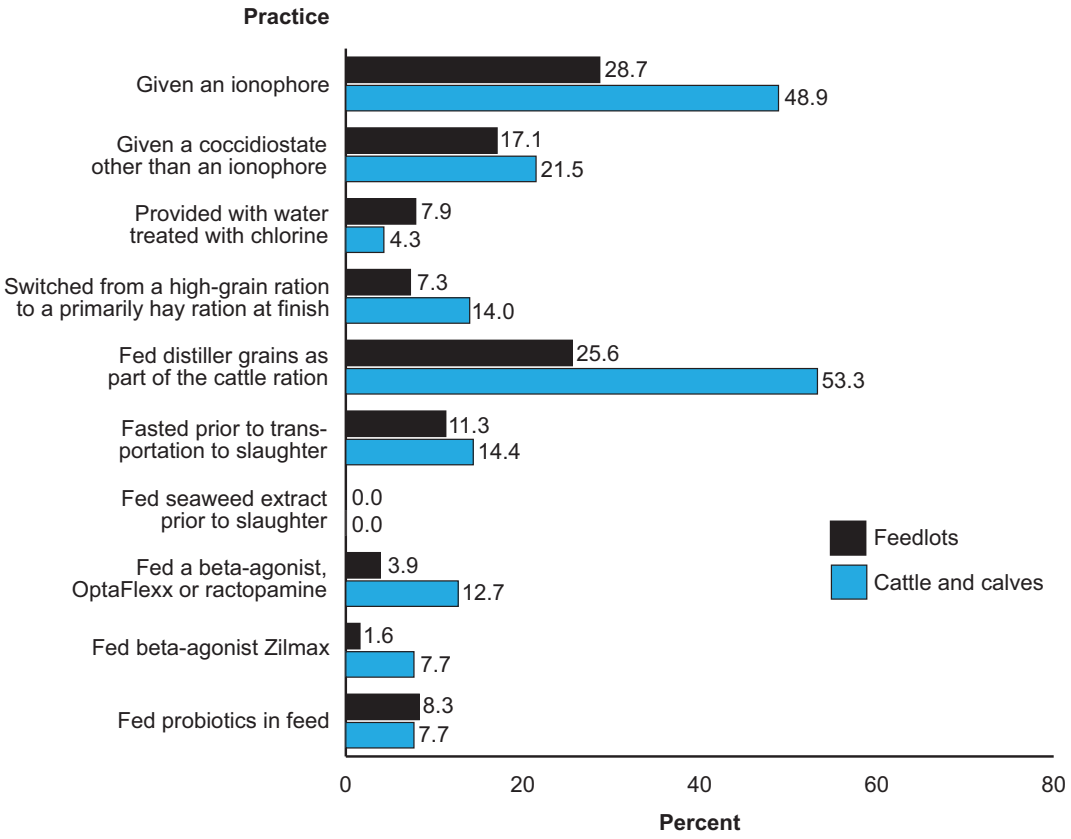
Despite the low percentage of feedlots that used the listed nutrition management practices, 53.3 percent of cattle placed received some distiller grains and 48.9 percent were given an ionophore.

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

Percent Cattle and Calves

	Feedlot capacity (number head)				**Region**					
	1–499		**500–999**		**Central**		**Other**		**All feedlots**	
Nutrition management practice	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Given an ionophore, such as Rumensin or Cattlyst	39.8	(5.5)	75.0	(5.9)	61.4	(7.0)	39.5	(5.8)	48.9	(4.9)
Given a coccidiostat other than an ionophore, such as Corid or Deccox, by the feedlot	16.9	(4.1)	34.6	(6.9)	24.1	(6.3)	19.6	(4.6)	21.5	(3.8)
Provided with water treated with chlorine	3.9	(1.6)	5.3	(2.5)	4.7	(2.7)	4.0	(1.3)	4.3	(1.4)
Switched from a high-grain ration to a primarily hay ration at finish	15.7	(8.3)	9.2	(4.3)	10.4	(5.0)	16.6	(10.1)	14.0	(6.4)
Fed distiller grains as part of the ration	45.0	(8.0)	77.0	(6.0)	68.9	(8.0)	41.8	(7.4)	53.3	(6.0)
Fasted prior to transportation to slaughter	14.8	(4.7)	13.3	(3.9)	15.6	(7.0)	13.6	(3.5)	14.4	(3.6)
Fed seaweed extract (e.g., Tasco-14) prior to slaughter	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Fed a beta-agonist, OptaFlexx or ractopamine	12.3	(8.2)	13.9	(6.1)	6.3	(3.7)	17.3	(10.0)	12.7	(6.3)
Fed beta-agonist Zilmax	9.9	(8.4)	1.1	(0.9)	1.1	(1.1)	12.4	(10.4)	7.7	(6.3)
Fed probiotics in feed (e.g., *Lactobacillius acidophilus*, Bovamine)	8.3	(2.8)	6.1	(2.4)	9.1	(4.3)	6.7	(1.9)	7.7	(2.1)

Percentage of feedlots and percentage of cattle and calves, by nutrition management practice used



2. Use of a nutritionist

Approximately one-third of feedlots (30.6 percent) used a nutritionist who was usually provided by a feed company (table D.2.b).

D.2.a. Percentage of feedlots that used a nutritionist, by feedlot capacity and by region:

Percent Feedlots

Feedlot capacity (number head)				Region					
1–499		500–999		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
28.3	(3.0)	82.4	(4.6)	41.2	(6.9)	26.5	(3.0)	30.6	(2.9)

D.2.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					
	1–499		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	8.8	(4.2)	7.9	(3.3)	7.5	(6.7)	9.4	(4.4)	8.7	(3.7)
Feed company	79.6	(5.0)	69.1	(6.2)	76.6	(8.3)	79.5	(5.2)	78.4	(4.5)
Other, who made regular or routine visits	4.1	(1.4)	18.5	(5.0)	6.9	(3.1)	5.0	(1.4)	5.7	(1.4)
Other called as needed	29.3	(5.5)	29.5	(6.2)	31.6	(9.8)	27.9	(5.2)	29.3	(4.9)

E. Health Management

1. Frequency of pen-riding or walking

About half of feedlots with a capacity of 1 to 499 head checked cattle by pen-riding or walking twice a day, while only about one-third of feedlots with a capacity of 500 to 999 head checked cattle twice a day. Regardless of feedlot capacity, a higher percentage of feedlots checked new arrivals more than twice a day than checked cattle that had been on the feedlot more than 15 days. Less than 16 percent of all feedlots observed cattle pens infrequently (less often than once a day) or had no standard procedure for checking cattle.

E.1. Percentage of feedlots by frequency pen-riding or walking procedures were conducted, 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: 1–499 head											
New arrivals (at feedlot less than 15 days)	18.2	(3.0)	46.1	(4.3)	20.8	(4.0)	0.1	(0.1)	14.8	(2.7)	100.0
15–29	7.9	(1.9)	51.7	(4.5)	24.5	(4.2)	0.2	(0.1)	15.7	(2.7)	100.0
30 or more	6.5	(1.7)	48.7	(4.4)	29.6	(4.2)	0.8	(0.4)	14.4	(2.6)	100.0
Feedlot capacity: 500–999 head											
New arrivals (at feedlot less than 15 days)	26.3	(5.4)	37.6	(6.0)	29.6	(6.0)	0.4	(0.3)	6.1	(3.5)	100.0
15–29	12.9	(4.0)	35.1	(5.3)	42.1	(6.3)	3.4	(2.6)	6.5	(3.5)	100.0
30 or more	8.0	(3.3)	31.1	(5.3)	52.8	(6.2)	3.6	(2.6)	4.5	(2.7)	100.0
All feedlots											
New arrivals (at feedlot less than 15 days)	18.6	(2.9)	45.7	(4.1)	21.2	(3.8)	0.1	(0.1)	14.4	(2.6)	100.0
15–29	8.1	(1.8)	50.9	(4.3)	25.3	(4.1)	0.4	(0.2)	15.3	(2.6)	100.0
30 or more	6.5	(1.6)	47.9	(4.2)	30.7	(4.0)	0.9	(0.4)	14.0	(2.5)	100.0

2. Use of a veterinarian

Overall, 58.8 percent of feedlots used the services of a veterinarian, usually a private veterinarian called as needed (55.0 percent of feedlots).

E.2. Percentage of feedlots that used a veterinarian, by type of veterinarian used, feedlot capacity, and region:

Percent Feedlots

	Feedlot capacity (number head)				Region					
	1–499		500–999		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	1.5	(0.7)	0.6	(0.6)	0.5	(0.3)	1.8	(1.0)	1.4	(0.7)
Private veterinarian who made regular or routine visits	3.6	(1.5)	13.9	(4.4)	7.6	(4.6)	2.6	(1.0)	4.0	(1.5)
Private veterinarian called as needed	54.2	(4.1)	73.8	(5.1)	58.2	(10.3)	53.8	(3.7)	55.0	(4.0)
Any veterinarian	58.0	(4.1)	77.0	(5.0)	62.0	(10.0)	57.5	(3.8)	58.8	(3.9)

3. Use of antibiotics*

Nearly three of four feedlots (74.3 percent) did not include any antibiotics in feed as a health or production-management tool. Virtually no feedlots (1.5 percent) used antibiotics in water. The relatively low use of antibiotics in feed or water may reflect a limited availability of facilities to mix the ingredients accurately and consistently.

E.3.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					
	1–499		500–999		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	75.6	(3.4)	46.1	(6.5)	76.5	(6.8)	73.5	(3.6)	74.3	(3.3)
1–49	2.3	(1.0)	7.4	(2.3)	0.0	(0.0)	3.5	(1.3)	2.5	(1.0)
50–99	1.0	(0.5)	6.2	(3.2)	1.6	(1.1)	1.1	(0.5)	1.3	(0.5)
100	21.0	(3.2)	40.4	(6.4)	21.9	(6.7)	21.8	(3.5)	21.9	(3.1)
Total	100.0		100.0		100.0		100.0		100.0	
Water										
0	98.7	(0.7)	93.7	(3.1)	98.2	(1.5)	98.6	(0.8)	98.5	(0.7)
1–49	0.1	(0.1)	6.3	(3.1)	0.4	(0.4)	0.4	(0.2)	0.4	(0.2)
50–99	0.9	(0.7)	0.0	(—)	1.4	(1.4)	0.7	(0.7)	0.9	(0.7)
100	0.2	(0.2)	0.0	(—)	0.0	(0.0)	0.3	(0.2)	0.2	(0.2)
Total	100.0		100.0		100.0		100.0		100.0	

*In some cases, ionophores are included in discussions of antibiotic use. For this section, ionophores were excluded.

Overall, 38.2 percent of cattle received an antibiotic in feed as a health or production-management tool at some point during their stay in the feedlot. Only 7.6 percent of cattle received an antibiotic in water.

E.3.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**					
	1–499		**500–999**		**Central**		**Other**		**All feedlots**	
Antibiotics in…	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Feed	34.8	(8.3)	48.4	(7.5)	34.8	(9.0)	40.7	(8.6)	38.2	(6.4)
Water	9.1	(5.6)	2.7	(1.8)	4.8	(3.8)	9.8	(6.9)	7.6	(4.4)

E.3.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					
	1–499		500–999		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	30.2	(6.9)	66.6	(7.7)	51.7	(19.8)	29.8	(6.3)	33.8	(6.4)
8–30	48.3	(8.4)	27.8	(7.3)	35.7	(19.6)	48.6	(8.2)	46.2	(7.6)
More than 30	21.5	(7.0)	5.7	(3.2)	12.6	(11.7)	21.6	(7.3)	20.0	(6.4)
Total	100.0		100.0		100.0		100.0		100.0	
Water										
1–7	53.6	(27.8)	76.7	(18.3)	100.0	(—)	37.2	(23.5)	57.2	(24.3)
8–30	46.4	(27.8)	23.3	(18.3)	0.0	(0.0)	62.8	(23.5)	42.8	(24.3)
Total	100.0		100.0		100.0		100.0		100.0	

F. Outcome and Destination of Cattle

1. Outcome

Overall, the vast majority of cattle placed in feedlots were marketed for slaughter. Only 1.2 percent of the animals placed died prior to being sent for slaughter.

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

Percent Cattle and Calves

	Feedlot capacity (number head)				Region					
	1–499		500–999		Central		Other		All feedlots	
Outcome	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Marketed for slaughter	95.6	(1.4)	95.4	(2.7)	95.2	(1.8)	95.9	(1.7)	95.6	(1.2)
Died	1.2	(0.2)	1.1	(0.3)	0.9	(0.2)	1.4	(0.2)	1.2	(0.2)
Returned to grazing	2.0	(1.1)	0.3	(0.2)	1.8	(1.1)	1.5	(1.2)	1.6	(0.9)
Shipped to another feedlot	0.0	(—)	2.2	(1.8)	0.2	(0.2)	0.8	(0.7)	0.5	(0.4)
Sent to market prior to reaching expected slaughter weight	1.0	(0.7)	0.9	(0.9)	1.8	(1.2)	0.4	(0.4)	1.0	(0.6)
Stolen	0.0	(—)	0.0	(0.0)	0.0	(—)	0.0	(—)	0.0	(0.0)
Lost for other reasons	0.1	(0.0)	0.0	(—)	0.1	(0.0)	0.1	(0.0)	0.1	(0.0)
Total	100.0		100.0		100.0		100.0		100.0	

2. Destination of shipments*

Two-thirds of shipments leaving the feedlot (67.3 percent) went directly to slaughter, and one-third (32.2 percent) went to a sale or auction.

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

Percent Shipments

	Feedlot capacity (number head)				Region					
	1–499		500–999		Central		Other		All feedlots	
Destination	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Direct to slaughter	65.1	(6.6)	93.3	(2.9)	51.7	(15.0)	71.8	(5.5)	67.3	(6.1)
Sales/auction	34.4	(6.6)	5.1	(2.1)	46.6	(15.4)	27.9	(5.5)	32.2	(6.1)
Another feedlot	0.4	(0.4)	1.1	(0.9)	1.7	(1.7)	0.2	(0.1)	0.5	(0.4)
Direct to another beef operation (e.g., cow-calf or stocker feedlot)	0.0	(—)	0.6	(0.4)	0.0	(—)	0.1	(0.0)	0.0	(0.0)
Total	100.0		100.0		100.0		100.0		100.0	

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

3. Average distance shipments traveled to destination

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

	Average Number Miles per Shipment									
	Feedlot capacity (number head)				Region					
	1–499		500–999		Central		Other		All feedlots	
Destination	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error
Direct to slaughter	81	(13)	170	(13)	109	(30)	78	(13)	87	(13)
Sales/auction	37	(3)	70	(19)	54	(7)	33	(3)	38	(3)
Another feedlot	*		*		*		*		*	
Direct to another beef operation (e.g., cow-calf or stocker feedlot)	*		*		*		*		*	
All	67	(9)	159	(13)	90	(20)	63	(9)	71	(9)

*Too few to report.

4. Shipments crossing State lines

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

Percent Shipments Crossing State Lines

	Feedlot capacity (number head)				Region					
	1–499		500–999		Central		Other		All feedlots	
Destination	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Direct to slaughter	32.3	(10.6)	33.1	(8.8)	32.5	(10.6)	32.4	(11.3)	32.4	(9.5)
Sales/auction	20.1	(7.5)	1.7	(1.8)	36.4	(11.4)	11.7	(6.0)	19.8	(7.4)
Another feedlot	*		*		*		*		*	
Direct to another beef operation (e.g., cow-calf or stocker feedlot)	*		*		*		*		*	
All	27.9	(7.6)	30.5	(8.1)	33.8	(7.8)	26.5	(8.8)	28.1	(7.1)

*Too few to report

G. Quality Assurance

1. Familiarity with the Beef Quality Assurance (BQA) program

The beef industry has been extensively interested in enhancing beef quality since the first National Beef Quality Audit identified areas in need of improvement. To address issues associated with inferior beef quality, the national BQA program was developed. Today the 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 production continuum, from birth to harvest.

Operators on approximately half of feedlots (51.6 percent) had some familiarity with the BQA program beyond having heard the name only. Operators on 29.0 percent of feedlots were not familiar with the BQA program.

G.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					
	1–499		500–999		Central		Other		All feedlots	
Level of familiarity	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Very familiar	17.1	(2.9)	41.9	(5.9)	24.1	(7.0)	15.9	(2.8)	18.1	(2.8)
Somewhat familiar	33.4	(3.3)	33.8	(5.4)	20.4	(5.3)	38.3	(3.7)	33.5	(3.2)
Heard of name only	19.6	(2.8)	15.7	(4.6)	12.2	(4.3)	22.1	(3.3)	19.4	(2.7)
Not familiar	29.9	(3.5)	8.6	(2.5)	43.3	(8.2)	23.7	(3.1)	29.0	(3.4)
Total	100.0		100.0		100.0		100.0		100.0	

G.1.b. Percentage of cattle and calves by level of feedlot operator's familiarity with either the State or the National Cattlemen's Beef Association BQA program, and by feedlot capacity and by region:

Percent Cattle and Calves

	Feedlot capacity (number head)				Region					
	1–499		500–999		Central		Other		All feedlots	
Level of familiarity	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Very familiar	23.3	(5.8)	38.0	(7.1)	32.4	(9.1)	23.2	(5.1)	27.1	(4.9)
Somewhat familiar	38.1	(8.4)	40.3	(7.3)	39.0	(11.1)	38.4	(7.6)	38.6	(6.5)
Heard of name only	18.9	(8.0)	12.4	(4.3)	10.2	(4.0)	22.4	(9.5)	17.2	(6.1)
Not familiar	19.7	(4.3)	9.3	(3.7)	18.3	(6.3)	16.0	(3.2)	17.0	(3.3)
Total	100.0		100.0		100.0		100.0		100.0	

G.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					
1–499		500–999		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
20.5	(3.5)	43.6	(6.5)	39.5	(9.5)	16.7	(3.2)	21.8	(3.3)

G.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					
1–499		500–999		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
1.2	(0.7)	2.7	(1.6)	1.1	(0.9)	1.3	(0.8)	1.2	(0.6)

2. Importance of BQA practices

Overall, 40.4 percent of feedlot operators rated implanting strategy as either very or somewhat important. This relatively low percentage might be attributed to, at least in part, some operators not familiar with the BQA program; only 23.7 percent of operators unfamiliar with the BQA probram rated implanting strategy as very or somewhat important (table G.2.e.).

G.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)	54.8	(3.8)	19.7	(2.8)	10.0	(2.0)	15.4	(3.2)	100.0
Route used for administration of injectable products (intramuscular, intravenous, subcutaneous)	52.5	(4.0)	18.8	(2.6)	12.7	(2.6)	16.0	(3.3)	100.0
Implanting strategy	28.1	(2.9)	12.3	(2.2)	35.9	(3.8)	23.7	(3.7)	100.0
Antibiotic selection to manage disease (e.g., type of FDA-approved antibiotic used or duration of action)	50.7	(4.0)	15.8	(2.6)	18.8	(3.0)	14.6	(2.5)	100.0
Residue avoidance	63.3	(3.8)	6.2	(1.5)	14.7	(2.6)	15.8	(2.8)	100.0

G.2.b. 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)	73.0	(5.4)	13.8	(4.7)	3.4	(1.2)	9.7	(2.9)	100.0
Route used for administration of injectable products (intramuscular, intravenous, subcutaneous)	69.4	(5.6)	13.4	(2.9)	7.9	(4.5)	9.3	(2.9)	100.0
Implanting strategy	59.8	(5.6)	13.5	(4.3)	14.2	(2.9)	12.5	(3.2)	100.0
Antibiotic selection to manage disease (e.g., type of FDA-approved antibiotic used or duration of action)	68.0	(5.8)	17.8	(5.6)	6.5	(1.9)	7.6	(1.7)	100.0
Residue avoidance	74.5	(5.1)	5.5	(1.5)	12.7	(4.7)	7.4	(1.8)	100.0

G.2.c. 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)	69.4	(4.4)	19.7	(4.1)	8.0	(2.1)	2.9	(1.5)	100.0
Route used for administration of injectable products (intramuscular, intravenous, subcutaneous)	66.5	(4.4)	21.2	(3.8)	9.3	(2.8)	3.0	(1.5)	100.0
Implanting strategy	42.4	(4.6)	15.9	(3.4)	31.6	(4.2)	10.1	(2.8)	100.0
Antibiotic selection to manage disease (e.g., type of FDA-approved antibiotic used or duration of action)	60.8	(4.8)	16.2	(3.5)	18.2	(4.0)	4.8	(1.7)	100.0
Residue avoidance	75.3	(4.4)	5.5	(1.9)	15.9	(3.9)	3.3	(1.5)	100.0

G.2.d. 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)	81.8	(6.8)	14.6	(6.8)	2.5	(1.3)	1.1	(0.6)	100.0
Route used for administration of injectable products (intramuscular, intravenous, subcutaneous)	78.3	(6.9)	12.5	(3.6)	8.2	(6.7)	1.0	(0.5)	100.0
Implanting strategy	68.7	(6.4)	15.2	(6.2)	10.2	(2.4)	5.9	(2.0)	100.0
Antibiotic selection to manage disease (e.g., type of FDA-approved antibiotic used or duration of action)	70.9	(7.8)	20.2	(7.9)	5.7	(2.5)	3.3	(1.2)	100.0
Residue avoidance	77.6	(6.9)	5.1	(1.9)	15.6	(6.9)	1.7	(0.7)	100.0

G.2.e. 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)	42.6	(6.6)	20.8	(3.9)	12.8	(3.7)	23.8	(6.3)	100.0
Route used for administration of injectable products (intramuscular, intravenous, subcutaneous)	40.8	(6.7)	17.4	(3.7)	17.1	(4.6)	24.8	(6.3)	100.0
Implanting strategy	14.5	(3.5)	9.2	(2.7)	42.6	(6.6)	33.7	(6.7)	100.0
Antibiotic selection to manage disease (e.g., type of FDA-approved antibiotic used or duration of action)	43.0	(6.3)	16.3	(4.0)	20.7	(4.7)	20.0	(4.0)	100.0
Residue avoidance	54.3	(6.1)	7.3	(2.4)	14.4	(3.4)	24.0	(5.1)	100.0

G.2.f. For feedlots in which the operator was **not 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)	57.6	(10.8)	12.7	(4.2)	5.4	(2.3)	24.3	(8.6)	100.0
Route used for administration of injectable products (intramuscular, intravenous, subcutaneous)	53.6	(11.3)	15.6	(5.0)	7.3	(2.9)	23.5	(8.5)	100.0
Implanting strategy	44.1	(12.1)	10.5	(3.7)	22.0	(7.5)	23.4	(8.4)	100.0
Antibiotic selection to manage disease (e.g., type of FDA-approved antibiotic used or duration of action)	63.9	(8.9)	13.7	(4.6)	8.4	(3.1)	14.0	(4.6)	100.0
Residue avoidance	70.2	(7.7)	6.3	(2.5)	7.2	(2.8)	16.2	(5.4)	100.0

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

	Percent Feedlots									
	Feedlot capacity (number head)				Region					
	1–499		500–999		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)	73.8	(3.4)	89.9	(3.7)	74.9	(8.4)	74.3	(3.2)	74.5	(3.3)
Route used for administration of injectable products (intramuscular, intravenous, subcutaneous)	70.4	(3.8)	91.8	(3.1)	68.6	(9.5)	72.4	(3.5)	71.3	(3.6)
Implanting strategy	38.8	(3.3)	76.3	(5.2)	35.8	(6.8)	42.2	(3.5)	40.4	(3.2)
Antibiotic selection to manage disease (e.g., type of FDA-approved antibiotic used or duration of action)	65.6	(3.8)	88.4	(3.8)	76.6	(8.0)	62.6	(3.8)	66.5	(3.6)
Residue avoidance	68.7	(3.7)	87.3	(3.9)	64.8	(9.3)	71.3	(3.5)	69.5	(3.6)

H. Environment

Only one of five feedlots (20.5 percent) had any employees in addition to the feedlot operator.

H.a. Percentage of feedlots with employees:

Percent Feedlots

Feedlot capacity (number head)				Region					
1–499		500–999		Central		Other		All feedlots	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
19.3	(2.6)	48.7	(5.9)	24.6	(6.1)	18.9	(2.6)	20.5	(2.5)

H.b. For feedlots with employees other than the operator, 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					
	1–499		500–999		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	21.3	(6.4)	56.2	(8.8)	36.3	(13.8)	18.8	(5.2)	24.7	(5.9)
Dust control	9.3	(5.4)	33.0	(8.8)	27.1	(13.5)	3.8	(1.3)	11.6	(5.0)
Lagoon overflow	12.9	(6.0)	39.4	(7.9)	25.8	(13.4)	10.3	(4.3)	15.5	(5.5)
Other environmental training program	7.6	(4.2)	5.4	(4.7)	1.4	(1.4)	10.4	(5.5)	7.4	(3.8)
Any of the above	24.3	(6.8)	66.8	(7.6)	38.6	(13.9)	23.4	(6.2)	28.5	(6.2)

Conducting any environmental testing was more common on feedlots with a capacity of 500 to 999 head (64.6 percent) than on feedlots with a capacity of 1 to 499 head (28.3 percent). Environmental testing mostly focused on ground water and nutrient content of manure.

H.c. Percentage of feedlots that performed environmental tests, by feedlot capacity and by region:

Percent Feedlots

	Feedlot capacity (number head)				**Region**					
	1–499		**500–999**		**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)	20.4	(3.1)	40.9	(6.2)	20.3	(6.7)	21.6	(3.2)	21.3	(3.0)
Surface water* (e.g., ponds, lakes, or streams)	4.8	(1.9)	8.8	(3.6)	7.3	(5.1)	4.1	(1.7)	4.9	(1.8)
Nutrient content of manure (e.g., nitrogen level)	8.8	(1.8)	43.2	(6.0)	9.8	(4.1)	10.4	(1.9)	10.3	(1.8)
Air quality	1.3	(0.8)	2.0	(1.3)	0.9	(0.9)	1.5	(1.0)	1.3	(0.8)
Any of the above	28.3	(3.5)	64.6	(5.9)	30.2	(8.2)	29.9	(3.6)	30.0	(3.4)

*For feedlots with the specified water source.

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 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 indentify 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

The NAHMS Feedlot 2011 study was divided into two components: feedlots with a capacity of 1,000 or more head ("large" feedlots) and feedlots with a capacity of fewer than 1,000 head ("small" feedlots). Large feedlots were surveyed via personal interview and small feedlots were surveyed by a computer-assisted telephone interview (CATI).

The remainder of this section describes the methodology used for "small" feedlots (fewer than 1,000 head). For a description of large feedlots, see "Part I: Management Practices on U.S. Feedlots with a Capacity of 1,000 or More Head" at: http://www.aphis.usda.gov/animal_health/nahms/feedlot/index.shtml#feedlot11

1. State selection

A goal for NAHMS national studies is to include States that account for at least 70 percent of the animals and producer population in the United States. The initial review of States identified 13 States with feedlots with a capacity of fewer than 1,000 head that would meet this goal: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio, Pennsylvania, South Dakota, Texas, and Wisconsin.

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 fewer than 1,000 head in the 13 participating States. The initial selection of States was based on the NASS 2007 Census of Agriculture because NASS no longer publishes State-level numbers of feedlots with a capacity of fewer than 1,000 head (last published in 2007). The Census of Agriculture did not include a category for feedlots with a capacity of fewer than 1,000 head, but it was thought that the geographic distribution of feedlots with a capacity of fewer than 500 head would be similar to the geographic distribution of feedlots with a capacity of fewer than 1,000 head. Thus, the selection of the 13 States was based on a capacity of fewer than 500 head (Appendix II). The 13 States accounted for 85.4 percent of U.S. feedlots with a capacity of fewer than 500 head and 90.5 percent of the cattle inventory on feedlots with a capacity of fewer than 500 head. Study results showed that 78.8 percent of the 2,500 feedlots with a capacity of fewer than 1,000-head selected for the study had a capacity of fewer than 500 head.

C. Data Collection

Data collectors and data collection period

From August 1 through 30, 2011, computer-assisted telephone interviews were conducted by NASS phone enumerators to administer the General Feedlot Management Questionnaire–CATI questionnaire.

D. Data Analysis

Validation

Initial data entry and validation for the General Feedlot Management Questionnaire–CATI were performed in a central NASS call center. Data were entered into a SAS® data set. NAHMS staff performed additional data validation on the data set prior to data analysis.

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 2,500 feedlots were selected for the survey. Of these feedlots, 1,945 (77.8 percent) were contacted. There were 530 feedlots that provided usable inventory information (21.2 percent of the total selected and 27.2 percent of those contacted). Of these, 495 feedlots (19.8 percent of total selected) provided “complete” information for the questionnaire.

General Feedlot Management Questionnaire–CATI

			Measurement Parameter		
Response category	**Number feedlots**	**Percent feedlots**	**Contacts**	**Usable[1]**	**Complete[2]**
Survey complete	495	19.8	x	x	x
Zero cattle on feed during the period July 1, 2010, through June 30, 2011	35	1.4	x	x	
Refusal[3]	1,415	56.6	x		
Office hold (NASS elected not to contact)	24	1.0			
Inaccessible	531	21.2			
Total	2,500	100.0	1,945	530	495
Percent of total feedlots			77.8	21.2	19.8
Percent of total feedlots weighted[4]			78.1	18.3	17.0

[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]Refusals include out of scope/out of business.

[4]Weighted response—the rate was calculated using the initial selection weights.

Appendix I: Sample Profile

1. Number of responding feedlots, by herd size and by region

	Feedlot capacity (number head)		
Region	**1–499**	**500–999**	**Total**
Central	54	25	79
Other	328	88	416
Total	382	113	495

Appendix II: Feedlots and Inventory, Fewer than 500 Head Capacity[1] for Selected States, 2007

Region	State	Number of feedlots	Pct. of U.S.	Number cattle and calves	Pct. of U.S.
Central	Kansas[2]	1,033	2.22	106,666	4.15
	Nebraska[2]	1,899	4.09	223,542	8.70
	South Dakota[2]	1,541	3.32	174,629	6.83
	Texas[2]	1,320	2.84	63,045	2.45
	Total	5,793	12.47	567,882	22.13
Other	Illinois	3,167	6.82	162,291	6.31
	Indiana	2,554	5.50	81,397	3.17
	Iowa[2]	6,190	13.32	559,587	21.77
	Michigan	2,810	6.05	104,246	4.06
	Minnesota	5,336	11.49	320,841	12.48
	Missouri	1,448	3.12	55,649	2.16
	Ohio	3,925	8.45	128,475	5.00
	Pennsylvania	2,993	6.44	108,899	4.24
	Wisconsin	5,455	11.74	237,334	9.23
	Total	33,878	72.93	1,758,719	68.42
Total 13 States		39,671	85.40	2,327,601	90.55
Total U.S. (50 States)		46,458	100.00	2,570,705	100.00

[1]The NAHMS Feedlot 2011 study second component included feedlots with fewer than 1,000-head capacity. The only published **State-level** numbers of feedlots in all 50 States are from the NASS 2007 Census, which does not include a category for fewer than 1,000 head capacity. Thus, this table shows fewer than 500-head capacity data.

[2]These States also participated in the study's first component (large feedlots).

Source: NASS 2007 Census of Agriculture.

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

	Number of feedlots				
Feedlot capacity	**2007[1]**	**2008[2]**	**2009[3]**	**2010[3]**	**2011[4]**
Fewer than 1,000 head	85,000	80,000	80,000	75,000	75,000
1,000 or more	2,160	2,170	2,170	2,140	2,120
All feedlots in United States	87,160	82,170	82,170	77,140	77,120
	January 1 inventory (x1,000)				
	2008[1]	**2009[2]**	**2010[3]**	**2011[3]**	**2011[4]**
Fewer than 1,000 head	2,734.7	2,621.7	2,659.2	2,508.9	2,260.4
1,000 or more	12,092	11,234	10,983	11,514	11,861
All feedlots in United States	14,826.7	13,855.7	13,642.2	14,022.9	14,121.4

[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 II

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