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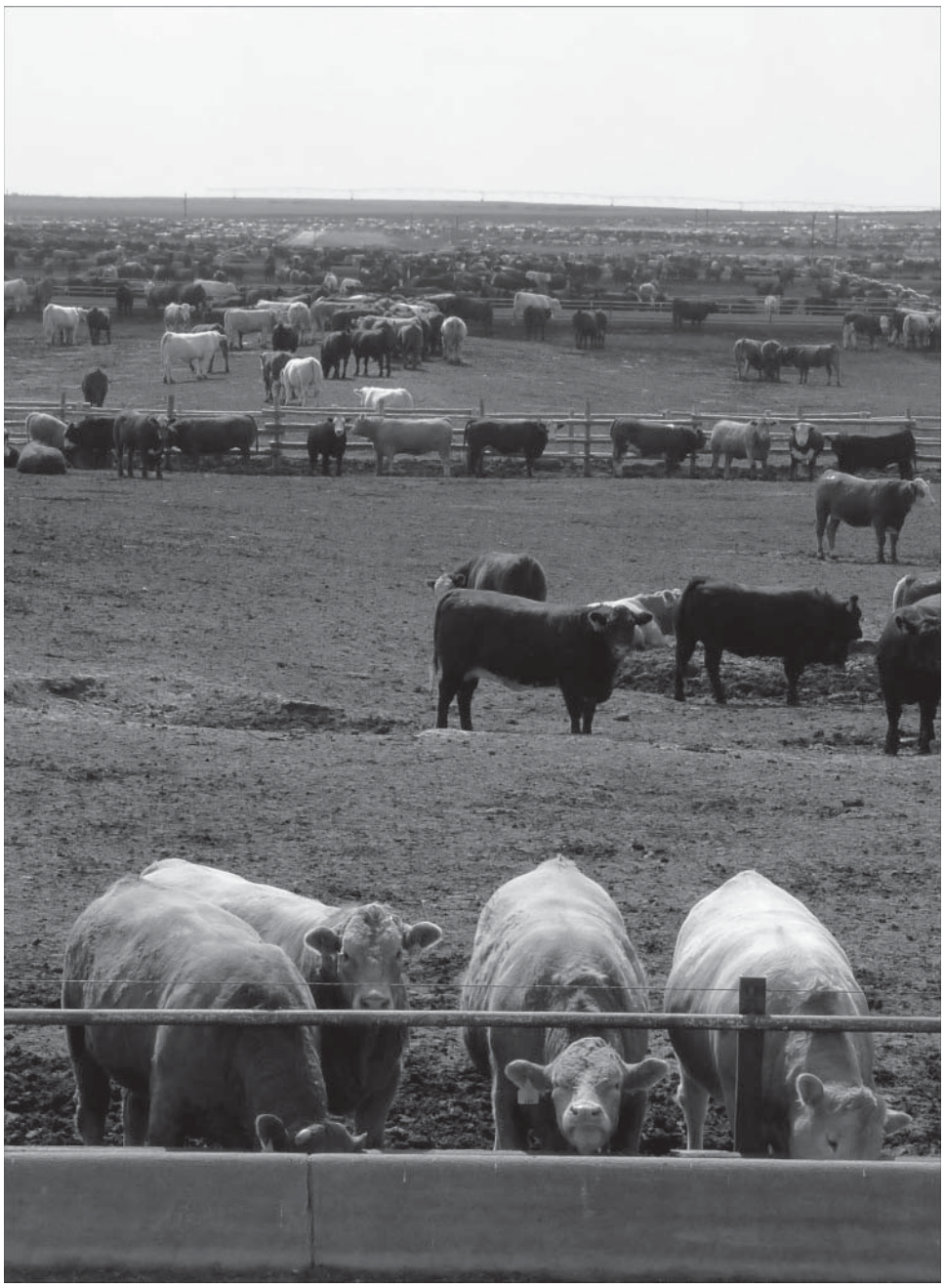
Feedlot 2011

Part III: Trends in Health and Management Practices on U.S. Feedlots, 1994–2011



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Items of Note

The National Animal Health Monitoring System's (NAHMS) Feedlot 2011 study takes a broad look at animal health and management in feedlots throughout the major cattle-feeding region of the United States. The study was conducted in two parts: one focused on feedlots with a capacity of 1,000 or more head (see "Part I: Reference of Management Practices on Feedlots in the United States, 2011") and another focused on feedlots with a capacity of fewer than 1,000 head (see "Part II: Reference of Management Practices on Small Feedlots in the United States, 2011"). Part I and Part II reports are available at: http://www.aphis.usda.gov/nahms.

The Feedlot 2011 study updates information on the U.S. cattle feedlot industry previously collected during the NAHMS Feedlot '99 study and the NAHMS 1994 Cattle-on-Feed Evaluation (COFE). This report compares the results of the three studies over time and provides a summary of trends in health and management practices.

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 number of feedlots with a capacity of 32,000 head or more increased by over 50 percent from 1996 to 2011 (p 15, National Agricultural Statistics Service). During the same time frame, the total number of feedlots decreased by over 30 percent. Iowa, Nebraska, South Dakota, and Washington reported large increases in inventory on feedlots with a capacity of 1,000 or more head from 1995 and 2011 (p 16).

An increase in the overall percentage of cattle on feed owned by the feedlot continued from 1999 to 2011. Nearly 60 percent of cattle on feed were owned by the feedlot in 2011, compared with about 25 percent of cattle in 1994 (p 33).

The percentage of feedlot operators that considered pre-arrival processing practices to be either extremely or very effective increased from 1994 to 2011 (p 34).

In 2011, almost 9 percent of dead animals were composted and over 10 percent of feedlots used composting as a disposal method (p 63).

Formal training programs, including written guidelines, were implemented on a higher percentage of feedlots in 2011 than in 1999. More feedlots in 2011 than in 1999 provided formal training in quality assurance, residue avoidance, animal handling procedures, employee safety, manure management, dust control, and other environmental issues (p 65-66).

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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 would like to thank the NASS enumerators who contacted beef feedlot operators and collected the data used in this report. 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.

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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://www.aphis.usda.gov/nahms
(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 health and management practices on U.S. feedlots. 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 in the 50 States on January 1, 2000.

The NAHMS Feedlot 2011 study took an in-depth look at large U.S. feedlots (1,000 head or more capacity) in 12 States and small feedlots (fewer than 1,000 head capacity) in 13 States.

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).

This report, "Part III: Trends in Health and Management Practices on U.S. Feedlots, 1994–2011," includes only feedlots with a capacity of 1,000 or more head and provides national estimates from all three NAHMS feedlot studies for comparison. In some cases, however, data were only available from two of the studies (e.g., Feedlot '99 and Feedlot 2011). Slight variations in how the study questions were asked from study to study are noted in applicable tables.

Reports from all three NAHMS feedlot studies—including the studies' methodologies—are available at http://www.aphis.usda.gov/nahms

Terms Used in This Report

Antibiotic: A chemical compound generally produced by molds that can inhibit the 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.

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

Cattle on feed: Cattle or calves for the slaughter market on full feed and expected to produce a carcass grading of "select" or better. Includes cattle fed a high-energy ration of grain, silage, hay, and/or protein supplement for the slaughter market, but excludes 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 coccidia, the cause of coccidiosis.

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

Feedlot: The confined area where animals are fed.

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

NA: Not applicable or not available.

Population estimates: Estimates in this report make inference to all operations in the target population. Data from the operations responding to the survey are weighted to reflect their probability of selection during sampling and to account for any survey nonresponse.

Precision of population estimates: Estimates in this report are provided with a measure of precision called the standard error. A 95-percent confidence interval can be created with bounds equal to the estimate plus or minus two standard errors. If the only error is sampling error, the confidence intervals created in this manner will contain the true population mean 95 out of 100 times. For example, 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 gives a standard error of 0.3 and results in limits of 2.8 and 4.0. Alternatively, the 90-percent confidence interval would be created by multiplying the standard error by 1.65 instead of 2. Most estimates in this report are rounded to the nearest tenth. If rounded to 0, the standard error was reported (0.0). If

there were no reports of the event, no standard error was reported (—).

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

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 them.

Shrinkage: The animal weight lost between point of origin and delivery location (such as feedlot and market scales) due to transit or other handling processes.

Section I: Demographics, 1994–2011

Note: Unless otherwise specified, estimates in section I refer to feedlots with a capacity of 1,000 head or more.

The USDA's National Agricultural Statistics Service (NASS) surveys a sample of producers each year to provide national estimates of U.S. animal populations and food production. This section reports the demographics of the U.S. feedlot industry, as estimated from the NASS surveys. NASS publishes information on large feedlots (capacity of 1,000 or more head) in selected States monthly, and for all feedlots in January and July.

The following tables include selected data from NASS surveys that generally correspond to the range of years reported in this report (1994–2011). The tables illustrate changes in total inventory of cattle on feed, feedlot size, characteristics of placements, disappearances, number of feedlots, and slaughter numbers.

A. Changes in Cattle-on-feed Industry

1. Cattle-on-feed inventory

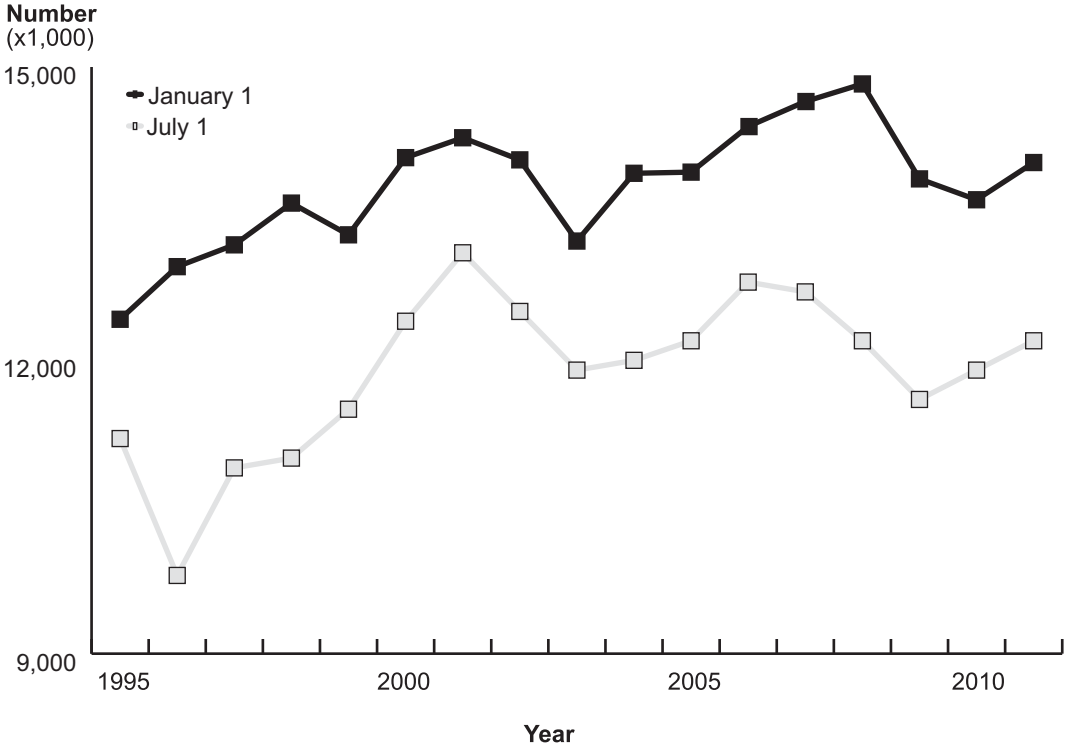
From 1995 to 2011 there was a general upward trend in the total number of cattle on feed in the United States. NASS reported a 12.9 percent increase in the January count and an 8.9 percent increase in the July numbers over that period. There were relatively large declines in cattle-on-feed inventories in 2003 and 2009.

A.1.a. Changes in the January 1 and July 1 U.S. cattle-on-feed inventories, 1995–2011:

	Cattle on Feed			
	January 1		July 1	
Year	x1,000 head	Pct. of 1995	x1,000 head	Pct. of 1995
1995	12,420	100.0	11,200	100.0
1996	12,958	104.3	9,800	87.5
1997	13,181	106.1	10,900	97.3
1998	13,608	109.6	11,000	98.2
1999	13,283.5	106.4	11,500	102.7
2000	14,073	112.6	12,400	109.8
2001	14,276.4	114.9	13,100	117.0
2002	14,050.3	113.1	12,500	111.6
2003	13,219.8	106.4	11,900	106.3
2004	13,912.9	112.0	12,000	107.1
2005	13,924.7	112.1	12,200	108.9
2006	14,391.9	115.9	12,800	114.3
2007	14,646.7	117.9	12,700	113.4
2008	14,826.7	119.4	12,200	108.9
2009	13,855.7	111.6	11,600	103.6
2010	13,642.2	109.8	11,900	106.3
2011	14,022.9	112.9	12,200	108.9

Source: National Agricultural Statistics Service “Cattle on Feed” reports.

Changes in the January 1 and July 1 cattle-on-feed inventories, 1995-2011



Source: National Agricultural Statistics Service “Cattle on Feed” reports.

The largest feedlots (32,000 or more head capacity) had the largest increase in January inventories: 3.9 million head in 1997 and 5.8 million head in 2011.

A.1.b. Changes in the January 1 U.S. cattle-on-feed inventory by feedlot capacity, 1997–2011:

	Cattle on Feed (x1,000)		
Feedlot capacity (number of head)	**1997***	**1999**	**2011**
Fewer than 1,000	2,623	2,616.5	2,508.9
1,000 or more	10,558	10,667	11,514
1,000–7,999	2,365	2,212	2,284
8,000–15,999	1,543	1,424	1,250
16,000–31,999	2,707	2,546	2,180
32,000 or more	3,943	4,485	5,800
Total	13,181	13,283.5	14,022.9

Source: National Agricultural Statistics Service “Cattle on Feed” reports.
*1997 was the first year NASS published “Cattle on Feed” reports.

The percentage of cattle-on-feed inventory by cattle type remained relatively stable from 1995 to 2011.

A.1.c. Changes in the January 1 U.S. cattle-on-feed inventory by cattle type, 1995–2011:

	Number of Cattle					
	1995		**1999**		**2011**	
Cattle type	**1,000 head**	**Pct. of total**	**1,000 head**	**Pct. of total**	**1,000 head**	**Pct. of total**
Steers and steer calves	6,105	64.9	6,461	60.6	7,178	62.3
Heifers and heifer calves	3,260	34.7	4,153	38.9	4,259	37.0
Cows and bulls	35	0.4	53	0.5	77	0.7
Total	9,400	100.0	10,667	100.0	11,514	100.0

Source: National Agricultural Statistics Service “Cattle on Feed” reports.

2. Cattle placed on feed

Lightweight cattle (less than 600 lb) and heavyweight cattle (800 lb or more) accounted for a higher percentage of cattle placed on feed in January 2011 than in January 1996 or 1999. Cattle that weighed 600 to 799 lb made up the majority of January placements in all years.

A.2.a. Changes in the January 1 U.S. cattle-on-feed inventory by cattle weight, 1996–2011:

	Number of Cattle					
	1996		1999		2011	
Cattle weight (lb)	**1,000 head**	**Pct. of total**	**1,000 head**	**Pct. of total**	**1,000 head**	**Pct. of total**
Less than 600	260	16.8	379	19.6	460	24.4
600–699	550	35.5	628	32.5	475	25.1
700–799	499	32.2	604	31.2	544	29.0
800 or more	240	15.5	322	16.7	410	21.7
Total	1,549	100.0	1,933	100.0	1,889	100.0

Source: National Agricultural Statistics Service “Cattle on Feed” February following-year reports.
Note: Annual placements by weight group are not published by NASS.

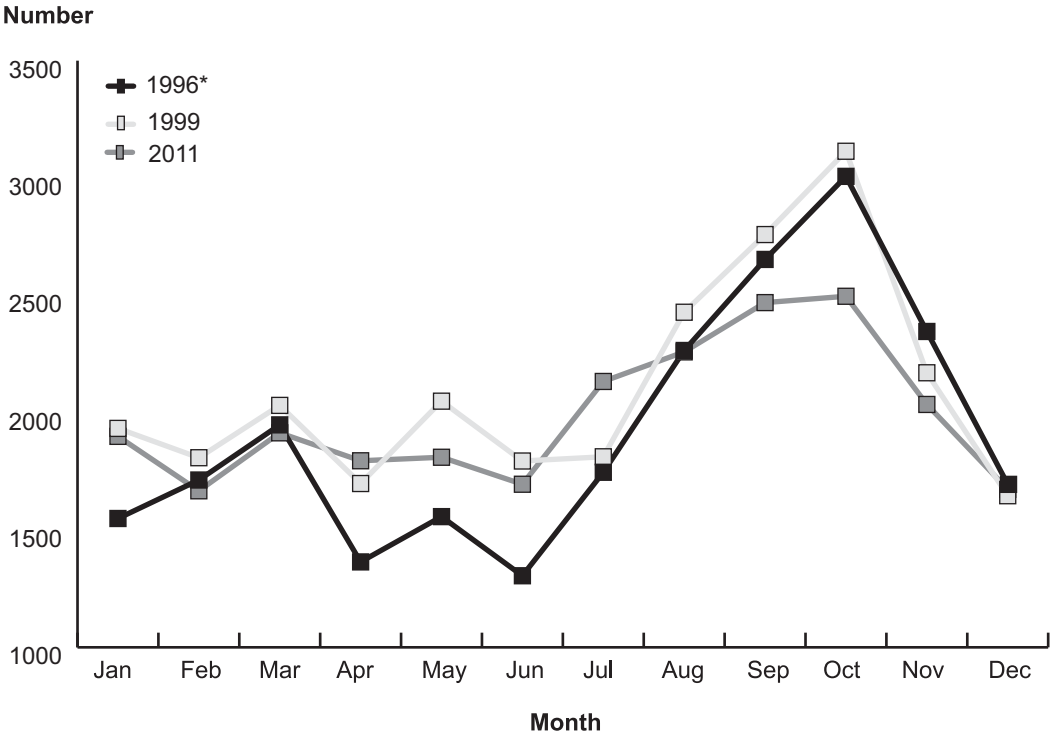
Month-to-month changes in the number of placements were likely due to normal variability in production costs, cattle supply and demand, and other market variables. The number of placements was consistently highest from August through October, regardless of study year.

A.2.b. Changes in the number of cattle placed on feed by month, 1996–2011:

	Number of Cattle					
	Year					
	1996*		1999		2011	
Month	1,000 head	Pct. of previous month	1,000 head	Pct. of previous month	1,000 head	Pct. of previous month
January	1,549	89.6	1,933	127.8	1,899	106.1
February	1,713	110.6	1,808	93.5	1,667	87.8
March	1,948	113.7	2,031	112.3	1,914	114.8
April	1,364	70.0	1,688	83.1	1,795	93.8
May	1,557	114.1	2,049	121.4	1,810	100.8
June	1,305	83.8	1,794	87.6	1,695	93.6
July	1,746	133.8	1,812	101.0	2,133	125.8
August	2,265	129.7	2,428	134.0	2,259	105.9
September	2,653	117.1	2,759	113.6	2,469	109.3
October	3,007	113.3	3,114	112.9	2,496	101.1
November	2,348	78.1	2,170	69.7	2,035	81.5
December	1,695	72.2	1,646	75.9	1,673	82.2
Total	23,150		25,232		23,845	

Source: National Agricultural Statistics Service “Cattle on Feed” reports.
*First year data were published by NASS.

Changes in the number of cattle placed on feed by month, 1996-2011



Source: National Agricultural Statistics Service "Cattle on Feed" reports.
*First year data were published by NASS.

A.2.c. Percentage of yearly placements by month, 1996–2011:

	Percent Placements		
	Year		
Month	**1996**	**1999**	**2011**
January	6.7	7.7	8.0
February	7.4	7.2	7.0
March	8.4	8.1	8.0
April	5.9	6.7	7.5
May	6.7	8.1	7.6
June	5.6	7.1	7.1
July	7.5	7.2	8.9
August	9.8	9.6	9.5
September	11.5	10.9	10.4
October	13.0	12.3	10.5
November	10.2	8.6	8.5
December	7.3	6.5	7.0
Total	100.0	100.0	100.0

Source: National Agricultural Statistics Service “Cattle on Feed” reports. (1995 data are available but not shown; used 1996 data to match other complete data for 1996.)

3. Nonharvest disappearances

Slightly less than 4 percent of all cattle placed on feed left the feedlot for nonharvest reasons during each of the three study years.

A.3.a. Number of cattle placed on feed that left the feedlot for nonharvest reasons, as a percentage of yearly placements, 1996–2011:

Year	Percent placements
1996	3.9
1999	3.5
2011	3.8

Source: National Agricultural Statistics Service.

The number of cattle disappearances due to death loss, feedlot-to-pasture movements, shipments to other feedlots, and other nonharvest movements varied from 50,000 to 107,000 head in 1996, 52,000 to 104,000 head in 1999, and 52,000 to 102,000 head in 2011. No consistent seasonal variations were apparent.

A.3.b. Number of cattle placed on feed that left the feedlot for nonharvest reasons by month, 1996–2011:

	Number of Cattle					
	Year					
	1996		1999		2011	
Month	x1,000 head	Pct. of previous month	x1,000 head	Pct. of previous month	x1,000 head	Pct. of previous month
January	65	95.6	70	82.4	56	84.8
February	72	110.8	65	92.9	60	107.1
March	76	105.6	71	109.2	52	86.7
April	107	140.8	104	146.5	59	113.5
May	84	78.5	99	95.2	80	135.6
June	70	83.3	63	63.6	73	91.3
July	62	88.6	52	82.5	81	111.0
August	50	80.6	55	105.8	72	88.9
September	70	140.0	62	112.7	74	102.8
October	78	111.4	80	129.0	98	132.4
November	93	119.2	83	103.7	102	104.1
December	86	92.5	90	108.4	91	89.2
Total	913		894		898	

Source: National Agricultural Statistics Service “Cattle on Feed” reports.

4. Number of feedlots

The number of U.S. feedlots decreased from 1996 to 2011, especially the number feedlots with a capacity of fewer than 1,000 head, which saw a 32.0 percent decrease. In contrast, the number of feedlots with a capacity of 32,000 or more head increased by more than 50 percent from 1996–2011.

A.4. Changes in the number of U.S. feedlots by feedlot capacity, 1996–2011:

	Number of Feedlots						
	Year						
	1996		1999		2011		
Capacity (number head)	**No.**	**Pct. of previous period**	**No.**	**Pct. of 1996**	**No.**	**Pct. of 1996**	**Pct. of 1999**
Fewer than 1,000	110,000	NA	100,000	90.9	75,000	68.2	75.0
1,000–1,999	874	NA	831	95.1	770	88.1	92.7
2,000–3,999	515	NA	507	98.4	560	108.7	110.5
4,000–7,999	304	NA	336	110.5	345	113.5	102.7
8,000–15,999	187	NA	193	103.2	170	90.9	88.1
16,000–31,999	138	NA	141	102.2	138	100.0	97.9
32,000 or more	91	NA	111	122.0	137	150.5	123.4
Total	112,109	NA	102,119	91.1	77,120	68.8	75.5

Source: National Agricultural Statistics Service (1995 data not available).

5. Feedlot industry changes by State

In 1995, 1999, and 2011, Colorado, Kansas, Nebraska, and Texas accounted for about 75 percent of the total inventory of cattle on feed. Large increases in inventory were seen in Iowa (75-percent increase), South Dakota (63 percent), Nebraska (40 percent), and Washington (38 percent) over the same time period.

The total number of U.S. feedlots was similar from 1999 to 2007 (2007 was the last year NASS collected data on the number of U.S. feedlots). States that saw an increase in the number of feedlots from 1995 to 2007 included Iowa (25-percent increase), Nebraska (18 percent), and South Dakota (76 percent); States that saw a decrease in the number of feedlots included California (45-percent decrease), Colorado (23 percent), Idaho (35 percent), and Kansas (34 percent).

A.5.a. Participation in NAHMS studies, number of cattle and calves on feed, and number of feedlots by State, 1994–2007:

	NAHMS study participation			January 1 inventory on (x1,000)			Number feedlots		
State	COFE 1994	Feedlot '99	Feedlot 2011	1995	1999	2011	1995	1999	2007*
Arizona	Yes	Yes	Yes	210	272	258	10	7	6
California	Yes	Yes	Yes	400	415	470	38	24	21
Colorado	Yes	Yes	Yes	966	1,180	1,080	172	162	132
Idaho	Yes	Yes	Yes	255	310	240	60	55	39
Illinois	Yes	No	No	NA	NA	NA	NA	NA	NA
Iowa	Yes	Yes	Yes	365	375	640	275	325	345
Kansas	Yes	Yes	Yes	1,990	2,310	2,280	305	220	200
Minnesota	Yes	No	No	NA	NA	NA	NA	NA	NA
Nebraska	Yes	Yes	Yes	1,730	2,300	2,430	650	685	770
New Mexico	No	Yes	Yes	NA	116	NA	NA	10	8
Oklahoma	Yes	Yes	Yes	375	430	375	20	27	23
South Dakota	Yes	Yes	Yes	160	194	260	100	123	176
Texas	Yes	Yes	Yes	2,370	2,900	2,840	137	142	128
Washington	Yes	Yes	Yes	151	228	209	20	19	12
Other States	No	No	No	NA	445	432	NA	320	300
U.S.	13	12	12	9,400	11,475	11,514	NA	2,119	2,160

*2007 State-level number of feedlots is latest available from NASS.

A.5.b. Participation in NAHMS studies, number of cattle marketings, and number of feedlots by State, 1994–2011:

	NAHMS study participation			Number of cattle marketings (x1,000)			Number feedlots		
State	COFE 1994	Feedlot '99	Feedlot 2011	1995	1999	2011	1995	1999	2007*
Arizona	Yes	Yes	Yes	210	272	258	10	7	6
California	Yes	Yes	Yes	400	415	470	38	24	21
Colorado	Yes	Yes	Yes	966	1,180	1,080	172	162	132
Idaho	Yes	Yes	Yes	255	310	240	60	55	39
Illinois	Yes	No	No	NA	NA	NA	NA	NA	NA
Iowa	Yes	Yes	Yes	365	375	640	275	325	345
Kansas	Yes	Yes	Yes	1,990	2,310	2,280	305	220	200
Minnesota	Yes	No	No	NA	NA	NA	NA	NA	NA
Nebraska	Yes	Yes	Yes	1,730	2,300	2,430	650	685	770
New Mexico	No	Yes	Yes	NA	116	NA	NA	10	8
Oklahoma	Yes	Yes	Yes	375	430	375	20	27	23
South Dakota	Yes	Yes	Yes	160	194	260	100	123	176
Texas	Yes	Yes	Yes	2,370	2,900	2,840	137	142	128
Washington	Yes	Yes	Yes	151	228	209	20	19	12
Other States	No	No	No	NA	445	432	NA	320	300
U.S.	13	12	12	9,400	11,475	11,514	NA	2,119	2,160

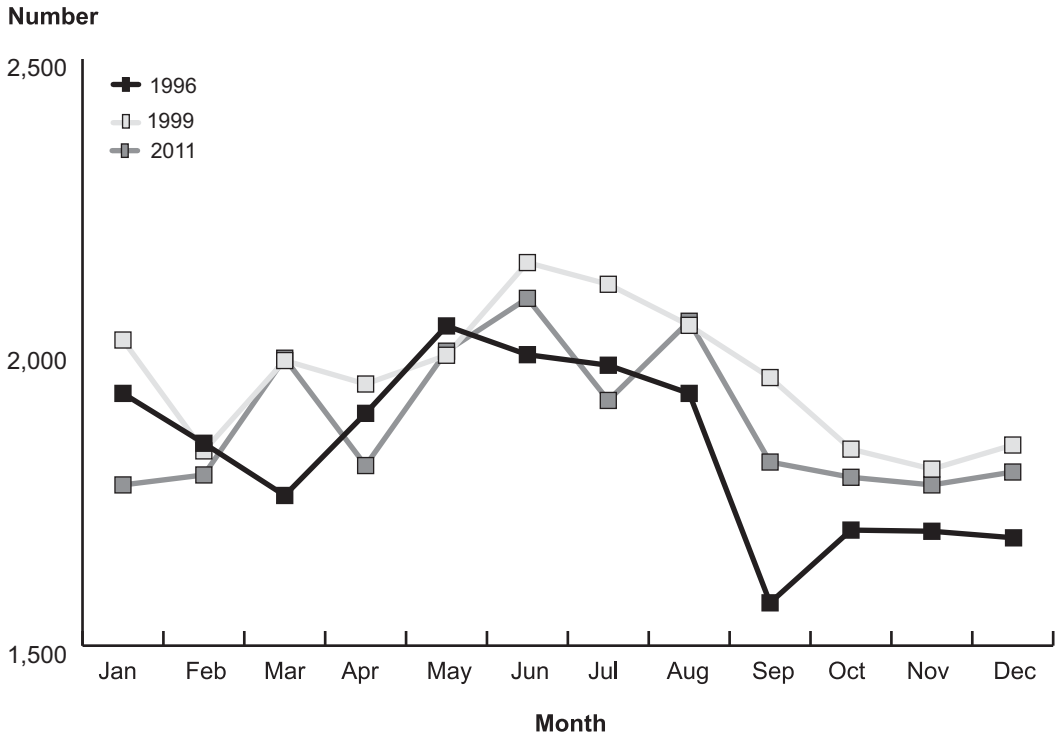
*2007 State-level number of feedlots is latest available from NASS.

A.5.c. Changes in the number of cattle marketings by month, 1996–2011:

	Number of Cattle Marketings					
	Year					
	1996*		1999		2011	
Month	No.	Pct. of previous period	No.	Pct. of 1996	No.	Pct. of 1999
January	1,930	NA	2,021	104.7	1,774	87.8
February	1,845	NA	1,832	99.3	1,791	97.8
March	1,756	NA	1,986	113.1	1,990	100.2
April	1,896	NA	1,946	102.6	1,807	92.9
May	2,045	NA	1,995	97.6	2,002	100.4
June	1,996	NA	2,153	107.9	2,092	97.2
July	1,978	NA	2,116	107.0	1,918	90.6
August	1,930	NA	2,046	106.0	2,053	100.3
September	1,573	NA	1,957	124.4	1,813	92.6
October	1,697	NA	1,835	108.1	1,787	97.4
November	1,695	NA	1,801	106.3	1,774	98.5
December	1,684	NA	1,842	109.4	1,796	97.5

Source: National Agricultural Statistics Service “Cattle on Feed” reports.
*First year data were published by NASS.

Changes in the number of cattle marketings by month, 1996-2011



Source: National Agricultural Statistics Service “Cattle on Feed” reports.

6. Cattle harvest

The relative mix of cattle slaughtered under Federal inspection was similar from 1995 to 2011. Approximately half of all cattle slaughtered were steers, and nearly one-third were heifers, and approximately one-fifth were cows.

A.6.a. Changes in the number of cattle slaughtered under Federal inspection by cattle type, 1995–2011:

	Number of Cattle					
	Study Year					
	1995		1999		2011	
Cattle type	x1,000 head	Pct. of total	x1,000 head	Pct. of total	x1,000 head	Pct. of total
Steers	17,887.2	51.3	17,608.0	49.6	16,538.6	49.3
Heifers	10,174.6	29.2	11,648.4	32.8	9,725.8	29.0
Dairy cows	2,861.7	8.2	2,573.3	7.3	2,914.2	8.7
Other cows	3,281.1	9.4	3,029.7	8.5	3,797.6	11.3
Bulls and stags	674.4	1.9	626.9	1.8	578.7	1.7
Total	34,879.0	100.0	35,486.3	100.0	33,554.8	100.0

Source: National Agricultural Statistics Service.

Cattle harvest was highest in June and August, regardless of study year. Generally, January, February, April, and December accounted for the lowest number of cattle slaughtered. Live weights trended higher from 1995 to 1999 (2.1-percent increase) and again from 1999 to 2011 (5.6-percent increase).

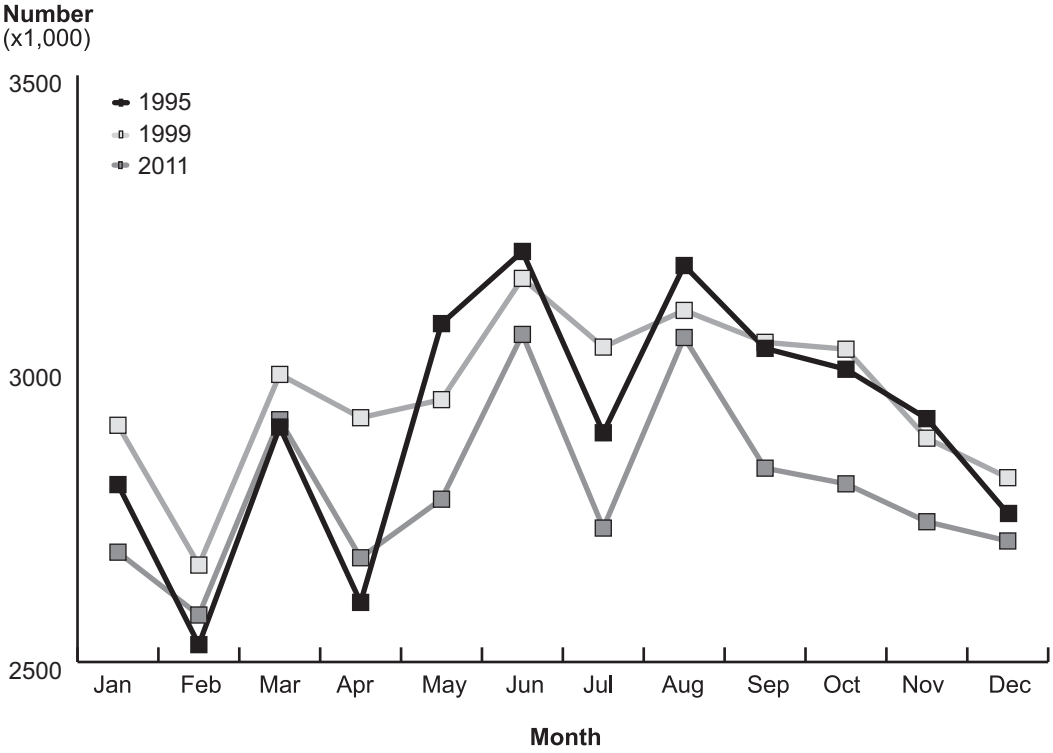
A.6.b. Changes in the number of cattle slaughtered under Federal inspection* by month, 1995–2011:

	Number of Cattle					
	Year					
	1995		1999		2011	
Month	**x1,000 head**	**Live weight/ head** (lb)	**x1,000 head**	**Live weight/ head** (lb)	**x1,000 head**	**Live weight/ head** (lb)
January	2,802.4	1,192	2,903.5	1,224	2,687.2	1,304
February	2,529.6	1,187	2,665.2	1,225	2,580.1	1,289
March	2,900.5	1,180	2,990.2	1,220	2,913.0	1,278
April	2,601.6	1,175	2,916.4	1,204	2,677.7	1,259
May	3,076.8	1,173	2,947.2	1,191	2,777.5	1,255
June	3,199.8	1,179	3,153.9	1,197	3,058.4	1,263
July	2,890.7	1,187	3,036.8	1,208	2,728.3	1,274
August	3,175.8	1,191	3,099.3	1,208	3,053.1	1,272
September	3,034.6	1,196	3,044.9	1,213	2,830.4	1,280
October	2,999.0	1,194	3,033.2	1,217	2,803.7	1,292
November	2,914.8	1,192	2,881.5	1,220	2,739.1	1,296
December	2,753.4	1,197	2,814.2	1,228	2,706.3	1,300
Total	34,879.0	1,187	35,486.3	1,212	33,554.8	1,280

Source: National Agricultural Statistics Service.

*Federally inspected cattle slaughter accounted for 97.9 percent of the total commercial slaughter in 1995, 98.2 percent in 1999, and 98.4 percent in 2011. The components of total commercial slaughter in 2011 (34,086.6 million head) were Federally inspected slaughter (33,554.8 million head) and other slaughter (531.8 million head).

Changes in the number of cattle slaughtered under Federal inspection* by month, 1995-2011



Source: National Agricultural Statistics Service.
*Federally inspected cattle slaughter accounted for 97.9 percent of the total commercial slaughter in 1995, 98.2 percent in 1999, and 98.4 percent in 2011. The components of total commercial slaughter in 2011 (34,086.6 million head) were Federally inspected slaughter (33,554.8 million head) and other slaughter (531.8 million head).

Section II: NAHMS Population Estimates

A. Placement Profile

1. Type of cattle, gender, and disposition

Note: Unless otherwise specified, cattle placed or cattle on feed refer to cattle placed for the U.S. slaughter market.

From 1994 to 2011, beef or beef crossbred steers and heifers were placed on feed by approximately 75 percent of feedlots with a capacity of 1,000 to 7,999 head and by approximately 90 percent of feedlots with a capacity of 8,000 or more head.

A.1.a. Percentage of feedlots that placed the following types of cattle, by feedlot capacity:

	Percent Feedlots					
	NAHMS Study					
	COFE 1994		Feedlot '99		Feedlot 2011	
Cattle type*	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
1,000–7,999 head capacity						
Steers and/or heifers less than 700 lb						
Beef or beef crossbreeds	76.3	(2.1)	76.9	(2.4)	72.9	(2.6)
Dairy breeds	8.1	(1.2)	5.4	(0.9)	8.7	(1.6)
Steers and/or heifers 700 lb or more						
Beef or beef crossbreeds	77.5	(2.0)	74.3	(2.5)	73.5	(2.5)
Dairy breeds	12.6	(1.5)	7.9	(1.4)	4.9	(1.3)
Cows and bulls						
Question variation:	*Did you place any cows? bulls?*		*Did you place any cows? Did you place any bulls?*			
Beef or beef crossbreeds	7.3	(1.2)	23.1	(2.2)	14.8	(2.1)
Dairy breeds	0.1	(0.0)	0.6	(0.4)	1.0	(0.5)
8,000 or more head capacity						
Steers and/or heifers less than 700 lb						
Beef or beef crossbreeds	94.9	(1.1)	94.3	(1.1)	93.9	(1.6)
Dairy breeds	47.3	(2.3)	24.2	(1.9)	30.9	(3.5)

*From July 1 of the previous year through June 30 of the current year.

A.1.a. (cont'd.) Percentage of feedlots that placed the following types of cattle, by feedlot capacity:

	Percent Feedlots					
	NAHMS Study					
	COFE 1994		Feedlot '99		Feedlot 2011	
Cattle type*	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Steers and/or heifers 700 lb or more						
Beef or beef crossbreeds	94.1	(1.1)	95.2	(0.8)	88.2	(2.9)
Dairy breeds	37.7	(2.4)	26.0	(2.1)	16.0	(1.6)
Cows and bulls						
Question variation:	*Did you place any cows? bulls?*		*Did you place any cows? Did you place any bulls?*			
Beef or beef crossbreeds	12.4	(1.7)	40.3	(2.3)	22.8	(2.6)
Dairy breeds	1.0	(0.4)	1.9	(0.6)	4.6	(1.2)
All feedlots						
Steers and/or heifers less than 700 lb						
Beef or beef crossbreeds	81.2	(1.5)	81.8	(1.8)	79.0	(1.9)
Dairy breeds	18.4	(1.1)	10.6	(0.9)	15.1	(1.6)
Steers and/or heifers 700 lb or more						
Beef or beef crossbreeds	81.9	(1.5)	80.0	(1.8)	77.8	(2.0)
Dairy breeds	19.2	(1.3)	12.9	(1.2)	8.1	(1.0)
Cows and bulls						
Question variation:	*Did you place any cows? bulls?*		*Did you place any cows? Did you place any bulls?*			
Beef or beef crossbreeds	8.7	(1.0)	27.8	(1.7)	17.1	(1.6)
Dairy breeds	0.4	(0.1)	1.0	(0.3)	2.1	(0.5)

*From July 1 of the previous year through June 30 of the current year.

In each of the three study years, about 40 percent of cattle placed were beef breed or crossbreed steers and heifers weighing less than 700 lb, and approximately half of the cattle placed were beef breed or crossbreed steers and heifers that weighed 700 lb or more.

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

	Percent Cattle					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Cattle type	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
1,000–7,999 head capacity						
Steers and/or heifers less than 700 lb						
Beef or beef crossbreeds	39.1	(2.0)	42.7	(1.9)	43.0	(3.1)
Dairy breeds	1.6	(0.4)	0.9	(0.3)	1.7	(0.4)
Steers and/or heifers 700 lb or more						
Beef or beef crossbreeds	56.9	(2.1)	53.1	(1.9)	52.7	(3.1)
Dairy breeds	1.1	(0.2)	1.4	(0.5)	1.0	(0.5)
Cows and bulls						
Question variation:	*Percent cows or bulls placed?*		*Percent cows placed?Percent bulls placed?*			
Beef or beef crossbreeds	1.3	(0.3)	1.9	(0.3)	1.6	(0.5)
Dairy breeds	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Total	100.0		100.0		100.0	
8,000 or more head capacity						
Steers and/or heifers less than 700 lb						
Beef or beef crossbreeds	44.3	(1.6)	42.1	(1.2)	41.6	(1.3)
Dairy breeds	5.9	(0.7)	1.5	(0.3)	7.7	(1.0)

A.1.b. (cont'd.) Percentage of cattle, by type of cattle and by feedlot capacity:

	COFE 1994		Feedlot '99		Feedlot 2011	
Cattle type	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Steers and/or heifers 700 lb or more						
Beef or beef crossbreeds	47.5	(1.5)	53.8	(1.2)	47.9	(1.5)
Dairy breeds	2.0	(0.2)	1.2	(0.3)	0.8	(0.1)
Cows and bulls						
Question variation:	*Percent cows or bulls placed?*		*Percent cows placed?Percent bulls placed?*			
Beef or beef crossbreeds	0.3	(0.1)	1.4	(0.2)	1.9	(0.4)
Dairy breeds	0.0	(0.0)	0.0	(0.0)	0.2	(0.1)
Total	100.0		100.0		100.0	
All feedlots						
Steers and/or heifers less than 700 lb						
Beef or beef crossbreeds	43.4	(1.4)	42.2	(1.1)	41.8	(1.2)
Dairy breeds	5.1	(0.6)	1.5	(0.2)	6.7	(0.8)
Steers and/or heifers 700 lb or more						
Beef or beef crossbreeds	49.1	(1.3)	53.7	(1.0)	48.7	(1.4)
Dairy breeds	1.9	(0.2)	1.2	(0.2)	0.8	(0.1)
Cows and bulls						
Question variation:	*Percent cows or bulls placed?*		*Percent cows placed?Percent bulls placed?*			
Beef or beef crossbreeds	0.5	(0.1)	1.4	(0.1)	1.8	(0.4)
Dairy breeds	0.0	(0.0)	0.0	(0.0)	0.1	(0.0)
Total	100.0		100.0		100.0	

The beef cattle placement profile on feedlots with a capacity of 1,000 to 7,999 head held steady from 1994 to 2011 at just over 60 percent steers and just under 40 percent heifers. Dairy cattle placements were at least 90 percent steers, except in 1999 for feedlots with 1,000 to 7,999 head capacity when nearly 20 percent of dairy cattle placements were heifers. This finding is likely due to an overall reduction in U.S. dairy cattle inventory.

A.1.c. Percentage of beef cattle and dairy cattle, by cattle gender and by feedlot capacity:

	Percent Cattle					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Cattle gender	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
1,000–7,999 head capacity						
Beef						
Steers	64.8	(1.6)	61.9	(1.6)	60.9	(2.4)
Heifers	33.9	(1.6)	36.2	(1.6)	37.4	(2.4)
Question variation:	*Percent cows or bulls placed?*		*Percent cows placed? Percent bulls placed?*			
Cows and bulls	1.3	(0.4)	1.9	(0.3)	1.6	(0.5)
Total	100.0		100.0		100.0	
Dairy						
Steers	94.2	(1.5)	80.3	(6.5)	94.1	(2.5)
Heifers	5.8	(1.5)	19.6	(6.5)	4.9	(2.3)
Question variation:	*Percent cows or bulls placed?*		*Percent cows placed? Percent bulls placed?*			
Cows and bulls	0.0	(0.0)	0.1	(0.0)	1.0	(0.7)
Total	100.0		100.0		100.0	

A.1.c. (cont'd.) Percentage of beef cattle and dairy cattle, by cattle gender and by feedlot capacity:

	COFE 1994		Feedlot '99		Feedlot 2011	
Cattle gender	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
8,000 or more head capacity						
Beef						
Steers	65.5	(1.0)	56.2	(1.1)	58.4	(1.4)
Heifers	34.2	(1.0)	42.4	(1.1)	39.5	(1.4)
Question variation:	*Percent cows or bulls placed?*		*Percent cows placed? Percent bulls placed?*			
Cows and bulls	0.3	(0.1)	1.4	(0.2)	2.1	(0.4)
Total	100.0		100.0		100.0	
Dairy						
Steers	97.4	(1.0)	90.0	(2.5)	94.8	(1.0)
Heifers	2.6	(1.0)	9.7	(2.5)	3.3	(0.7)
Question variation:	*Percent cows or bulls placed?*		*Percent cows placed? Percent bulls placed?*			
Cows and bulls	0.0	(0.0)	0.3	(0.1)	1.9	(0.7)
Total	100.0		100.0		100.0	
All feedlots						
Beef						
Steers	65.4	(0.9)	57.1	(1.0)	58.8	(1.3)
Heifers	34.1	(0.9)	41.4	(1.0)	39.2	(1.2)
Question variation:	*Percent cows or bulls placed?*		*Percent cows placed? Percent bulls placed?*			
Cows and bulls	0.5	(0.1)	1.5	(0.1)	2.0	(0.4)
Total	100.0		100.0		100.0	
Dairy						
Steers	97.2	(0.9)	88.7	(2.5)	94.7	(1.0)
Heifers	2.8	(0.9)	11.0	(2.5)	3.4	(0.7)
Question variation:	*Percent cows or bulls placed?*		*Percent cows placed? Percent bulls placed?*			
Cows and bulls	0.0	(0.0)	0.3	(0.1)	1.9	(0.6)
Total	100.0		100.0		100.0	

A low percentage of feedlots placed cattle on feed for purposes other than the U.S. slaughter market. No substantial changes in this sector of the industry were noted over the course of the three studies.

A.1.d. Percentage of feedlots that placed the following types of cattle for purposes other than the U.S. slaughter market, by feedlot capacity:

	Percent Feedlots					
			NAHMS Study			
	COFE 1994		Feedlot ’99		Feedlot 2011	
Cattle type*	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
1,000–7,999 head capacity						
Beef animals to be used for breeding stock	5.5	(1.1)	7.2	(1.3)	8.8	(1.6)
Dairy animals to be used for breeding stock	0.6	(0.3)	0.2	(0.1)	2.3	(0.9)
Other cattle and calves	4.3	(0.9)	5.7	(1.1)	5.6	(1.3)
8,000 or more head capacity						
Beef animals to be used for breeding stock	4.1	(0.9)	4.7	(1.1)	4.2	(1.1)
Dairy animals to be used for breeding stock	0.5	(0.2)	2.7	(0.7)	0.0	(0.0)
Other cattle and calves	5.1	(1.1)	3.4	(0.8)	3.4	(1.1)
All feedlots						
Beef animals to be used for breeding stock	5.1	(0.8)	6.5	(1.0)	7.5	(1.1)
Dairy animals to be used for breeding stock	0.6	(0.2)	0.9	(0.2)	1.6	(0.6)
Other cattle and calves	4.5	(0.7)	5.1	(0.8)	4.9	(1.0)

*During the period July 1 of the previous year through June 30 of the current year.

Over 95 percent of cattle on all feedlots were marketed for harvest. Death loss remained at approximately 1 percent for all feedlots from 1994 to 2011.

A.1.e. Percentage of cattle by disposition* and by feedlot capacity:

	Percent Cattle					
			NAHMS Study			
	COFE 1994		Feedlot ’99		Feedlot 2011	
Disposition	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
1,000–7,999 head capacity						
Marketed for harvest	94.4	(0.5)	94.8	(0.5)	94.9	(1.1)
Died	1.1	(0.1)	0.9	(0.0)	1.4	(0.2)
Sent to market prior to slaughter weight	0.3	(0.1)	0.4	(0.2)	0.4	(0.2)
Returned to grazing forage	2.8	(0.4)	1.8	(0.3)	0.5	(0.1)
Shipped to another feedlot	1.4	(0.3)	2.0	(0.4)	2.9	(0.9)
Stolen	0.0	(0.0)	0.0	(0.0)	0.0	(—)
Lost for other reasons	0.0	(0.0)	0.1	(0.0)	0.0	(0.0)
Total	100.0		100.0		100.0	
8,000 or more head capacity						
Marketed for harvest	96.1	(0.6)	97.1	(0.2)	97.3	(0.1)
Died	1.2	(0.0)	1.3	(0.1)	1.6	(0.1)
Sent to market prior to slaughter weight	0.4	(0.1)	0.3	(0.0)	0.4	(0.1)
Returned to grazing forage	1.3	(0.3)	0.9	(0.1)	0.4	(0.1)
Shipped to another feedlot	1.0	(0.4)	0.4	(0.1)	0.2	(0.0)
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)
Total	100.0		100.0		100.0	

*Cattle marketed or left the feedlot from July 1 of the previous year through June of the current year. Other cattle placed for purposes other than finishing for the U.S. slaughter market, such as animals being developed as breeding replacements, are not included as disposition.

A.1.e. (cont'd.) Percentage of cattle by disposition* and by feedlot capacity:

	Percent Cattle					
	NAHMS Study					
	COFE 1994		Feedlot '99		Feedlot 2011	
Disposition	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
All feedlots						
Marketed for harvest	95.8	(0.5)	96.7	(0.2)	96.9	(0.2)
Died	1.1	(0.0)	1.3	(0.1)	1.6	(0.1)
Sent to market prior to slaughter weight	0.4	(0.1)	0.3	(0.0)	0.4	(0.1)
Returned to grazing forage	1.6	(0.2)	1.1	(0.1)	0.4	(0.1)
Shipped to another feedlot	1.1	(0.3)	0.6	(0.1)	0.7	(0.2)
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)
Total	100.0		100.0		100.0	

*Cattle marketed or left the feedlot from July 1 of the previous year through June of the current year. Other cattle placed for purposes other than finishing for the U.S. slaughter market, such as animals being developed as breeding replacements, are not included as disposition.

2. Cattle source and ownership of placements

From 1994 to 2011, feedlots with a capacity of 1,000 to 7,999 head sourced the highest percentage of their cattle through auctions. The highest percentage of cattle in feedlots with a capacity of 8,000 or more head were sourced for custom feeding.

A.2.a. Percentage of cattle by source of cattle and by feedlot capacity:

	Percent Cattle					
			NAHMS Study			
	COFE 1994		Feedlot '99		Feedlot 2011	
Source	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
1,000–7,999 head capacity						
Born on this feedlot or another feedlot operated by this feedlot	2.3	(0.4)	3.1	(0.6)	3.3	(0.6)
Purchased via auction	45.1	(2.2)	46.9	(2.1)	37.9	(3.0)
Purchased via direct sale (cash or video, private treaty)	23.5	(1.6)	24.5	(1.9)	26.5	(2.7)
Provided for custom feeding	24.0	(2.3)	24.7	(2.1)	30.9	(3.5)
Other source	5.1	(1.1)	0.8	(0.2)	1.4	(0.6)
Total	100.0		100.0		100.0	
8,000 or more head capacity						
Born on this feedlot or another feedlot operated by this feedlot	0.6	(0.1)	0.4	(0.1)	0.7	(0.3)
Purchased via auction	26.5	(1.3)	31.0	(1.3)	27.0	(1.8)
Purchased via direct sale (cash or video, private treaty)	23.6	(1.8)	23.6	(1.6)	30.2	(2.1)
Provided for custom feeding	47.4	(2.0)	44.1	(1.8)	40.0	(2.3)
Other source	1.9	(0.9)	0.9	(0.3)	2.1	(1.1)
Total	100.0		100.0		100.0	
All feedlots						
Born on this feedlot or another feedlot operated by this feedlot	0.8	(0.1)	0.9	(0.2)	1.1	(0.3)
Purchased via auction	29.7	(1.2)	33.6	(1.2)	28.8	(1.5)
Purchased via direct sale (cash or video, private treaty)	23.6	(1.5)	23.8	(1.4)	29.6	(1.8)
Provided for custom feeding	43.4	(1.7)	40.9	(1.6)	38.5	(2.0)
Other source	2.5	(0.8)	0.8	(0.3)	2.0	(0.9)
Total	100.0		100.0		100.0	

The percentage of cattle owned by feedlots increased substantially from 1999 to 2011. In 2011, about two-thirds of the cattle on feedlots with a capacity of 1,000 to 7,999 head, and well over half the cattle on feedlots with a capacity of 8,000 head or more, were owned by the feedlot.

A.2.b. Percentage of cattle by ownership at time of placement and by feedlot capacity:

	Percent Cattle					
			NAHMS Study			
	COFE 1994		Feedlot ’99		Feedlot 2011	
Owner	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
1,000–7,999 head capacity						
This feedlot	52.5	(2.7)	52.3	(2.5)	67.7	(3.6)
Joint feedlot ownership with others	7.2	(0.9)	8.9	(1.4)	30.9*	(3.6)
Cattle being custom fed for others	40.3	(2.6)	38.8	(2.5)		
Other	NA		NA		1.4	(0.6)
Total	100.0		100.0		100.0	
8,000 or more head capacity						
This feedlot	20.5	(1.6)	34.0	(2.2)	58.0	(2.3)
Joint feedlot ownership with others	8.5	(0.6)	8.3	(0.8)	40.0	(2.3)
Cattle being custom fed for others	71.0	(1.7)	57.7	(2.2)		
Other	NA		NA		2.0	(1.1)
Total	100.0		100.0		100.0	
All feedlots						
This feedlot	26.1	(1.4)	36.9	(1.8)	59.5	(2.0)
Joint feedlot ownership with others	8.2	(0.5)	8.4	(0.7)	38.5	(2.0)
Cattle being custom fed for others	65.7	(1.5)	54.7	(1.8)		
Other	NA		NA		2.0	(0.9)
Total	100.0		100.0		100.0	

B. Arrival Management and Group Processing

1. Perceived effectiveness of pre-arrival processing

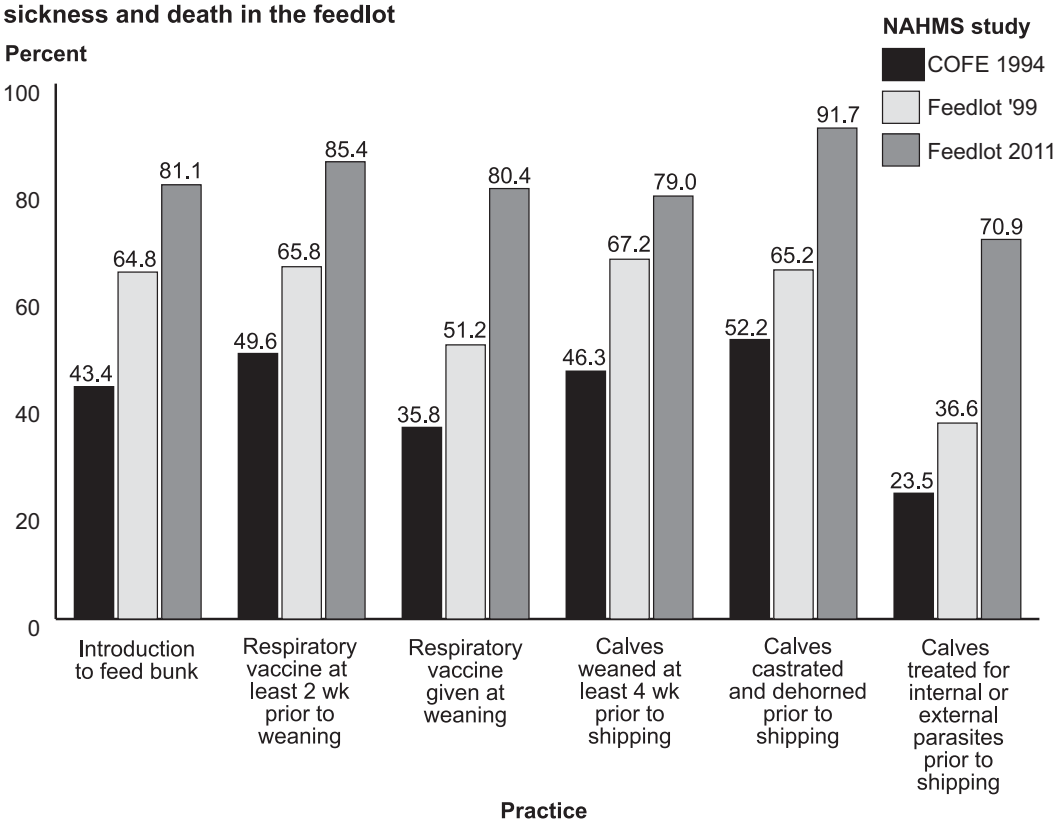
In 2011, between 70 and 90 percent of feedlot operators believed that each of the pre-arrival practices listed in the following table was extremely or very effective in reducing sickness and death in the feedlot. In comparison, in 1994 only about 50 percent of operators believed that pre-arrival practices were extremely or very effective.

B.1. For feedlots that placed cattle less than 700 lb, percentage of feedlots by perceived effectiveness of the following pre-arrival management practices for reducing sickness and death in the feedlot:

	Percent Feedlots										
	Perceived Effectiveness										
	Extremely		Very		Moderately*		Not/slightly*		Does not apply/don't know		
Study	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Introduction to feed bunk											
COFE 1994	12.4	(1.3)	31.0	(1.7)	16.1	(1.3)	1.8	(0.5)	38.7	(1.9)	100.0
Feedlot '99	22.6	(1.7)	42.2	(2.2)	17.4	(1.8)	3.4	(0.9)	14.4	(1.9)	100.0
Feedlot 2011	25.7	(2.7)	55.4	(3.0)	18.8	(2.3)	0.0	(—)	NA		100.0
Respiratory vaccine at least 2 weeks prior to weaning											
COFE 1994	23.0	(1.6)	26.6	(1.6)	8.9	(0.9)	1.4	(0.4)	40.1	(1.8)	100.0
Feedlot '99	27.0	(2.0)	38.8	(2.2)	11.8	(1.6)	0.7	(0.3)	21.7	(2.0)	100.0
Feedlot 2011	29.2	(3.0)	56.2	(3.2)	14.0	(2.1)	0.6	(0.5)	NA		100.0
Respiratory vaccine given at weaning											
COFE 1994	12.5	(1.2)	23.3	(1.6)	16.6	(1.4)	3.7	(0.7)	43.9	(1.8)	100.0
Feedlot '99	18.7	(1.6)	32.5	(2.1)	21.7	(1.9)	1.6	(0.4)	25.5	(2.0)	100.0
Feedlot 2011	25.6	(2.8)	54.8	(3.3)	19.6	(2.7)	0.0	(—)	NA		100.0
Calves weaned at least 4 weeks prior to shipping											
COFE 1994	25.1	(1.6)	21.2	(1.5)	9.4	(1.2)	2.2	(0.5)	42.1	(1.8)	100.0
Feedlot '99	32.4	(2.0)	34.8	(2.1)	9.9	(1.5)	1.0	(0.3)	21.9	(2.0)	100.0
Feedlot 2011	32.4	(3.0)	46.6	(3.3)	19.6	(2.7)	1.3	(0.8)	NA		100.0
Calves castrated and dehorned prior to shipping											
COFE 1994	25.7	(1.6)	26.5	(1.6)	8.1	(1.0)	2.7	(0.7)	37.0	(1.8)	100.0
Feedlot '99	31.7	(2.1)	33.5	(2.1)	9.1	(1.2)	1.2	(0.4)	24.5	(2.2)	100.0
Feedlot 2011	33.8	(2.9)	57.9	(3.1)	7.0	(1.6)	1.4	(0.7)	NA		100.0
Calves treated for internal or external parasites prior to shipping											
COFE 1994	6.4	(0.9)	17.1	(1.4)	22.6	(1.5)	8.8	(1.1)	45.1	(1.9)	100.0
Feedlot '99	8.0	(1.0)	28.6	(2.1)	27.9	(1.9)	5.4	(0.9)	30.1	(2.2)	100.0
Feedlot 2011	22.6	(2.9)	48.3	(3.4)	28.3	(3.1)	0.7	(0.7)	NA		100.0

*In Feedlot 2011, these categories were "somewhat effective" and "not effective."

For feedlots that placed cattle less than 700 lb, percentage of feedlots that rated the following pre-arrival management practices as extremely or very effective for reducing sickness and death in the feedlot



2. Arrival processing

For bulls placed on feedlots with a capacity of 1,000 to 7,999 head, 63.0 percent of bulls were castrated by banding and vaccinated against tetanus in 2011 compared with only 25.5 percent of bulls placed in 1999. The percentage of bulls surgically castrated and not vaccinated against tetanus decreased from 55.2 percent in 1999 to 10.5 percent in 2011.

Castration methods on feedlots with a capacity of 8,000 or more head remained essentially unchanged from 1999 to 2011.

B.2.a. For bulls placed on feed, percentage of bulls by method of castration and by feedlot capacity:

	Percent Bulls			
	NAHMS Study			
	Feedlot ’99		Feedlot 2011	
Castration method	**Percent**	**Std. error**	**Percent**	**Std. error**
1,000–7,999 head capacity				
Banded and vaccinated against tetanus	25.5	(11.1)	63.0	(12.4)
Banded and not vaccinated against tetanus	3.5	(1.6)	0.9	(0.9)
Testes surgically removed and vaccinated against tetanus	9.1	(3.8)	20.1	(9.5)
Testes surgically removed and not vaccinated against tetanus	55.2	(13.1)	10.5	(5.4)
Other castration method	4.0	(3.7)	0.0	(0.0)
Bulls not castrated by the feedlot	2.7	(1.6)	5.5	(3.6)
Total	100.0		100.0	

B.2.a. (cont'd.) For bulls placed on feed, percentage of bulls by method of castration and by feedlot capacity:

	Percent Bulls			
	NAHMS Study			
	Feedlot '99		Feedlot 2011	
Castration method	**Percent**	**Std. error**	**Percent**	**Std. error**
8,000 or more head capacity				
Banded and vaccinated against tetanus	51.2	(9.8)	41.1	(17.1)
Banded and not vaccinated against tetanus	1.2	(0.8)	0.0	(0.0)
Testes surgically removed and vaccinated against tetanus	4.2	(2.0)	4.9	(3.1)
Testes surgically removed and not vaccinated against tetanus	34.8	(10.7)	47.4	(20.9)
Other castration method	3.0	(2.1)	0.0	(0.0)
Bulls not castrated by the feedlot	5.6	(2.4)	6.6	(6.1)
Total	100.0		100.0	
All feedlots				
Banded and vaccinated against tetanus	46.9	(8.0)	42.8	(16.3)
Banded and not vaccinated against tetanus	1.6	(0.7)	0.1	(0.1)
Testes surgically removed and vaccinated against tetanus	5.0	(1.7)	6.1	(3.2)
Testes surgically removed and not vaccinated against tetanus	38.3	(8.6)	44.3	(20.1)
Other castration method	3.1	(1.9)	0.0	(0.0)
Bulls not castrated by the feedlot	5.1	(2.0)	6.5	(5.6)
Total	100.0		100.0	

From 1999 to 2011, less than 8 percent of heifers were pregnant upon arrival. Feedlots with a capacity of 8,000 or more head placed a higher percentage of pregnant heifers than feedlots with a capacity of 1,000 to 7,999 head.

B.2.b. For heifers placed on feed, percentage of heifers pregnant at arrival, by feedlot capacity:

	Percent Heifers			
	NAHMS Study			
	Feedlot ’99		Feedlot 2011	
Feedlot capacity	**Percent**	**Std. error**	**Percent**	**Std. error**
1,000–7,999	3.5	(0.3)	2.6	(0.3)
8,000 or more	8.0	(0.6)	8.8	(0.8)
All feedlots	7.3	(0.5)	7.9	(0.7)

A substantially higher percentage of pregnant heifers placed on feed were treated to abort the pregnancy in 2011 versus 1999 (82.1 and 53.6 percent, respectively). This was largely attributable to the 28-percent increase from 1999 to 2011 in abortion treatments on feedlots with a capacity of 8,000 or more head.

B.2.c. For pregnant heifers placed on feed, percentage of heifers treated to abort the pregnancy, by feedlot capacity:

	Percent Heifers			
	NAHMS Study			
	Feedlot ’99		Feedlot 2011	
Feedlot capacity	**Percent**	**Std. error**	**Percent**	**Std. error**
1,000–7,999	35.9	(3.5)	42.9	(8.3)
8,000 or more	56.1	(3.3)	84.1	(2.9)
All feedlots	53.6	(3.0)	82.1	(2.9)

A lower percentage of cattle and calves placed on feed arrived with horns in 2011 than in 1999, regardless of feedlot capacity.

B.2.d. For cattle placed on feed, percentage of cattle and calves that had horns at arrival, by feedlot capacity:

	Percent Cattle and Calves			
	NAHMS Study			
	Feedlot ’99		Feedlot 2011	
Feedlot capacity	**Percent**	**Std. error**	**Percent**	**Std. error**
1,000–7,999	10.6	(0.7)	6.5	(0.7)
8,000 or more	18.7	(1.0)	12.7	(0.8)
All feedlots	17.4	(0.8)	11.7	(0.7)

A higher percentage of cattle that arrived with horns were dehorned by the feedlot in 2011 compared with 1999.

B.2.e. For cattle with horns placed on feed, percentage of cattle and calves dehorned by the feedlot, by feedlot capacity:

	Percent Cattle and Calves			
	NAHMS Study			
	Feedlot ’99		Feedlot 2011	
Feedlot capacity	**Percent**	**Std. error**	**Percent**	**Std. error**
1,000–7,999	11.5	(2.3)	24.2	(4.9)
8,000 or more	1.3	(0.4)	11.6	(2.1)
All feedlots	2.3	(0.4)	12.7	(1.9)

In 1999 and 2011, about two-thirds of feedlots with a capacity of 1,000 to 7,999 head applied individual indentification (ID) and/or group/owner ID to cattle and calves placed on the feedlot. For feedlots with a capacity of 8,000 or more head, over 90 percent applied individual ID and/or group/owner ID to cattle and calves in 1999 and 2011.

B.2.f. Percentage of feedlots that applied individual ID and/or group/owner ID to cattle and calves placed on feed, by feedlot capacity:

	Percent Feedlots					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Feedlot applied . . .	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
1,000–7,999 head capacity						
Individual-animal ID	45.8	(2.3)	36.9	(2.8)	47.5	(3.0)
Group/owner ID	62.0	(2.2)	45.2	(2.7)	51.7	(2.8)
Individual and/or group ID	NA		68.4	(2.7)	67.5	(2.7)
8,000 or more head capacity						
Individual-animal ID	60.5	(2.4)	47.4	(2.3)	64.8	(3.0)
Group/owner ID	96.5	(0.9)	77.8	(1.9)	88.8	(2.8)
Individual and/or group ID	NA		98.0	(0.7)	94.8	(1.5)
All feedlots						
Individual-animal ID	49.6	(1.9)	39.8	(2.1)	52.6	(2.3)
Group/owner ID	71.0	(1.7)	54.2	(2.1)	62.6	(2.2)
Individual and/or group ID	NA		76.6	(2.0)	75.6	(2.0)

From 1994 to 2011, about four of five cattle that weighed less than 700 lb when placed were given two or more growth-promoting implants.

B.2.g. Percentage of cattle less than 700 lb when placed by number of implants given and by feedlot capacity:

	Percent Cattle <700 lb					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Number implants	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
1,000–7,999 head capacity						
0	4.8	(0.9)	5.7	(1.3)	8.9	(3.5)
1	28.2	(2.9)	24.1	(2.8)	14.2	(3.7)
2 or more	67.0	(3.1)	70.2	(2.9)	76.9	(5.0)
Total	100.0		100.0		100.0	
8,000 or more head capacity						
0	0.7	(0.2)	1.2	(0.4)	7.6	(3.9)
1	20.0	(1.8)	17.0	(1.7)	12.1	(2.7)
2 or more	79.3	(1.8)	81.8	(1.7)	80.3	(4.8)
Total	100.0		100.0		100.0	
All feedlots						
0	1.3	(0.2)	1.9	(0.4)	7.7	(3.4)
1	21.2	(1.6)	18.1	(1.5)	12.4	(2.5)
2 or more	77.5	(1.6)	80.0	(1.6)	79.9	(4.3)
Total	100.0		100.0		100.0	

The number of implants given to cattle weighing 700 lb or more when placed remained stable from 1994 to 2011. Roughly two-thirds of these cattle were given one implant and about one-third received two or more.

B.2.h. Percentage of cattle 700 lb or more when placed, by number of implants given and by feedlot capacity:

	Percent Cattle ≥700 lb					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Number implants	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
1,000–7,999 head capacity						
0	3.2	(0.6)	8.4	(1.9)	6.3	(3.4)
1	64.2	(3.4)	66.0	(2.9)	60.1	(6.8)
2 or more	32.6	(3.5)	25.6	(2.6)	33.6	(6.9)
Total	100.0		100.0		100.0	
8,000 or more head capacity						
0	0.5	(0.2)	1.7	(0.7)	5.7	(3.8)
1	63.8	(2.5)	67.0	(2.6)	65.1	(5.0)
2 or more	35.7	(2.5)	31.3	(2.5)	29.2	(5.0)
Total	100.0		100.0		100.0	
All feedlots						
0	1.1	(0.2)	2.8	(0.7)	5.7	(3.3)
1	63.9	(2.1)	66.8	(2.2)	64.5	(4.5)
2 or more	35.0	(2.2)	30.4	(2.2)	29.8	(4.5)
Total	100.0		100.0		100.0	

3. Initial processing timing

Initial processing procedures include vaccinations, dehorning, implanting, and parasite control. Nearly all feedlots initially processed some arriving cattle as a group from 1994 to 2011. About half of feedlots with a capacity of 1,000 to 7,999 head, and over 80 percent of feedlots with a capacity of 8,000 or more head, initially processed some cattle within 24 hours of arrival.

B.3.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:

	Percent Feedlots					
			NAHMS Study			
	COFE 1994		Feedlot ’99		Feedlot 2011	
Number of hours	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
1,000–7,999 head capacity						
12 or less	48.7	(2.4)	39.4	(2.7)	48.7	(2.8)
13–24	59.6	(2.4)	55.8	(2.8)		
25–72	38.8	(2.3)	45.4	(2.8)	52.6	(2.9)
More than 72	21.0	(2.0)	17.2	(2.1)	25.7	(2.6)
Ever processed	98.2	(0.6)	96.6	(1.1)	95.8	(1.1)
8,000 or more head capacity						
12 or less	80.1	(2.0)	68.8	(2.2)	86.2	(2.4)
13–24	85.5	(1.6)	82.7	(1.7)		
25–72	42.6	(2.3)	47.2	(2.3)	67.8	(3.9)
More than 72	14.5	(1.7)	11.9	(1.6)	28.5	(3.6)
Ever processed	99.4	(0.4)	100.0	(—)	99.3	(0.2)
All feedlots						
12 or less	56.9	(1.8)	47.6	(2.1)	59.7	(2.1)
13–24	66.3	(1.8)	63.2	(2.1)		
25–72	39.8	(1.8)	45.9	(2.1)	57.1	(2.3)
More than 72	19.3	(1.5)	15.7	(1.6)	26.5	(2.1)
Ever processed	98.5	(0.5)	97.5	(0.8)	96.8	(0.8)

From 1994 to 2011, nearly all cattle and calves placed on feed were initially processed as a group. The highest percentage of cattle were processed as a group within 24 hours of arrival. The percentage of cattle processed as a group within 25 to 72 hours increased from 10.3 percent in 1994, 16.6 percent in 1999, and 32.3 percent in 2011.

B.3.b. Percentage of cattle and calves initially processed as a group, by number of hours after arrival animals were processed, and by feedlot capacity:

	Percent Cattle and Calves					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Number of hours	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
1,000–7,999 head capacity						
12 or less	37.5	(2.6)	29.4	(2.3)	48.9	(4.1)
13–24	36.8	(2.2)	35.1	(2.2)		
25–72	17.7	(1.6)	25.5	(2.0)	35.2	(3.6)
More than 72	6.4	(0.8)	8.3	(1.3)	14.1	(2.2)
Not processed	1.6	(0.4)	1.7	(1.0)	1.8	(0.7)
Total	100.0		100.0		100.0	
8,000 or more head capacity						
12 or less	43.4	(2.4)	40.0	(2.4)	63.1	(2.7)
13–24	46.6	(2.2)	44.0	(2.1)		
25–72	8.8	(0.8)	14.8	(1.3)	31.8	(2.5)
More than 72	1.0	(0.2)	1.2	(0.3)	5.0	(0.8)
Not processed	0.2	(0.0)	0.0	(0.0)	0.1	(0.1)
Total	100.0		100.0		100.0	
All feedlots						
12 or less	42.4	(2.0)	38.3	(2.0)	60.8	(2.4)
13–24	44.9	(1.9)	42.5	(1.8)		
25–72	10.3	(0.7)	16.6	(1.1)	32.3	(2.2)
More than 72	2.0	(0.2)	2.3	(0.3)	6.5	(0.8)
Not processed	0.4	(0.1)	0.3	(0.2)	0.4	(0.1)
Total	100.0		100.0		100.0	

4. Branding and identification

The percentage of feedlots that hide-branded cattle after arrival decreased from 42.9 percent in 1994 to 22.5 percent in 2011.

B.4. Percentage of feedlots that hide-branded (freeze or hot) any cattle after arrival:

Percent Feedlots					
NAHMS Study					
COFE 1994		Feedlot ’99		Feedlot 2011	
Percent	Std. error	Percent	Std. error	Percent	Std. error
42.9	(1.7)	38.5	(1.8)	22.5	(2.0)

C. Nutritional Management

1. Feed additives

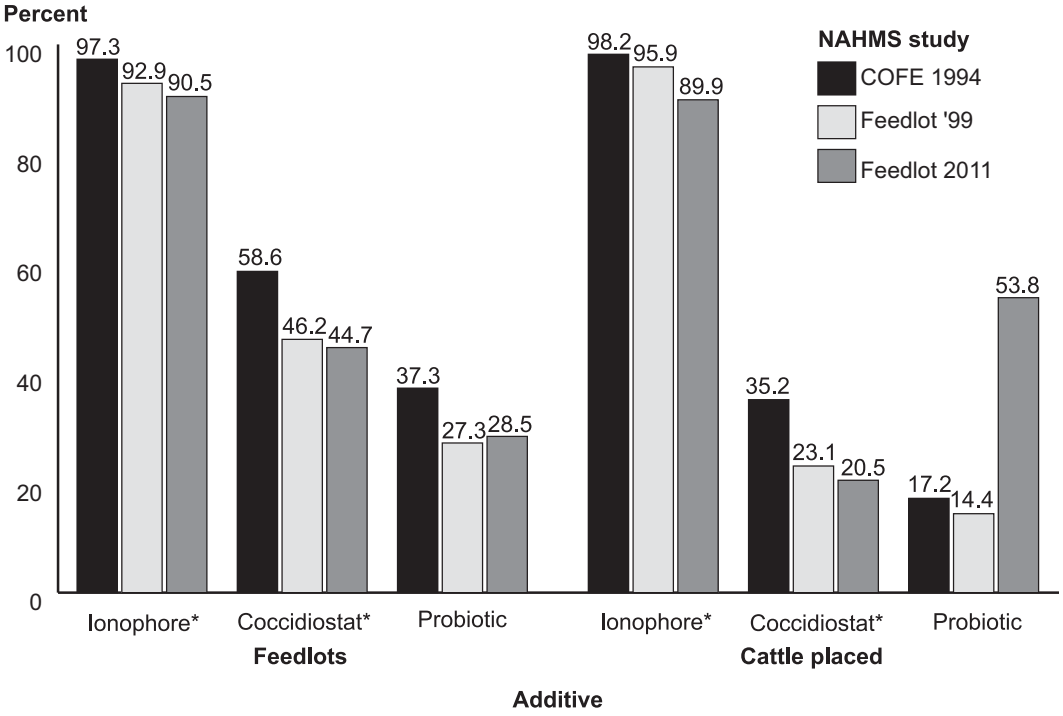
From 1994 to 2011, more than 90 percent of feedlots added ionophores to cattle feed to improve feed efficiency. In 1994, 58.6 percent of feedlots used coccidiostats to prevent coccidiosis compared with 46.2 and 44.7 percent of feedlots in 1999 and 2011, respectively. The percentage of cattle fed probiotics to improve the rumen microbial environment increased substantially in 2011 (53.8 percent) compared with 1999 and 1994 (14.4 and 17.2 percent, respectively).

C.1. Percentage of feedlots that gave any cattle a feed additive, and percentage of cattle given a feed additive, by additive given:

	Percent Feedlots and Percent Cattle					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Additive	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Feedlots						
Ionophore*	97.3	(0.6)	92.9	(1.3)	90.5	(1.4)
Coccidiostat*	58.6	(1.8)	46.2	(2.1)	44.7	(2.2)
Probiotic	37.3	(1.8)	27.3	(1.8)	28.5	(2.0)
Cattle						
Ionophore*	98.2	(0.5)	95.9	(0.8)	89.9	(1.4)
Coccidiostat*	35.2	(2.4)	23.1	(2.7)	20.5	(2.1)
Probiotic	17.2	(1.6)	14.4	(1.7)	53.8	(2.6)

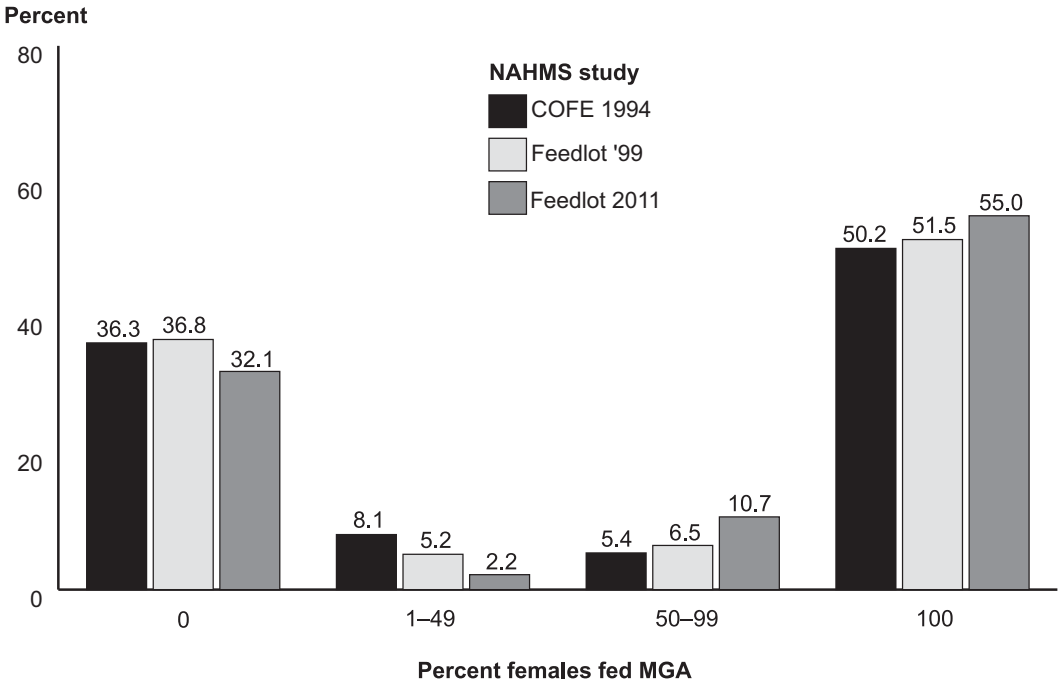
*Ionophore such as Rumensin®, Bovatec®, or Cattlyst®; Coccidiostat other than an ionophore such as Corid® or Deccox®.

Percentage of feedlots that gave any cattle a feed additive, and percentage of cattle given a feed additive, by additive given



*Ionophore such as Rumensin, Bovatec, or Cattlyst.
Coccidiostat other than an ionophore such as Corid or Deccox.

For feedlots that placed female cattle, percentage of feedlots by percentage of females fed MGA



2. Progestagen feeding

From 1994 to 2011, about two-thirds of feedlots that placed heifers fed heifers melengesterol acetate (MGA®) to suppress estrus and improve feed efficiency.

C.2.a. For feedlots that placed female cattle, percentage of feedlots that fed females MGA:

Percent Feedlots					
NAHMS Study					
COFE 1994		Feedlot ’99		Feedlot 2011	
Percent	Std. error	Percent	Std. error	Percent	Std. error
63.7	(1.9)	63.2	(2.1)	67.9	(2.4)

For feedlots that fed MGA, over half of feedlots fed MGA to all heifers in each of the study years.

C.2.b. For feedlots that placed female cattle, percentage of feedlots by percentage of females fed MGA:

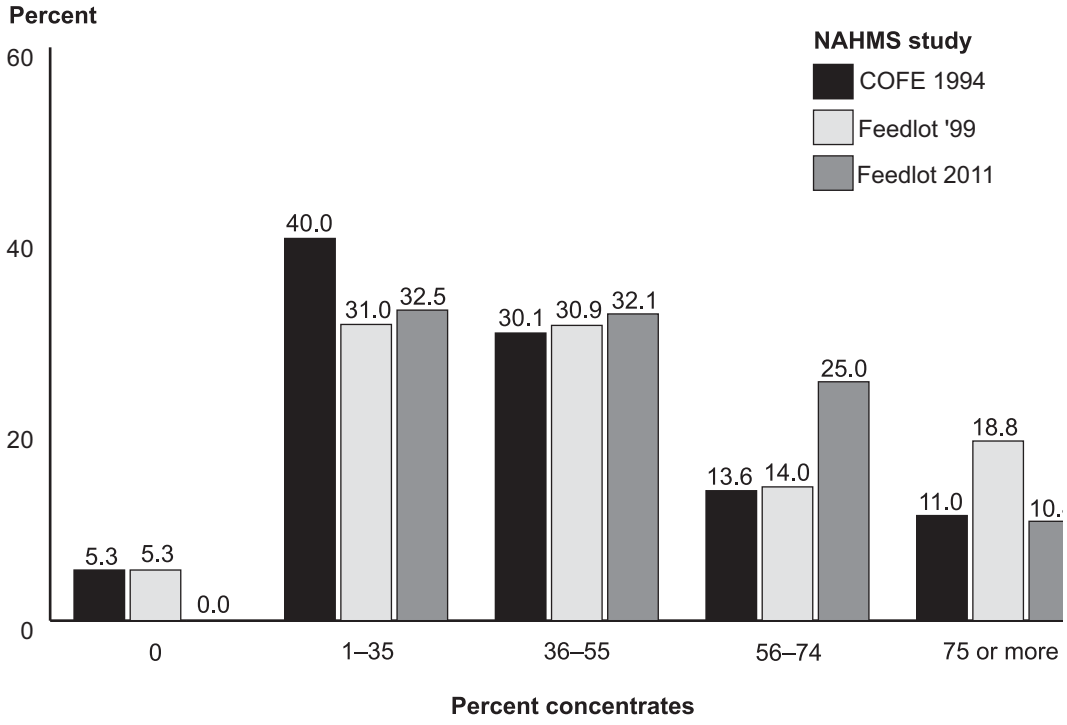
	Percent Feedlots					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Percent females fed MGA	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
0	36.3	(2.0)	36.8	(2.1)	32.1	(2.4)
1–49	8.1	(1.1)	5.2	(0.8)	2.2	(0.7)
50–99	5.4	(0.9)	6.5	(1.0)	10.7	(2.0)
100	50.2	(2.0)	51.5	(2.2)	55.0	(2.7)
Total	100.0		100.0		100.0	

High-energy concentrate rations can cause rumen lactic acidosis, dehydration, scours, liver abscesses, and laminitis if cattle are not adapted to eating concentrates. The percentage of feedlots that fed arriving cattle rations with 75 percent or more concentrates increased from 1994 to 1999, but decreased in 2011. The percentage of feedlots that fed rations with a moderately high percentage of concentrates (36 to 74 percent) increased in 2011 compared with 1994 and 1999.

C.2.c. Percentage of feedlots by percentage of concentrates (dry matter basis) in feed given to arriving cattle:

	Percent Feedlots					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Percent concentrates	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
0	5.3	(0.9)	5.3	(1.1)	0.0	(—)
1–35	40.0	(1.9)	31.0	(2.1)	32.5	(2.4)
36–55	30.1	(1.7)	30.9	(1.9)	32.1	(2.5)
56–74	13.6	(1.3)	14.0	(1.5)	25.0	(2.3)
75 or more	11.0	(1.2)	18.8	(1.7)	10.4	(1.5)
Total	100.0		100.0		100.0	

Percentage of feedlots by percentage of concentrates(dry matter basis) in feed given to arriving cattle



D. Health Management

1. Pen-riding

Pen-riding or walking provides a visual evaluation of the overall well-being of cattle as well as early recognition of individual animals with illnesses. From 1999 to 2011, pen-riding occurred at least once a day on over 90 percent of feedlots for the first 29 days after arrival. The percentage of feedlots in which pen-riding occurred twice a day decreased from 59.5 percent in 1999 to 44.5 percent in 2011. From 1994 to 2011, the majority of feedlots used a once-a-day pen-riding procedure after cattle had been on feed 30 days or more.

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

Percent Feedlots							
			NAHMS Study				
COFE 1994				Feedlot ’99		Feedlot 2011	
Frequency	Pct.	Std. error	Frequency	Pct.	Std. error	Pct.	Std. error
			Less than 15 days after arrival				
			More than twice a day	19.3	(1.8)	20.3	(2.1)
			Twice a day	59.5	(2.1)	44.5	(2.4)
			Once a day	19.7	(1.5)	32.1	(2.1)
			Less than once a day	0.3	(0.2)	1.1	(0.4)
			No standard procedure	1.2	(0.6)	2.0	(0.7)
			Total	100.0		100.0	
Less than 30 days after arrival			15–29 days after arrival				
More than once a day	73.8	(1.7)	More than twice a day	7.6	(1.3)	6.3	(1.3)
			Twice a day	41.2	(2.1)	31.8	(2.2)
Once a day	25.0	(1.6)	Once a day	48.8	(2.1)	56.2	(2.3)
Every other day	0.4	(0.3)	Less than once a day	1.9	(0.7)	3.6	(0.9)
No standard procedure	0.8	(0.3)	No standard procedure	0.5	(0.3)	2.1	(0.7)
Total	100.0		Total	100.0		100.0	

D.1. (cont'd.) Percentage of feedlots by frequency pen-riding or walking procedures were conducted, and by number of days cattle had been at the feedlot:

Percent Feedlots							
NAHMS Study							
COFE 1994			Feedlot '99			Feedlot 2011	
Frequency	**Pct.**	**Std. error**	**Frequency**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
30 days or more							
More than once a day	20.1	(1.5)	More than twice a day	9.1	(1.2)	5.5	(1.2)
			Twice a day	16.7	(1.7)	13.5	(1.6)
Once a day	72.5	(1.7)	Once a day	68.2	(2.1)	70.2	(2.2)
Every other day	5.2	(0.9)	Less than once a day	4.3	(0.8)	7.4	(1.3)
No standard procedure	2.2	(0.6)	No standard procedure	1.7	(0.7)	3.4	(0.9)
Total	100.0		Total	100.0		100.0	

2. Antibiotics

The use of antibiotics in feed and water has remained consistent across study years.

D.2.a. Percentage of feedlots that used an antibiotic in feed and/or water* for health or production reasons, by feedlot capacity:

	Percent Feedlots					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Delivery method	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
1,000–7,999 head capacity						
Feed	69.4	(2.3)	85.2	(2.9)	75.5	(2.5)
Water	3.4	(0.9)			5.5	(1.3)
8,000 head or more capacity						
Feed	73.1	(2.0)	77.9	(3.3)	68.5	(3.2)
Water	4.3	(1.1)			2.4	(1.3)
All feedlots						
Feed	70.4	(1.8)	83.2	(2.3)	73.4	(2.0)
Water	3.6	(0.7)			4.7	(1.0)

*Feed and water combined in Feedlot ’99.

Few feedlots tested any cattle for antibiotic residues prior to shipping for slaughter. The percentage of feedlots with a capacity of 8,000 or more head that tested any cattle for antibiotic residues decreased from 26.6 percent in 1994, 18.9 percent in 1999, and 10.0 percent in 2011.

D.2.b. Percentage of feedlots that tested any cattle for antibiotic residues prior to shipping for slaughter, by feedlot capacity:

	Percent Feedlots					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Feedlot capacity	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
1,000–7,999	3.2	(0.8)	2.9	(1.0)	4.2	(1.1)
8,000 or more	26.6	(1.9)	18.9	(2.0)	10.0	(1.6)
All feedlots	9.3	(0.8)	7.3	(0.9)	5.9	(0.9)

3. Health records maintained

The information recorded when a sick animal is treated can be valuable in tracking disease frequency, treatment response and outcome, and withdrawal-period compliance. Most record-keeping practices remained relatively unchanged in frequency of use from 1994 to 2011. However, a higher percentage of feedlots always recorded weight at time of treatment in 2011 than in 1999 or 1994. With the exception of body temperature, the percentage of feedlots that recorded each of the information types at least sometimes increased from 1994 to 2011.

D.3. Percentage of feedlots by frequency that information on sick animals was recorded, by information recorded:

	Percent Feedlots								
	Frequency								
	Always		Most of the time		Sometimes		Never		
Information recorded	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Body temperature									
COFE 1994	54.7	(1.8)	13.3	(1.3)	13.0	(1.3)	19.0	(1.5)	100.0
Feedlot ’99	42.3	(2.0)	18.5	(1.7)	16.3	(1.6)	22.9	(1.9)	100.0
Feedlot 2011	40.4	(2.3)	19.7	(1.8)	19.9	(1.9)	20.0	(1.9)	100.0
Date treated									
COFE 1994	71.8	(1.6)	6.0	(0.9)	7.2	(1.0)	15.0	(1.4)	100.0
Feedlot ’99	71.8	(2.0)	9.3	(1.4)	6.0	(1.1)	12.9	(1.7)	100.0
Feedlot 2011	77.1	(1.9)	11.3	(1.6)	6.1	(1.1)	5.5	(1.1)	100.0
Weight at time of treatment									
COFE 1994	23.3	(1.4)	7.3	(0.9)	13.2	(1.2)	56.2	(1.7)	100.0
Feedlot ’99	25.5	(1.7)	10.4	(1.4)	14.0	(1.4)	50.1	(2.1)	100.0
Feedlot 2011	35.7	(2.1)	7.8	(1.2)	14.6	(1.7)	41.9	(2.2)	100.0

D.3. (cont'd.) Percentage of feedlots by frequency that information on sick animals was recorded, by information recorded:

	Percent Feedlots								
	Frequency								
	Always		Most of the time		Sometimes		Never		
Information recorded	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Treatment given									
COFE 1994	77.7	(1.6)	4.6	(0.8)	4.9	(0.9)	12.8	(1.3)	100.0
Feedlot '99	73.5	(2.0)	10.0	(1.5)	4.1	(0.9)	12.4	(1.6)	100.0
Feedlot 2011	78.7	(1.9)	11.7	(1.5)	3.6	(0.9)	6.0	(1.1)	100.0
Treatment withdrawal period									
COFE 1994	63.3	(1.8)	5.2	(0.9)	6.3	(0.9)	25.2	(1.7)	100.0
Feedlot '99	57.6	(2.1)	7.4	(1.3)	9.3	(1.3)	25.7	(2.0)	100.0
Feedlot 2011	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.)									
COFE 1994	61.7	(1.8)	7.8	(1.0)	8.5	(1.1)	22.0	(1.6)	100.0
Feedlot '99	57.6	(2.1)	11.5	(1.5)	12.5	(1.5)	18.4	(1.8)	100.0
Feedlot 2011	62.4	(2.1)	12.8	(1.6)	10.3	(1.4)	14.5	(1.6)	100.0
Outcome of treatment (return to pen, died, or culled)									
COFE 1994	62.3	(1.8)	7.8	(1.0)	8.1	(1.1)	21.8	(1.6)	100.0
Feedlot '99	57.0	(2.1)	9.2	(1.4)	10.1	(1.4)	23.7	(2.0)	100.0
Feedlot 2011	63.8	(2.1)	8.6	(1.3)	13.6	(1.7)	14.0	(1.6)	100.0

4. Use of veterinarian and nutritionist services

Nearly all feedlots used the services of a veterinarian in 1994 (99.0 percent), 1999 (97.4 percent), and 2011 (96.6 percent). The percentages of feedlots that had a full-time staff veterinarian, a private veterinarian that made routine visits, or had a veterinarian that was called as needed did not change from 1994 to 2011.

The percentage of feedlots that used a nutritionist steadily increased from 1994 to 2011 (87.7 and 95.2 percent, respectively). Full-time staff nutritionists were employed on 9.3 percent of feedlots surveyed in 2011 compared with slightly less than 4 percent in 1994 and 1999.

D.4.a. Percentage of feedlots that used the services of a veterinarian and percentage that used a nutritionist, by type of veterinarian and nutritionist used for the respective year ending June 30:

	Percent Feedlots					
			NAHMS Study			
	COFE 1994		Feedlot ’99		Feedlot 2011	
Type of veterinarian/ nutritionist	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Veterinarian						
Full-time veterinarian on staff	3.6	(0.6)	3.3	(0.5)	5.2	(0.9)
Private veterinarian who made regular or routine visits	39.3	(1.6)	34.6	(1.6)	36.7	(2.0)
Professional veterinarian called as needed	72.7	(1.4)	70.9	(1.6)	69.5	(1.9)
Any veterinarian	99.0	(0.3)	97.4	(0.7)	96.6	(1.1)
Nutritionist						
Full-time nutritionist on staff	3.9	(0.6)	3.7	(0.7)	9.3	(1.3)
Private nutritionist who made regular or routine visits	64.8	(1.7)	38.2	(1.8)	35.6	(2.0)
Professional nutritionist called as needed	33.1	(1.8)	15.8	(1.4)	11.9	(1.6)
Feed company nutritionist	NA		56.0	(2.1)	56.2	(2.2)
Other nutritionist	NA		2.1	(0.7)	NA	
Any nutritionist	87.7	(1.3)	91.0	(1.5)	95.2	(1.0)

From 1994 to 2011, the percentage of dead cattle that had a postmortem examination remained relatively unchanged, regardless of feedlot capacity. Since 1994, postmortem examinations were conducted on about twice the percentage of dead cattle on feedlots with a capacity of 8,000 or more compared with feedlots with a capacity of 1,000 to 7,999 head.

D.4.b. Percentage of dead cattle that had postmortem examination, by feedlot capacity:

	Percent Dead Cattle					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Feedlot capacity (number of head)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
1,000–7,999	22.8	(2.9)	24.9	(2.1)	21.3	(6.2)
8,000 or more	52.6	(3.4)	57.7	(2.2)	53.8	(2.9)
All feedlots	45.9	(2.5)	53.9	(2.3)	48.7	(2.6)

5. Carcass disposal methods

From 1994 to 1999, more than 90 percent of feedlots used a renderer to dispose of carcasses. By 2011, however, just over 75 percent of feedlots used a renderer. The percentage of feedlots that buried carcasses on site remained at about 11 percent from 1994 to 1999, but increased to about 19 percent in 2011.

D.5. Percentage of feedlots and percentage of dead cattle by carcass disposal method:

	Percent Feedlots and Percent Dead Cattle					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Disposal method	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Feedlots						
Buried on site	11.8	(1.0)	10.7	(1.3)	18.9	(2.0)
Composting	NA		NA		11.8	(1.3)
Landfill	1.2	(0.4)	1.6	(0.4)	2.7	(0.8)
Renderer	94.3	(0.7)	94.4	(0.8)	76.4	(1.9)
Other	1.0*	(0.4)	0.4*	(0.2)	1.5	(0.8)
Dead cattle						
Buried on farm	3.5	(0.8)	5.3	(1.5)	8.4	(2.4)
Composting	NA		NA		8.8	(1.7)
Landfill	0.7	(0.5)	0.5	(0.2)	2.5	(0.7)
Renderer	95.8	(0.9)	94.1	(1.6)	80.2	(2.6)
Other	0.0	(0.0)	0.1	(0.1)	0.1	(0.1)
Total	100.0		100.0		100.0	

*Includes composting for these two study years.

6. Quality assurance

All categories of quality assurance practices that were surveyed were considered very important on nearly all feedlots in 1999 and 2011.

D.6.a. Percentage of feedlots by importance operator placed on quality assurance practices:

	Percent Feedlots								
	Level of Importance								
	Very		Somewhat		Not		Don't know		
Quality assurance practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Location used for administration of injectable product (neck, shoulder, side, or leg)									
Feedlot '99	94.9	(1.0)	3.8	(0.9)	0.3	(0.2)	1.0	(0.4)	100.0
Feedlot 2011	96.1	(0.9)	3.1	(0.8)	0.8	(0.4)	0.0	(—)	100.0
Route used for administration of injectable product (muscle, vein, or under skin)									
Feedlot '99	91.3	(1.4)	6.5	(1.3)	1.1	(0.5)	1.1	(0.4)	100.0
Feedlot 2011	92.1	(1.3)	7.2	(1.3)	0.6	(0.3)	0.1	(0.1)	100.0
Implanting strategy									
Feedlot '99	87.7	(1.6)	8.0	(1.4)	1.8	(0.6)	2.5	(0.8)	100.0
Feedlot 2011	89.0	(1.5)	5.6	(1.1)	2.5	(0.7)	2.9	(0.8)	100.0
Antibiotic selection (e.g., type of antibiotic used or duration of action) to manage disease									
Feedlot '99	91.9	(1.2)	6.4	(1.1)	0.1	(0.1)	1.6	(0.5)	100.0
Feedlot 2011	92.1	(1.3)	6.6	(1.3)	0.6	(0.3)	0.7	(0.4)	100.0
Residue avoidance									
Feedlot '99	93.5	(1.1)	4.1	(0.9)	0.9	(0.5)	1.5	(0.4)	100.0
Feedlot 2011	93.5	(1.3)	4.5	(1.0)	2.0	(0.8)	0.0	(—)	100.0

From 1999 to 2011 on feedlots with 1,000 to 7,999 head, a substantial increase occurred in the percentages of feedlots with formal employee training programs (including written guidelines) for quality assurance, residue avoidance, animal handling procedures, and employee safety. During the same period, feedlots with a capacity of 8,000 or more head also saw an increase in the percentages of feedlots with formal training programs.

D.6.b. Percentage of feedlots that had a formal employee training program that included written guidelines, by training topic and by feedlot capacity:

	Percent Feedlots			
	NAHMS Study			
	Feedlot ’99		Feedlot 2011	
Training topic	**Percent**	**Std. error**	**Percent**	**Std. error**
1,000–7,999 head capacity				
Quality assurance	34.5	(2.4)	56.6	(3.3)
Residue avoidance	33.3	(2.4)	60.2	(3.2)
Animal handling procedures	34.8	(2.5)	65.9	(3.0)
Employee safety	33.0	(2.6)	64.0	(3.1)
8,000 or more head capacity				
Quality assurance	76.8	(1.9)	86.4	(3.2)
Residue avoidance	82.4	(1.7)	91.5	(2.1)
Animal handling procedures	73.5	(2.0)	92.6	(2.0)
Employee safety	86.7	(1.6)	93.9	(2.0)
All feedlots				
Quality assurance	46.3	(1.9)	67.1	(2.5)
Residue avoidance	46.9	(1.9)	71.1	(2.3)
Animal handling procedures	45.5	(1.9)	75.2	(2.1)
Employee safety	47.9	(1.9)	74.4	(2.2)

E. Environmental Programs

1. Training programs and control measures

The percentage of feedlots that had a formal training program (including written guidelines) for manure management more than doubled from 1999 to 2011 (27.5 and 60.2 percent, respectively). Formal training in dust control and other programs (including lagoon overflow) also increased substantially from 1999 to 2011.

E.1.a. Percentage of feedlots that had a formal employee training programs (including written guidelines) regarding environmental issues, by issue and by feedlot capacity:

	Percent Feedlots			
	NAHMS Study			
	Feedlot ’99		Feedlot 2011	
Environmental issue	**Percent**	**Std. error**	**Percent**	**Std. error**
1,000–7,999 head capacity				
Manure management	18.5	(2.0)	57.1	(3.1)
Dust control	12.8	(1.7)	20.6	(2.7)
Lagoon			47.2	(3.1)
Any other environmental training program	7.6*	(1.2)	9.8	(1.9)
8,000 or more head capacity				
Manure management	51.2	(2.3)	66.1	(4.2)
Dust control	38.5	(2.1)	48.5	(4.1)
Lagoon			81.7	(2.7)
Any other environmental training program	32.7*	(2.2)	8.89	(1.3)
All feedlots				
Manure management	27.5	(1.6)	60.2	(2.5)
Dust control	19.9	(1.4)	30.1	(2.2)
Lagoon			58.9	(2.4)
Any other environmental training program	14.6*	(1.1)	9.4	(1.3)

*Includes lagoon overflow.

The percentage of feedlots that tested manure for nutrient content (e.g., nitrogen) increased from 38.0 percent in 1994 to 75.4 percent in 2011. From 1994 to 2011, feedlots with a capacity of 8,000 or more head were more likely to perform environmental testing of any kind than feedlots with a capacity of 1,000 to 7,999 head.

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

	Percent Feedlots					
			NAHMS Study			
	COFE 1994		Feedlot ’99		Feedlot 2011	
Tests performed on…	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
1,000–7,999 head capacity						
Ground water (i.e., well water)	35.6	(2.3)	41.3	(2.7)	52.1	(2.9)
Surface water (e.g., ponds, lakes, or streams)	NA		11.1	(1.6)	19.0	(2.9)
Nutrient content of manure (e.g., nitrogen level)	28.1	(2.2)	33.8	(2.7)	70.7	(2.7)
Air quality	NA		1.9	(0.7)	4.5	(1.4)
8,000 or more head capacity						
Ground water (i.e., well water)	71.5	(2.1)	78.5	(1.9)	79.5	(3.3)
Surface water (e.g., ponds, lakes, or streams)	NA		44.0	(2.3)	48.5	(5.0)
Nutrient content of manure (e.g., nitrogen level)	66.3	(2.2)	69.5	(2.1)	86.8	(2.8)
Air quality	NA		15.4	(1.7)	11.6	(1.7)
All feedlots						
Ground water (i.e., well water)	44.9	(1.8)	51.6	(2.1)	60.2	(2.3)
Surface water (e.g., ponds, lakes, or streams)	NA		20.2	(1.4)	28.0	(2.5)
Nutrient content of manure (e.g., nitrogen level)	38.0	(1.7)	43.7	(2.0)	75.4	(2.1)
Air quality	NA		5.6	(0.7)	6.6	(1.1)

The majority of feedlots (63.7 percent) used mechanical scrapers as a dust control practice in 2011. Water trucks were also a popular means of dust control, especially on feedlots with a capacity of 8,000 or more head. Dust control practices remained relatively unchanged from 1994 to 2011, with the exception of permanent sprinkler use, which increased slightly in 2011 (16.6 percent of feedlots) compared with 1994 and 1999 (9.0 and 10.7 percent of feedlots, respectively).

E.1.c. Percentage of feedlots by dust control practices performed and by feedlot capacity:

	Percent Feedlots					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Dust control practices	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
1,000–7,999 head capacity						
Permanent sprinklers	6.2	(1.0)	8.0	(1.6)	14.3	(2.1)
Mobile sprinklers (water truck)	24.7	(1.9)	26.7	(2.2)	29.2	(2.7)
Mechanical scrapers	68.0	(2.1)	63.8	(2.7)	56.2	(2.8)
Increased cattle density	NA		18.2	(1.9)	13.4	(1.9)
Other	NA		3.3	(1.2)	2.9	(1.0)
8,000 or more head capacity						
Permanent sprinklers	17.1	(1.7)	17.6	(1.8)	22.2	(3.5)
Mobile sprinklers (water truck)	69.7	(2.1)	69.4	(2.2)	53.9	(4.1)
Mechanical scrapers	86.7	(1.7)	80.9	(1.9)	81.9	(2.6)
Increased cattle density	NA		38.7	(2.3)	27.1	(3.4)
Other	NA		5.7	(1.4)	0.6	(0.5)
All feedlots						
Permanent sprinklers	9.0	(0.9)	10.7	(1.2)	16.6	(1.8)
Mobile sprinklers (water truck)	36.3	(1.5)	38.5	(1.8)	36.5	(2.2)
Mechanical scrapers	72.9	(1.6)	68.5	(2.0)	63.7	(2.2)
Increased cattle density	NA		23.9	(1.5)	17.5	(1.7)
Other	NA		4.0	(0.9)	2.3	(1.7)

A higher percentage of feedlots with a capacity of 1,000 to 7,999 head used berms to control water runoff in 2011 than in 1999. Feedlots with a capacity of 1,000 to 7,999 head also increased their usage of lagoons to capture runoff by 10 percent from 1999 to 2011. Nearly all feedlots with a capacity of 8,000 or more used lagoons to capture runoff (95.0 percent in 1999 and 94.8 percent in 2011). About three-fourths of feedlots used berms.

E.1.d. Percentage of feedlots by practice used to manage water runoff, and by feedlot capacity:

	Percent Feedlots			
	NAHMS Study			
	Feedlot ’99		Feedlot 2011	
Practice	**Percent**	**Std. error**	**Percent**	**Std. error**
1,000–7,999 head capacity				
Lagoons to capture runoff	55.2	(2.7)	65.3	(2.5)
Berms to control runoff	54.0	(2.8)	73.7	(2.6)
Fencing landscaping to enhance wildlife management or minimize erosion	51.3	(2.8)	52.8	(2.9)
8,000 or more head capacity				
Lagoons to capture runoff	95.0	(1.3)	94.8	(1.2)
Berms to control runoff	74.9	(2.0)	77.1	(3.0)
Fencing landscaping to enhance wildlife management or minimize erosion	60.1	(2.2)	47.0	(4.3)
All feedlots				
Lagoons to capture runoff	66.2	(2.1)	74.1	(1.9)
Berms to control runoff	59.8	(2.1)	74.7	(2.0)
Fencing landscaping to enhance wildlife management or minimize erosion	53.7	(2.1)	51.1	(2.4)

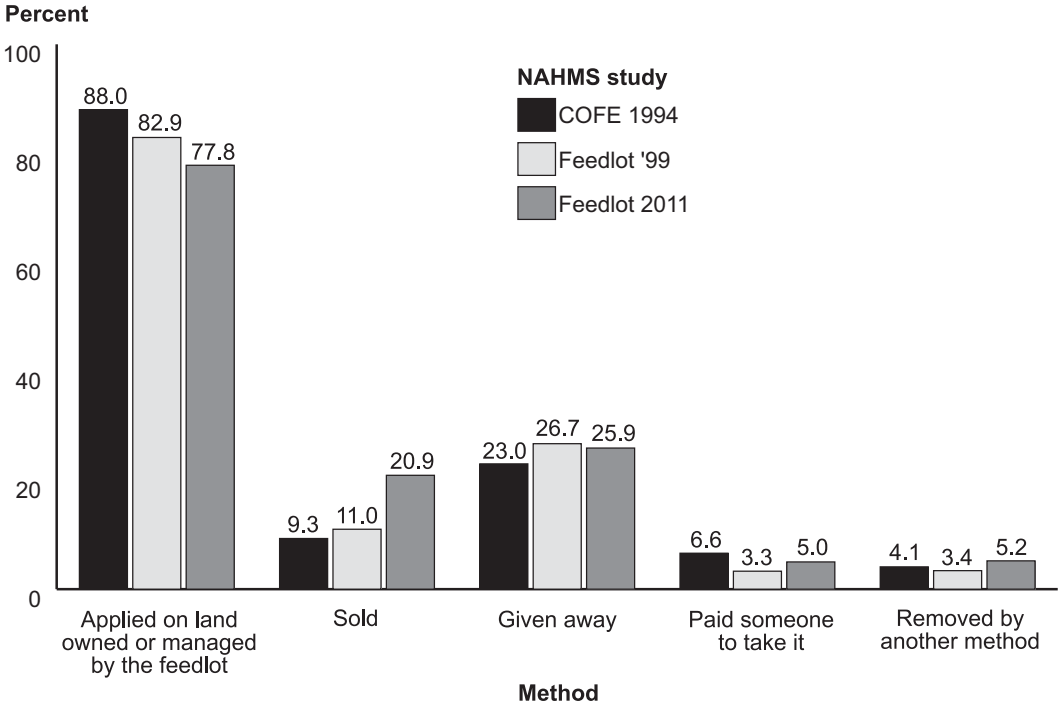
2. Waste management

From 1994 to 2011, the majority of feedlots disposed of manure by applying it to land owned or managed by the feedlot. However, the percentage of feedlots that used this method has decreased steadily from 1994 (88.0 percent) to 2011 (77.8 percent). An increase in the percentage of feedlots that sold their manure also occurred during that time; over one-fifth of feedlots sold their manure in 2011.

E.2.a. Percentage of feedlots by methods used to dispose of manure:

	Percent Feedlots					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Method	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Applied on land owned or managed by the feedlot	88.0	(1.0)	82.9	(1.1)	77.8	(1.6)
Sold	9.3	(1.0)	11.0	(0.9)	20.9	(1.6)
Given away	23.0	(1.3)	26.7	(1.4)	25.9	(1.7)
Paid someone to take it	6.6	(0.7)	3.3	(0.4)	5.0	(1.4)
Removed by another method	4.1	(0.6)	3.4	(0.6)	5.2	(1.2)

Percentage of feedldots by method used to dispose of manure



For feedlots that applied manure on land owned by the feedlot, 69.1 percent of feedlots in 1994 tested the nutrient content of the soil on which they placed manure compared with 76.1 percent in 1999 and 92.7 percent in 2011. The percentage of feedlots that tested soil to determine manure application ranged from 53.5 percent in 1999 to 89.3 percent in 2011.

E.2.b. For feedlots that applied manure on land owned by the feedlot, percentage of feedlots that tested the nutrient content of the soil receiving the manure, and percentage of feedlots that tested to determine the manure application rate:

	Percent Feedlots					
	NAHMS Study					
	COFE 1994		Feedlot ’99		Feedlot 2011	
Test type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Tested soil for nutrient content	69.1	(1.9)	76.1	(2.0)	92.7	(1.6)
Tested soil to determine manure application rate	62.4	(2.4)	53.5	(2.5)	89.3	(1.8)

Appendix I: Feedlots and Inventory, 1,000 or More Head Capacity for Selected States

			Inventory (1,000 head)			
Region	**State**	**Number of lots 2007[1]**	**Jan. 1, 2010[2]**	**July 1, 2010[3]**	**Jan. 1, 2011**	**July 1, 2011**
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)[4]	(D)[5]
	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 II: U.S. Feedlots and Inventory by Size

	Number of feedlots				
Feedlot capacity	**2007[1]**	**2008[2]**	**2009[3]**	**2010[4]**	**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				
	2008[1]	**2009[2]**	**2010[3]**	**2011[4]**	**2012[4]**
Fewer than 1,000 head	2,734.7	2,621.7	2,659.2	2,499	2,260
1,000 or more	12,092	11,234	10,983	11,513	11,861
All feedlots in United States	14,826.7	13,855.7	13,642.2	14,012	14,121

[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 III: 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, June 2013
   - Part IV: Health and Health Management on U.S. Feedlots with Capacity of 1,000 or More Head, expected August 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, June 2013
   - Types and Costs of Respiratory Disease Treatment in U.S. Feedlots, info sheet, April 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, June 2013
   - *Salmonella* 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, June 2013
   - Part IV: Health and Health Management on U.S. Feedlots with Capacity of 1,000 or More Head, expected August 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

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