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Inspection
Service

**Veterinary
Services**

Part I: Baseline Reference of Feedlot Management Practices, 1999

May 2000

Acknowledgments

This report has been prepared from material received and analyzed by the U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS) during a nationwide study of management and animal health on feedlot operations.

The Feedlot '99 study was a cooperative effort between State and Federal agricultural statisticians, animal health officials, university researchers, extension personnel, and feedlot owners and operators. We want to thank the hundreds of industry members who helped determine the direction and objectives of this study by participating in focus groups.

Thanks to the National Agricultural Statistics Service (NASS) enumerators and State and Federal Veterinary Medical Officers (VMO's) and Animal Health Technician's (AHT's) who visited the operations and collected the data for their hard work and dedication to the National Animal Health Monitoring System (NAHMS). The roles of the producer, Area Veterinarian in Charge (AVIC), NAHMS Coordinator, VMO, AHT, and NASS enumerator were critical in providing quality data for Feedlot '99 reports. Special recognition goes to Dr. Guy Loneragan from the Integrated Livestock Management program at Colorado State University for his contribution to the design and implementation of the Feedlot '99 study and analysis and interpretation of these data. Thanks also to the Centers for Epidemiology and Animal Health (CEAH) for their efforts in generating and distributing timely reports from Feedlot '99 data.

All participants are to be commended for their efforts, particularly the producers whose voluntary efforts made the Feedlot '99 study possible.

Dr. Nora Wineland, NAHMS Program Leader

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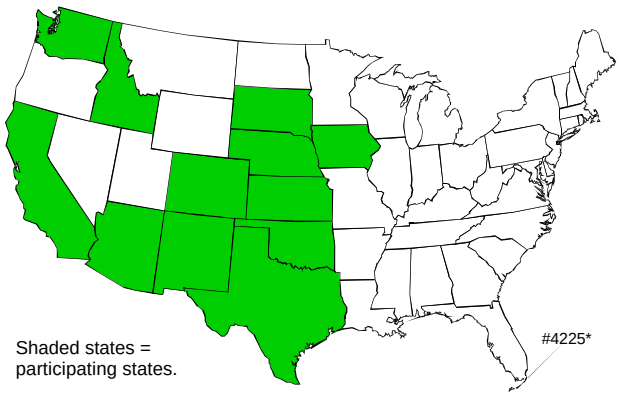
Introduction

The National Animal Health Monitoring System's (NAHMS) Feedlot '99 study was designed to provide both participants and those affiliated with the cattle feeding industry with information on the nation's feedlot cattle population for education and research. NAHMS is sponsored by the USDA:APHIS:Veterinary Services (VS).

NAHMS developed study objectives by exploring existing literature and contacting industry members about their informational needs and priorities.

The USDA's National Agricultural Statistics Service (NASS) collaborated with VS to select a statistically-valid sample such that inferences could be made to 100 percent of the cattle on feed in operations with a capacity of 1,000 head or more on January 1, 1999, in the 12 participating states (see map at right). Cattle on feed operations with 1,000 or more head represented 82.1 percent of all cattle on feed January 1, 2000, in the 50 states (see table below). Operations with 1,000-head or more capacity accounted for an even larger percentage of marketings in all 50 states (84.7 percent). In the 12 selected states, the percentage of the cattle on feed inventory in the larger operations was 90.9 percent. NASS enumerators collected data on site from the 520 feedlot operations for this initial report via a questionnaire administered from August 16, 1999, through September 22, 1999.

States Participating in the Feedlot '99 Study



Feedlot Inventory - January 1, 2000

States	All Operations (Thousand Head)	Operations with 1,000-Head or More Capacity (Thousand Head)	Percent of Inventory
United States (50 states)	13,983	11,475	82.1
Feedlot '99 states (12 states)	12,138	11,030	90.9
12 states as a percent of all 50 states	86.8	96.1	--

Feedlot Marketings - 1999

States	All Operations (Thousand Head)	Operations with 1,000-Head or More Capacity (Thousand Head)	Percent of Inventory
United States (50 states)	27,780	23,530	84.7
Feedlot '99 states (12 states)	N/A	22,753	N/A*
12 states as a percent of all 50 states	N/A	96.7	--

* Marketings in operations of 1,000-head or more capacity in the 12 Feedlot '99 states was 81.9 percent (22,753/27,780) of all marketings in all 50 states regardless of capacity.
Source: National Agricultural Statistics Service (NASS), February 18, 2000.

*Identification numbers are assigned to each graph in this report for ease of public reference.

Part I: Baseline Reference of Feedlot Management Practices, 1999 is the first in a series of releases documenting Feedlot '99 study results. A report on trends in beef feedlot management and health will compare results of NAHMS' 1994 Cattle on Feed Evaluation (COFE) and initial results of the Feedlot '99 study. This report is expected to be released within 2 months following the release of Part I.

Estimates related to health and health management of cattle on feedlot operations will be documented in Part II of the Feedlot '99 series of reports. Part II will report results from a second phase of Feedlot '99 data collection done by Federal and state Veterinary Medical Officers (VMO's) and Animal Health Technicians (AHT's) in the 12 states. Data were collected on site from October 12, 1999, through January 12, 2000, from the operations that responded to the NASS questionnaire and agreed to continue participating. Part II is expected to be released in the summer of 2000.

Results of the Feedlot '99 and other NAHMS studies are accessible on the World Wide Web at www.aphis.usda.gov/vs/ceah/cahm (see Beef Feedlot).

For questions about this report or additional Feedlot '99 and NAHMS results, please contact:

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Terms Used in This Report

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

Cattle on feed: 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.

N/A: Not applicable.

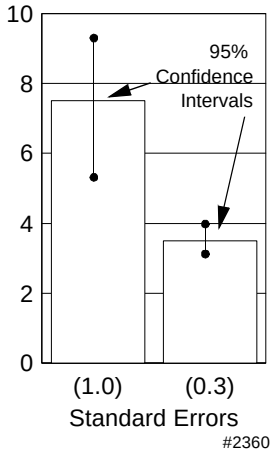
Operation: An area of land managed as a unit by an individual, partnership, or hired manager.

Percent cattle: The total number of cattle with a certain attribute divided by the total number of cattle on all operations (or on all operations within a certain category such as by operation capacity or region).

Percent operations: The number of operations with a certain attribute divided by the total number of operations. Percentages will sum to 100 where the attributes are mutually exclusive (i.e., percentage of operations located within each region). Percentages will ***not*** sum to 100 where the attributes are not mutually exclusive (i.e., the percentage of operations using treatment methods where operations may have used more than one method).

Population estimates: Averages and proportions weighted to represent the population. For this report, the reference population was all operations with 1,000-head or more capacity on January 1, 1999, in the 12 selected states. Estimates in this report are provided with a measure of precision called the ***standard error***. A confidence interval can be created with bounds equal to the estimate plus or minus two standard errors. If the only error is sampling error, then confidence intervals created in this manner will contain the true population value 95 out of 100 times. In the example at right, an estimate of 7.5 with a standard error of 1.0 results in a range of 5.5 to 9.5 (two times the standard error above and below the estimate). The second estimate of 3.4 shows a standard error of 0.3 and results in a range 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 two. 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 (--).

Examples of a 95% Confidence Interval



Regions for NAHMS Feedlot '99: The Central region encompasses the states with the largest populations of feedlot cattle. The other states were grouped, rather than split into additional regions, as the number of observations in other areas were not sufficient to provide reliable estimates for individual areas or to assure producer confidentiality in reporting results.

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

Sample profile: Information that describes characteristics of the operations from which Feedlot '99 data were collected.

Operation capacity: Size groupings based on feedlot capacity on January 1, 1999. The capacity is the total number of head of cattle that could be accommodated in the feedlot at one time.

Section I: Population Estimates

A. Placement Profile

1. Type of cattle, gender, and disposition

Higher percentages of operations with an 8,000-head or greater capacity placed cattle of dairy breeds than operations with less than an 8,000-head capacity. Further, greater percentages of large operations placed some of each of the classes of beef animals.

a. Percent of operations that placed any of the following types of cattle[1] for the U.S. slaughter market by operation capacity:

Percent Operations

	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Type of Cattle	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Steers Less than 700 lbs.						
Beef or beef crossbreeds	69.7	(2.6)	90.5	(1.5)	75.5	(1.9)
Dairy breeds	5.3	(0.9)	24.3	(1.9)	10.5	(0.9)
Heifers Less than 700 lbs.						
Beef or beef crossbreeds	57.9	(2.9)	88.3	(1.5)	66.3	(2.1)
Dairy breeds	1.2	(0.4)	8.8	(1.3)	3.3	(0.5)
Steers 700 lbs. or More						
Beef or beef crossbreeds	71.3	(2.6)	93.0	(1.1)	77.3	(1.9)
Dairy breeds	7.1	(1.3)	24.5	(2.0)	11.9	(1.1)
Heifers 700 lbs. or More						
Beef or beef crossbreeds	46.0	(2.7)	89.5	(1.3)	58.1	(2.0)
Dairy breeds	2.1	(0.9)	9.4	(1.3)	4.1	(0.7)
Cows						
Beef or beef crossbreeds	5.5	(1.1)	12.4	(1.6)	7.4	(0.9)
Dairy breeds	0.0	(--)	1.0	(0.5)	0.3	(0.1)
Bulls						
Beef or beef crossbreeds	20.0	(2.1)	38.7	(2.2)	25.2	(1.7)
Dairy breeds	0.6	(0.4)	0.8	(0.4)	0.7	(0.3)

1 During the period July 1, 1998, through June 30, 1999.

b. Percent of operations that placed steers or heifers for the U.S. slaughter market by animal type, by animal weight at placement, and by operation capacity:

Percent Operations

	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Type of Cattle	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Steers and Heifers Less Than 700 lbs.						
Beef or beef crossbreeds	76.9	(2.4)	94.3	(1.1)	81.8	(1.8)
Dairy	5.4	(0.9)	24.2	(1.9)	10.6	(0.9)
Any steer or heifer	78.1	(2.4)	94.3	(1.1)	82.6	(1.8)
Steers and Heifers 700 lbs. or More						
Beef or beef crossbreeds	74.3	(2.5)	95.2	(0.8)	80.0	(1.8)
Dairy	7.9	(1.4)	26.0	(2.1)	12.9	(1.2)
Any steer or heifer	75.4	(2.5)	95.6	(0.8)	81.0	(1.8)

Beef animals and beef crossbreeds were by far the main class of animal placed in feedlots regardless of operation capacity. Approximately one-half of the placements in small (53.1 percent) and large (53.8 percent) operations were steers and heifers greater than 700 lbs.

c. Percent of cattle placed for the U.S. slaughter market by type of cattle and by operation capacity:

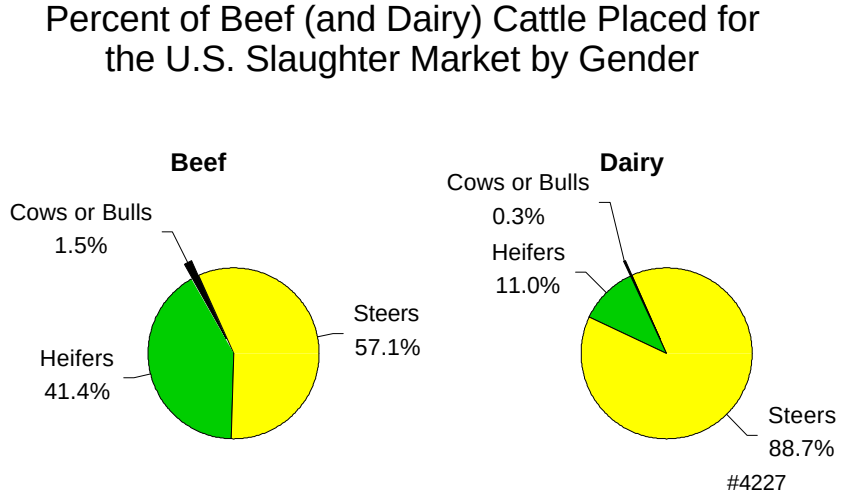
	Percent Cattle					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Type of Cattle	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Steers Less than 700 lbs.						
Beef or beef crossbreeds	25.5	(1.5)	21.7	(0.8)	22.3	(0.7)
Dairy breeds	0.9	(0.3)	1.4	(0.3)	1.4	(0.2)
Heifers Less than 700 lbs.						
Beef or beef crossbreeds	17.2	(1.1)	20.4	(0.9)	19.9	(0.8)
Dairy breeds	0.0	(0.0)	0.1	(0.0)	0.1	(0.0)
Steers 700 lbs. or More						
Beef or beef crossbreeds	34.9	(1.7)	33.0	(1.1)	33.3	(0.9)
Dairy breeds	1.0	(0.3)	1.0	(0.2)	1.0	(0.2)
Heifers 700 lbs. or More						
Beef or beef crossbreeds	18.2	(1.3)	20.8	(0.8)	20.4	(0.7)
Dairy breeds	0.4	(0.2)	0.2	(0.1)	0.2	(0.1)
Cows						
Beef or beef crossbreeds	0.8	(0.3)	0.3	(0.1)	0.3	(0.1)
Dairy breeds	0.0	(--)	0.0	(0.0)	0.0	(0.0)
Bulls						
Beef or beef crossbreeds	1.1	(0.2)	1.1	(0.2)	1.1	(0.1)
Dairy breeds	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Total	100.0		100.0		100.0	

Cows and bulls constituted only a small percentage of placements in feedlots. The majority of animals placed in both small (61.9 percent) and large operations (56.2 percent) were steers. Large operations placed a slightly greater percentage of heifers than small operations (42.4 compared to 36.2 percent, respectively). The majority of dairy animals placed in feedlots were steers (88.7 percent).

d. Percent of beef cattle (and percent of dairy cattle) placed for the U.S. slaughter market by gender of cattle and by operation capacity:

Percent Cattle

	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Gender of Cattle	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Beef						
Steers	61.9	(1.6)	56.2	(1.1)	57.1	(1.0)
Heifers	36.2	(1.6)	42.4	(1.1)	41.4	(1.0)
Cows	0.8	(0.3)	0.3	(0.1)	0.4	(0.1)
Bulls	1.1	(0.2)	1.1	(0.2)	1.1	(0.2)
Total	100.0		100.0		100.0	
Dairy						
Steers	80.3	(6.5)	90.0	(2.5)	88.7	(2.5)
Heifers	19.6	(6.5)	9.7	(2.5)	11.0	(2.5)
Cows	0.0	(--)	0.2	(0.2)	0.2	(0.1)
Bulls	0.1	(0.1)	0.1	(0.1)	0.1	(0.1)
Total	100.0		100.0		100.0	



Approximately 10 percent of operations placed animals for purposes ***other*** than for the U.S. slaughter market. However, cattle placements for purposes other than the U.S. slaughter market only represented 1.1 percent of total placements for the year ending June 30, 1999 (see Tables A.1.e-g). Small operations tended to place a greater percentage of 'other' cattle (3.6 percent) than large operations (0.7 percent).

Cattle placed for purposes other than the slaughter market included, but was not limited to, animals to be used for breeding stock. Examples of such groups of animals are bulls undergoing performance testing or heifers being developed for breeding programs.

e. Percent of operations that placed cattle for purposes other than the U.S. slaughter market by placement purpose:

Placement Purpose	Percent Operations	Standard Error
Beef animals to be used as breeding stock	6.5	(1.0)
Dairy animals to be used as breeding stock	0.9	(0.2)
Other cattle	5.1	(0.8)
Any non-slaughter	9.8	(1.1)

f. Percent of all cattle placed for purposes other than the U.S. slaughter market by placement purpose:

Placement Purpose	Percent Cattle	Standard Error
Beef animals to be used for breeding stock	0.2	(0.1)
Dairy animals to be used for breeding stock	0.1	(0.0)
Other cattle	0.8	(0.2)
Any non-slaughter	1.1	(0.2)

g. Percent of all cattle placed for purposes other than the U.S. slaughter market by placement purpose and by operation capacity:

Percent Cattle

Operation Capacity (Number Head)			
1,000 - 7,999		8,000 or More	
Percent	Standard Error	Percent	Standard Error
3.6	(0.7)	0.7	(0.2)

The mortality as a percentage of all cattle marketed or left the operation was greater for large operations (1.3 percent) than for small operations (0.9 percent).

Animals sent to market prior to achieving slaughter weight, often referred to as “realizers” or “railers,” consist primarily of:

a. Animals that have failed to respond favorably to repeated treatments and have become “chronics.”
b. Animals that do not adapt well to the feedlot environment and are substantially behind their contemporaries in terms of weight gains.
c. Animals with other health problems deemed unlikely to respond to available treatment regimens.

h. Percent of cattle by disposition category[1] and by operation capacity:

Percent Cattle

	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Category	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Marketed for slaughter	94.8	(0.5)	97.1	(0.2)	96.7	(0.2)
Died	0.9	(0.0)	1.3	(0.1)	1.3	(0.1)
Sent to market prior to slaughter weight	0.4	(0.2)	0.3	(0.0)	0.3	(0.0)
Returned to grazing forage	1.8	(0.3)	0.9	(0.1)	1.1	(0.1)
Shipped to another feedlot	2.0	(0.4)	0.4	(0.1)	0.6	(0.1)
Stolen	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Lost for other reasons	0.1	(0.0)	0.0	(0.0)	0.0	(0.0)
Total	100.0		100.0		100.0	

1 Cattle marketed or left the operation during the period from July 1, 1998, through June 30, 1999.

2. Cattle source and ownership of placements

A greater percentage of placements on small operations were born on the operation or another operation operated solely by the feedlot. It is likely that a greater proportion of small operations than large operations were farmer-feeders. The largest source of cattle for small operations (46.9 percent) was directly from auction markets. The largest source for large operations was cattle provided for custom feeding by someone else/joint ownership with the feedlot (44.1 percent). It is unclear what proportion of the animals provided for custom feeding, regardless of operation capacity, were bought from an auction market. Direct sale as a source of cattle represented almost one-fourth (23.8 percent) of the cattle placed.

a. Percent of cattle placed for the U.S. slaughter market by source of cattle and by operation capacity:

	Percent Cattle					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Source	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Born on this operation or another operation operated solely by this feedlot	3.1	(0.6)	0.4	(0.1)	0.9	(0.2)
Purchased by auction	46.9	(2.1)	31.0	(1.3)	33.6	(1.2)
Purchased via direct sale (cash, video, or private treaty)	24.5	(1.9)	23.6	(1.6)	23.8	(1.4)
Provided for custom feeding by someone else or by joint ownership with the feedlot	24.7	(2.1)	44.1	(1.8)	40.9	(1.6)
Other source	0.8	(0.2)	0.9	(0.3)	0.8	(0.3)
Total	100.0		100.0		100.0	

The majority (52.3 percent) of cattle placed in small operations were owned by those small operations, whereas the majority of placements in large operations were owned by others (57.7 percent).

b. Percent of cattle placed for the U.S. slaughter market by type of owner at time of placement and by operation capacity:

	Percent Cattle					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Owner	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
This feedlot	52.3	(2.5)	34.0	(2.2)	36.9	(1.8)
Joint feedlot ownership with others	8.9	(1.4)	8.3	(0.8)	8.4	(0.7)
Others (e.g., cattle being custom fed for others)	38.8	(2.5)	57.7	(2.2)	54.7	(1.8)
Total	100.0		100.0		100.0	

3. Pre-arrival processing

Pre-arrival procedures, collectively known as preconditioning, have been shown to be effective in decreasing health problems in feedlot cattle, particularly in those animals weighing less than 700 lbs. at placement.

Most producers (65.8 percent) felt that administering pre-arrival respiratory vaccinations to cattle at least 2 weeks prior to weaning was ***extremely*** or ***very effective*** in reducing sickness and death loss. If the vaccine was administered at weaning, fewer producers (51.2 percent) perceived similar levels of effectiveness. Two-thirds (67.2 percent) of producers believed that weaning calves at least 4 weeks prior to shipping was ***extremely*** or ***very effective*** in reducing adverse health outcomes. About the same percentages felt that castrating and dehorning calves at least 4 weeks prior to shipping (65.2 percent) and introduction to the feed bunk (64.8 percent) were ***extremely*** or ***very effective*** in reducing adverse health outcomes.

a. For operations that placed cattle ***less than 700 lbs.***, percent of operations by perceived effectiveness of pre-arrival management practices on cattle ***less than 700 lbs.*** placed in the year ending June 30, 1999, in reducing sickness and death loss:

Percent Operations

	Level of Effectiveness												
	Extremely Effective		Very Effective		Somewhat Effective		Not Effective		Does Not Apply		Didn't Know		Total
Management Practice	Percent	Stand. Error	Percent	Stand. Error	Percent	Stand. Error	Percent	Stand. Error	Percent	Stand. Error	Percent	Stand. Error	Percent
Introduction to feed bunk	22.6	(1.7)	42.2	(2.2)	17.4	(1.8)	3.4	(0.9)	6.1	(1.4)	8.3	(1.4)	100.0
Respiratory vaccinations given to calves at least 2 weeks prior to weaning	27.0	(2.0)	38.8	(2.2)	11.8	(1.6)	0.7	(0.3)	9.5	(1.5)	12.2	(1.6)	100.0
Respiratory vaccinations given to calves at weaning	18.7	(1.6)	32.5	(2.1)	21.7	(1.9)	1.6	(0.4)	10.4	(1.7)	15.1	(1.7)	100.0
Calves weaned at least 4 weeks prior to shipping	32.4	(2.0)	34.8	(2.1)	9.9	(1.5)	1.0	(0.3)	11.6	(1.8)	10.3	(1.4)	100.0
Calves castrated and dehorned at least 4 weeks prior to shipping	31.7	(2.1)	33.5	(2.1)	9.1	(1.2)	1.2	(0.4)	12.9	(1.7)	11.6	(1.6)	100.0
Calves treated for external or internal parasites prior to shipping	8.0	(1.0)	28.6	(2.1)	27.9	(1.9)	5.4	(0.9)	10.7	(1.6)	19.4	(2.0)	100.0

B. Arrival Management and Group Processing

1. New arrival management

Approximately 40 percent of operations ***always*** or ***most of the time*** provided new arrivals with additional pen space, waterer space, and bunk space compared to cattle that had been on feed for more than 30 days.

a. Percent of operations that provided new arrivals with additional pen space, waterer space, and bunk space (compared to cattle on feed for more than 30 days) by frequency:

Percent Operations

	Frequency								
	Always		Most of the Time		Sometimes		Never		Total
Resource	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error	Percent
Additional pen space	19.9	(1.7)	20.7	(1.7)	26.4	(1.8)	33.0	(2.1)	100.0
Additional waterer space	19.0	(1.7)	18.7	(1.6)	23.4	(1.8)	38.9	(2.1)	100.0
Additional bunk space	24.5	(1.9)	22.9	(1.8)	21.5	(1.6)	31.1	(2.0)	100.0

Use of the same holding pen for receiving and shipping cattle may be a biosecurity risk, allowing pathogens to be transferred between various groups of animals that traffic through the pen . A slightly greater percentage of small operations (81.1 percent) used the same holding pens for receiving and shipping cattle than large operations (73.3 percent). Overall, 78.9 percent of all operations used this practice.

b. Percent of operations that used the same holding pens for receiving and shipping cattle by operations capacity:

Percent Operations

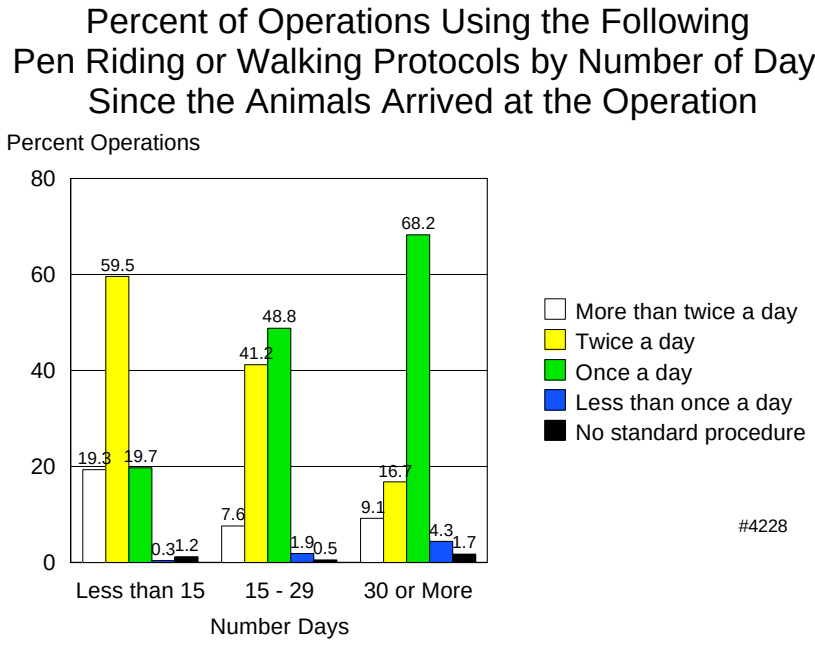
Operation Capacity (Number Head)					
1,000 - 7,999		8,000 or More		All Operations	
Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
81.1	(2.2)	73.3	(1.9)	78.9	(1.7)

Cattle entering feedlots experience multiple stressors including transportation, feed and water deprivation, and commingling. Additionally, cattle may be exposed to pathogens to which they are immunologically naive. This combination of stress and exposure leads to the majority of infectious diseases affecting cattle soon after arrival at the operation. Thus, it is desirable to check recently arrived animals most often.

Cattle that had fewer days on feed were checked more frequently. During the first 2 weeks after arrival, 78.8 percent of operations checked pens more than once a day. Once cattle had been on feed for at least 30 days, almost three-quarters (72.5 percent) of operations checked the pens once a day or less often.

c. Percent of operations using the following pen riding or walking protocols by number of days since animals arrived at the operation:

	Percent Operations					
	Number Days After Arrival					
	Less than 15		15 - 29		30 or More	
Protocol	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
More than twice a day	19.3	(1.8)	7.6	(1.3)	9.1	(1.2)
Twice a day	59.5	(2.1)	41.2	(2.1)	16.7	(1.7)
Once a day	19.7	(1.5)	48.8	(2.1)	68.2	(2.1)
Less than once a day	0.3	(0.2)	1.9	(0.7)	4.3	(0.8)
No standard procedure	1.2	(0.6)	0.5	(0.3)	1.7	(0.7)
Total	100.0		100.0		100.0	



2. Initial processing timing

Processing procedures are implemented for performance, management, and animal health reasons. The procedures are designed to economically increase the likelihood that the animal will successfully adapt to the feedlot environment and perform optimally. Procedures typically include: implanting, administrating vaccines/bacterins against respiratory disease and toxoids against clostridial diseases, and treating for internal and/or external parasites.

Large operations were more likely to process groups of cattle within 3 days of arrival than small operations. Operations may have processed some cattle in more than one time period.

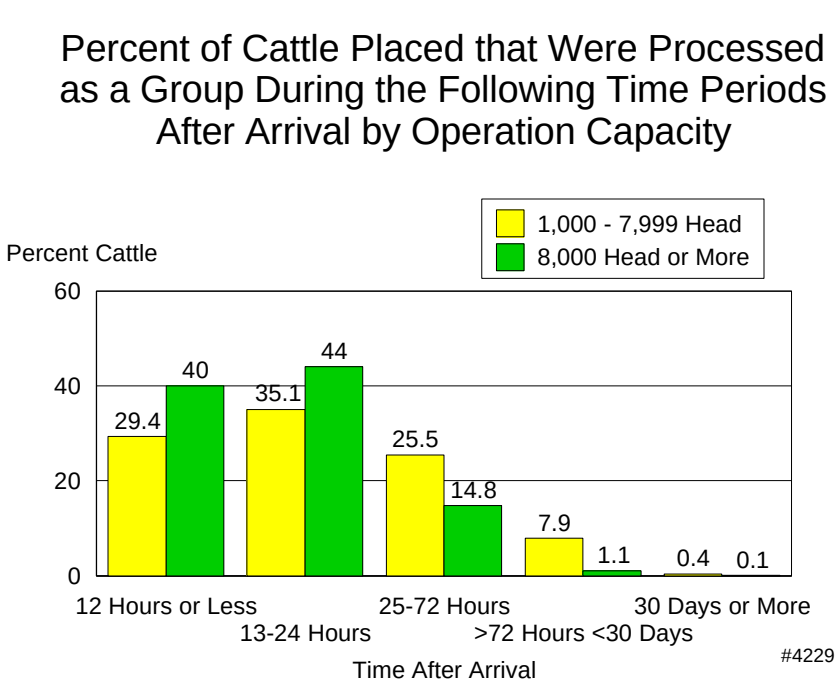
a. Percent of ***operations*** initially processing some cattle as a group during the following time periods after arrival by operation capacity:

	Percent Operations					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Time After Arrival	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
12 hours or less	39.4	(2.7)	68.8	(2.2)	47.6	(2.1)
13 - 24 hours	55.8	(2.8)	82.7	(1.7)	63.2	(2.1)
25 - 72 hours	45.4	(2.8)	47.2	(2.3)	45.9	(2.1)
More than 72 hours, but less than 30 days	16.6	(2.1)	11.4	(1.5)	15.2	(1.5)
30 days or more	1.9	(0.8)	1.1	(0.5)	1.7	(0.6)
Any processing	96.6	(1.1)	100.0	(--)	97.5	(0.8)

The majority of cattle were processed within 3 days of arrival. In large operations, 84.0 percent of cattle placed were processed within 24 hours of arrival, whereas in small operations, 64.5 percent were processed in the same time frame. A greater percentage of placements in small operations were processed after more than 72 hours of arrival but within 30 days (7.9 percent) compared to large operations (1.1 percent).

b. Percent of ***cattle*** placed that were initially processed as a group during the following time periods after arrival by operation capacity:

	Percent Cattle					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Time After Arrival	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
12 hours or less	29.4	(2.3)	40.0	(2.4)	38.3	(2.0)
13 - 24 hours	35.1	(2.2)	44.0	(2.1)	42.5	(1.8)
25 - 72 hours	25.5	(2.0)	14.8	(1.3)	16.6	(1.1)
More than 72 hours, but less than 30 days	7.9	(1.4)	1.1	(0.3)	2.2	(0.3)
30 days or more	0.4	(0.1)	0.1	(0.0)	0.1	(0.0)
Not processed	1.7	(1.0)	0.0	(0.0)	0.3	(0.2)
Total	100.0		100.0		100.0	



3. Initial processing procedures

Respiratory disease is the most important disease condition of feedlot cattle. Almost all operations (97.8 percent) that processed cattle administered vaccines to aid in the prevention of respiratory disease. A similarly high percentage of cattle (98.0 percent) that were processed as a group were vaccinated against respiratory diseases (see Table B.3.b below).

Animals that are at an increased risk of developing respiratory disease are referred to as high-risk cattle. A large portion of the small (46.2 percent) and most large operations (82.1 percent) administered an injectable antimicrobial at processing to some of the cattle placed that were processed as a group.

a. For operations that processed any cattle as a group, percent of ***operations*** that performed the following procedures during processing by operation capacity:

	Percent Operations					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Procedure	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Vaccinated against respiratory diseases	97.3	(1.1)	99.2	(0.3)	97.8	(0.8)
Vaccinated against clostridial diseases	85.1	(2.1)	89.3	(1.5)	86.3	(1.6)
Given an injectable antibiotic	46.2	(2.9)	82.1	(1.7)	56.4	(2.2)
Implanted	89.5	(1.9)	99.6	(0.2)	92.4	(1.3)
Treated for parasites	94.9	(1.5)	100.0	(--)	96.3	(1.0)
Processed with other procedures	12.1	(1.9)	19.1	(1.9)	14.1	(1.5)

Nearly 17 percent of processed cattle in small operations and 19.2 percent of processed cattle in large operations received an injectable antimicrobial during processing. A greater percentage of cattle on large operations (97.5 percent) were implanted compared to smaller operations (88.9 percent).

b. Percent of processed ***cattle*** that received the following procedures during processing by operation capacity:

	Percent Cattle					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Procedure	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Vaccinated against respiratory diseases	98.1	(0.5)	98.0	(0.6)	98.0	(0.5)
Vaccinated against clostridial diseases	81.0	(2.6)	77.5	(2.4)	78.0	(2.1)
Given an injectable antibiotic	16.6	(1.5)	19.2	(1.3)	18.8	(1.1)
Implanted	88.9	(1.4)	97.5	(0.5)	96.1	(0.5)
Treated for parasites	93.7	(1.2)	98.1	(0.3)	97.4	(0.3)
Processed with other procedures	10.3	(1.9)	17.0	(3.5)	15.9	(3.0)

c. Castration method

Intact bulls may present management and personnel safety problems in feedlots. Potential problems include damage to facilities due to rubbing and aggressiveness as they attain sexual maturity. Bulls demonstrate the propensity to have increased muscle mass and decreased adipose tissue, which can affect beef quality. The two primary methods of castration are:

a. Surgical removal of testes leaving the wound open to drain. However, this method can result in fly strike or wound infections.

b. Banding resulting in avascular necrosis of the testes. This method is associated with increased risk of tetanus.

A majority of the operations that placed any bulls banded at least some of the bulls and vaccinated them against tetanus (56.8 percent), while a small percentage banded and did not vaccinate. The percentage of operations that surgically removed testes and vaccinated at least some of the bulls that they placed (23.0 percent) was similar to the percentage that surgically removed the testes but did not vaccinate.

i. For operations that placed bulls during the year ending June 30, 1999, percent of ***operations*** by castration method:

Castration Method	Percent Operations	Standard Error
Banded and vaccinated against tetanus	56.8	(3.7)
Banded and not vaccinated against tetanus	8.5	(2.3)
Testes surgically removed and vaccinated against tetanus	23.0	(3.4)
Testes surgically removed and not vaccinated against tetanus	25.4	(2.9)
Other castration method	1.5	(0.5)
Any method	97.9	(0.8)

When banding was used to castrate bulls, a large majority of bulls received tetanus vaccinations (46.9 percent vaccinated versus 1.6 percent unvaccinated). When the testes were surgically removed, it was relatively less common to vaccinate for tetanus (5.0 percent of bulls vaccinated versus 38.3 percent unvaccinated).

ii. For operations that placed bulls during the year ending June 30, 1999, percent of ***bulls*** placed by castration method:

Castration Method	Percent Bulls	Standard Error
Banded and vaccinated against tetanus	46.9	(8.0)
Banded and not vaccinated against tetanus	1.6	(0.7)
Testes surgically removed and vaccinated against tetanus	5.0	(1.7)
Testes surgically removed and not vaccinated against tetanus	38.3	(8.6)
Other castration method	3.1	(1.9)
Not castrated by the feedlot	5.1	(2.0)
Total	100.0	

Most operations that processed cattle after arrival made some adjustments to processing procedures based on attributes of arriving cattle (68.0 percent). Adjustment was more common in large operations (72.7 percent) than in small operations (66.1 percent). Overall, the most common reasons for processing adjustment were arrival weight (56.5 percent of operations) and source of cattle (49.2 percent of operations).

d. For operations that processed new arrivals, percent of operations that ***changed*** any processing procedures for new arrivals based on each of the following factors by operation capacity:

	Percent Operations					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Factor	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Arrival weight	53.7	(2.8)	63.5	(2.2)	56.5	(2.1)
Distance transported or percent shrinkage	28.3	(2.5)	39.1	(2.2)	31.3	(1.9)
Source of cattle	44.3	(2.8)	61.6	(2.3)	49.2	(2.1)
Preconditioning	36.6	(2.7)	48.3	(2.3)	39.9	(2.0)
Sex	31.9	(2.6)	50.3	(2.3)	37.1	(2.0)
Beef cattle breed (e.g., Charolais vs. Angus)	9.8	(1.5)	17.9	(1.8)	12.1	(1.2)
Dairy cattle breed (compared to beef breeds)	1.5	(0.6)	8.8	(1.3)	3.5	(0.6)
Any of the above	66.1	(2.7)	72.7	(2.1)	68.0	(2.0)

Many factors can affect the need for, or type of, processing procedures for new arrivals. For example, lightweight cattle purchased from a distant sale barn that underwent significant shrinkage during transportation are at increased risk to develop respiratory disease. Such cattle are often classified as high-risk cattle. The processing procedures are not mutually exclusive since an operation may implement more than one procedure.

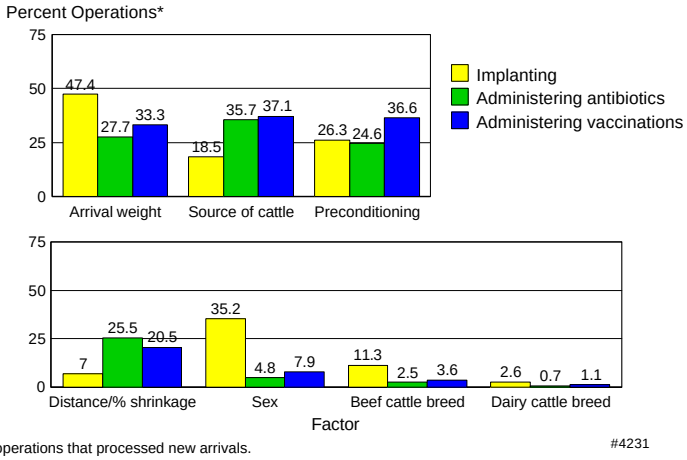
Arrival weight was an important determinant on operations modifying implanting (47.4 percent of operations), antimicrobial administration (27.7 percent), and vaccines administered (33.3 percent). History of preconditioning also influenced changing processing procedures on many operations. Breed of cattle was not a factor in altering processing procedures for many operations; however, source of cattle influenced both administration of antibiotics (35.7 percent of operations) and vaccination (37.1 percent of operations).

e. For operations that processed new arrivals, percent of operations that ***modified*** the following processing procedures based on the following factors:

Percent Operations

	Processing Procedure							
	Implanting		Administering Antibiotics		Administering Vaccinations		Other Procedures	
Factor	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Arrival weight	47.4	(2.1)	27.7	(1.9)	33.3	(2.0)	4.3	(0.9)
Distance transported or percent shrinkage	7.0	(1.0)	25.5	(1.8)	20.5	(1.7)	1.3	(0.4)
Source of cattle	18.5	(1.7)	35.7	(2.0)	37.1	(2.0)	4.4	(0.9)
Preconditioning	26.3	(1.8)	24.6	(1.7)	36.6	(2.0)	4.7	(0.8)
Sex	35.2	(1.9)	4.8	(0.9)	7.9	(1.1)	1.7	(0.3)
Beef cattle breed (e.g., Charolais vs. Angus)	11.3	(1.2)	2.5	(0.5)	3.6	(0.6)	0.6	(0.2)
Dairy cattle breed (compared to beef breeds)	2.6	(0.5)	0.7	(0.2)	1.1	(0.3)	0.5	(0.2)
Any of the above	58.8	(2.1)	49.1	(2.1)	56.5	(2.1)	8.7	(1.1)

Percent of Operations* that Modified Processing Procedures by Factor



*For operations that processed new arrivals.

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Pregnant heifers can pose several problems for feedlots including dystocia, metritis following calving or administration of an abortifacient, and increased skeletal ossification that may result in a B maturity grade assigned to the carcass at slaughter.

The percentage of heifers that were pregnant at placement was not related to region.

f. Percent of all heifers placed that were pregnant at arrival[1] by region:

Percent Heifers

Region					
Central		Other		All Operations	
Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
7.4	(0.6)	6.8	(1.3)	7.3	(0.5)

A greater percentage of heifer placements in large operations (8.0 percent) were estimated to be pregnant compared to small operations (3.5 percent). Some caution should be taken in interpreting these results as producers likely estimated the percentage pregnant since most heifers were likely not individually checked.

g. Percent of all heifers placed that were pregnant at arrival[1] by operation capacity:

Percent Heifers

Operation Capacity (Number Head)			
1,000 - 7,999		8,000 or More	
Percent	Standard Error	Percent	Standard Error
3.5	(0.3)	8.0	(0.6)

1 Based on producer estimate and not necessarily on individual pregnancy diagnosis.

Operations in the Central region treated a greater percentage of heifer placements (4.4 percent) to abort them than operations in the Other region (2.7 percent). The percentages of heifers that were treated to abort them were approximately one-half the estimated percentages that were pregnant at arrival (see Table II.2.f).

h. For total heifers placed, percent of all heifers that were treated to abort them by region:

Percent Heifers

Region					
Central		Other		All Operations	
Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
4.4	(0.6)	2.7	(0.8)	4.2	(0.6)

Large operations treated a greater percentage (4.7 percent) of heifer placements to abort them than small operations (1.7 percent). The percentages of heifers that were treated to abort them were approximately one-half the estimated percentages that were pregnant at arrival when viewed by operation capacity (see Table II.2.g).

i. For total heifers placed, the percent of heifers that were treated to abort them by operation capacity:

Percent Heifers

Operation Capacity (Number Head)			
1,000 - 7,999		8,000 or More	
Percent	Standard Error	Percent	Standard Error
1.7	(0.2)	4.7	(0.7)

j. Cattle with horns

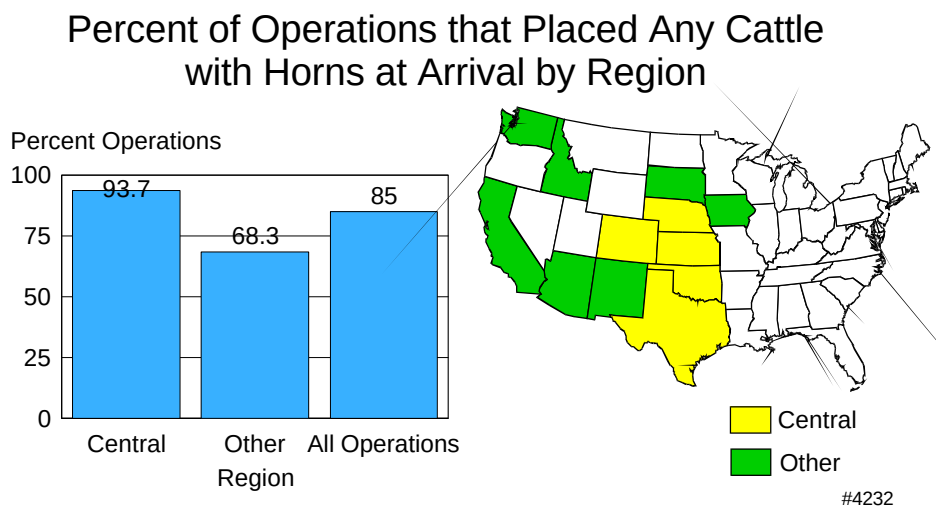
Cattle with horns may cause carcass bruising and hide damage. Additionally, horned cattle can be problematic when moving them through chutes and raise safety concerns for operation personnel.

A greater percentage of operations in the Central region (93.7 percent) placed cattle with horns compared to operations in the Other region (68.3 percent).

i. Percent of ***operations*** that placed any cattle with horns at arrival[1] by region:

Percent Operations

Region					
Central		Other		All Operations	
Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
93.7	(1.4)	68.3	(4.0)	85.0	(1.7)



Similarly, the percentage of placements with horns in Central region operations (17.8 percent) was greater than operations in the Other region (14.1 percent).

ii. Percent of ***cattle*** placed that had horns at arrival by region[1]:

Percent Cattle

Region					
Central		Other		All Operations	
Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
17.8	(0.9)	14.1	(1.7)	17.4	(0.8)

1 Based on producer estimates.

k. Tipping/dehorning

Two methods are commonly employed to reduce problems associated with horned cattle:

a. Removing the horn at its base (dehorning). This procedure removes the entire horn but also can result in opening the frontal sinus, a route for infection and hemorrhage.

b. Removing the tip of the horn (tipping). This procedure does not open the frontal sinus but leaves the animal with most of its horn.

The percentages of operations that tipped any horned cattle were greater than those dehorning in both the Central and Other regions. A greater percentage of operations in the Other region (27.7 percent) dehorned than in the Central region (17.4 percent).

i. For operations that placed any cattle with horns, percent of ***operations*** that tipped and/or dehorned any horned cattle by region:

Percent of Operations

	Region					
	Central		Other		All Operations	
Procedure	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Tipped	60.3	(2.4)	50.9	(4.5)	57.7	(2.1)
Dehorned	17.4	(2.2)	27.7	(3.7)	20.2	(1.9)
Any procedure	71.8	(2.5)	63.9	(4.4)	69.6	(2.2)

About three-quarters (77.3 percent) of the cattle with horns in the Central region and one-half (48.8 percent) of cattle with horns in the Other region were tipped.

ii. For cattle with horns when placed, percent of ***horned cattle*** that were tipped or dehorned by region:

Percent of Horned Cattle

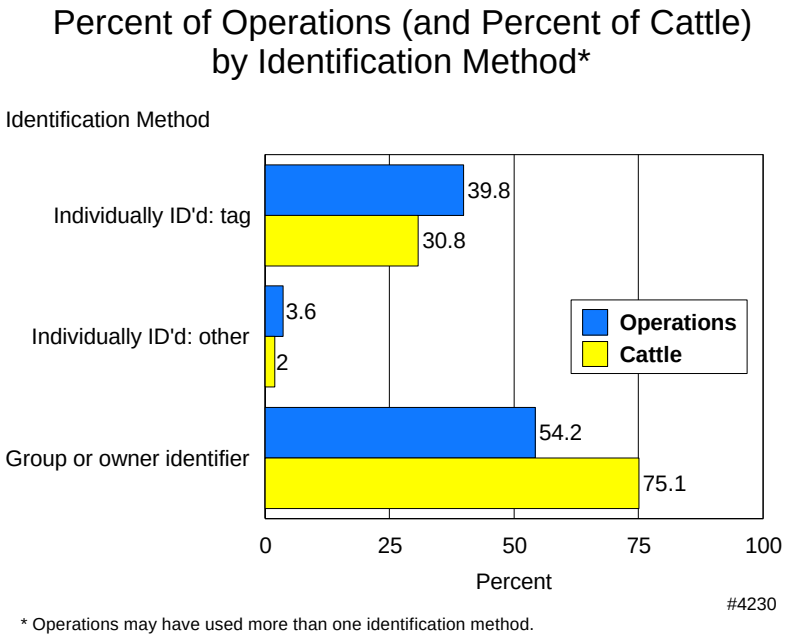
	Region					
	Central		Other		All Operations	
Procedure	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Tipped	77.3	(2.4)	48.8	(7.7)	74.4	(2.4)
Dehorned	1.2	(0.3)	11.6	(3.6)	2.3	(0.4)
Either	78.5	(2.4)	60.4	(7.7)	76.7	(2.4)

4. Branding and identification

Over one-half of all operations (54.2 percent) provided cattle with a group or owner identifier, and 39.8 percent tagged cattle with a unique identification. The identification methods below are not mutually exclusive as more than one method could have been used on individual cattle. Almost one-fourth of the operations placed some cattle that were not identified.

a. Percent of ***operations*** that placed any cattle identified by the operation using the following methods by region:

Identification Method	Percent Operations	Standard Error
Tagged with a unique number such that each animal was individually identifiable (excluding tagging of sick animals)	39.8	(2.1)
Individually identified using a method other than tagging such that each animal was individually identifiable (excluding tagging of sick animals)	3.6	(0.7)
Identified with a group or owner identifier (pen tag, brand, hot tag, ear notch, etc.)	54.2	(2.1)
Not identified	23.1	(2.0)



* Operations may have used more than one identification method.

Three-quarters (75.1 percent) of the cattle on operations that used animal identification received a group identifier and 30.8 percent received unique identification. The percentages of cattle placed that were identified either individually or as a group were similar by region. However, the percentage of cattle not identified was greater in operations in the Other region (13.7 percent) compared to Central region operations (3.5 percent). The identification methods below are not mutually exclusive as more than one method could have been used on individual cattle.

b. Percent of cattle placed that were identified by the operation using the following methods by region:

Percent Cattle

	Region					
	Central		Other		All Operations	
Identification Method	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Tagged with a unique number such that each animal was individually identifiable (excluding tagging of sick animals)	30.7	(2.5)	31.5	(5.8)	30.8	(2.3)
Individually identified using a method other than tagging such that each animal was individually identifiable (excluding tagging of sick animals)	2.3	(0.7)	0.3	(0.2)	2.0	(0.6)
Identified with a group or owner identifier (pen tag, brand, hot tag, ear notch, etc.)	75.7	(2.2)	71.5	(3.7)	75.1	(2.0)
Not identified	3.5	(0.7)	13.7	(2.2)	4.9	(0.7)

A greater percentage of cattle placed in large operations (80.0 percent) was provided with a group identifier than on small operations (49.7 percent). Note that 21.9 percent of cattle placed in small operations were not identified compared to only 1.6 percent not identified in large operations. Failure to identify cattle can result in several problems, such as inability to source verify cattle or sort groups of cattle that are inadvertently mixed. The methods below are not mutually exclusive as more than one method of identification could have been used on individual cattle.

c. Percent of cattle placed that were identified by the operation using the following methods by operation capacity:

Percent Cattle

	Operation Capacity (Number Head)			
	1,000 - 7,999		8,000 or More	
Identification Method	Percent	Standard Error	Percent	Standard Error
Tagged with a unique number such that each animal was individually identifiable (excluding tagging of sick animals)	29.6	(2.7)	31.1	(2.7)
Individually identified using a method other than tagging such that each animal was individually identifiable (excluding tagging of sick animals)	1.6	(0.5)	2.1	(0.7)
Identified with a group or owner identifier (pen tag, brand, hot tag, ear notch, etc.)	49.7	(3.1)	80.0	(2.2)
Not identified	21.9	(2.6)	1.6	(0.5)

The majority of operations reported placing cattle that were hide branded prior to arrival. A greater percentage of operations in the Central region (80.3 percent) compared to the Other region (64.1 percent) placed cattle that were hide branded prior to arrival.

d. Percent of operations that placed any cattle that were hide branded (freeze or hot) ***prior to*** arrival and percent of all cattle placed that were hide branded (freeze or hot) ***prior to*** arrival by region:

Percent

	Region					
	Central		Other		All Operations	
Measure	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Operations	80.3	(2.1)	64.1	(4.0)	74.8	(2.0)
Cattle	58.8	(2.6)	51.6	(5.4)	57.9	(2.3)

A larger percentage of cattle in large operations (59.6 percent) were hide branded prior to arrival compared to small operations (48.9 percent).

e. Percent of operations that placed any cattle that were hide branded (freeze or hot) ***prior to*** arrival and percent of all cattle placed that were hide branded (freeze or hot) ***prior to*** arrival by operation capacity:

Percent

	Operation Capacity (Number Head)			
	1,000 - 7,999		8,000 or More	
Measure	Percent	Standard Error	Percent	Standard Error
Operations	71.3	(2.6)	83.9	(2.0)
Cattle	48.9	(2.5)	59.6	(2.8)

Whereas operations in the Central region were more likely to hide brand some cattle, a greater percentage of cattle placed in the Other region were hide branded by the operations. Overall, 29.1 percent of all cattle placements were hide branded after arrival at the feedlot.

f. Percent of operations that placed any cattle that were hide branded (freeze or hot) ***after*** arrival and percent of all cattle placed that were hide branded (freeze or hot) ***after*** arrival by region:

Percent

	Region					
	Central		Other		All Operations	
Measure	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Operations	45.9	(2.4)	24.4	(2.3)	38.5	(1.8)
Cattle	26.7	(2.3)	44.5	(6.5)	29.1	(2.2)

Operation capacity did not affect the likelihood of operations hide branding any cattle after arrival. However, a greater percentage of cattle placed in small operations (36.4 percent) were hide branded by the operation compared to large operations (27.7 percent).

g. Percent of operations that placed any cattle that were hide branded (freeze or hot) ***after*** arrival and percent of all cattle placed that were hide branded (freeze or hot) ***after*** arrival by operation capacity:

Percent

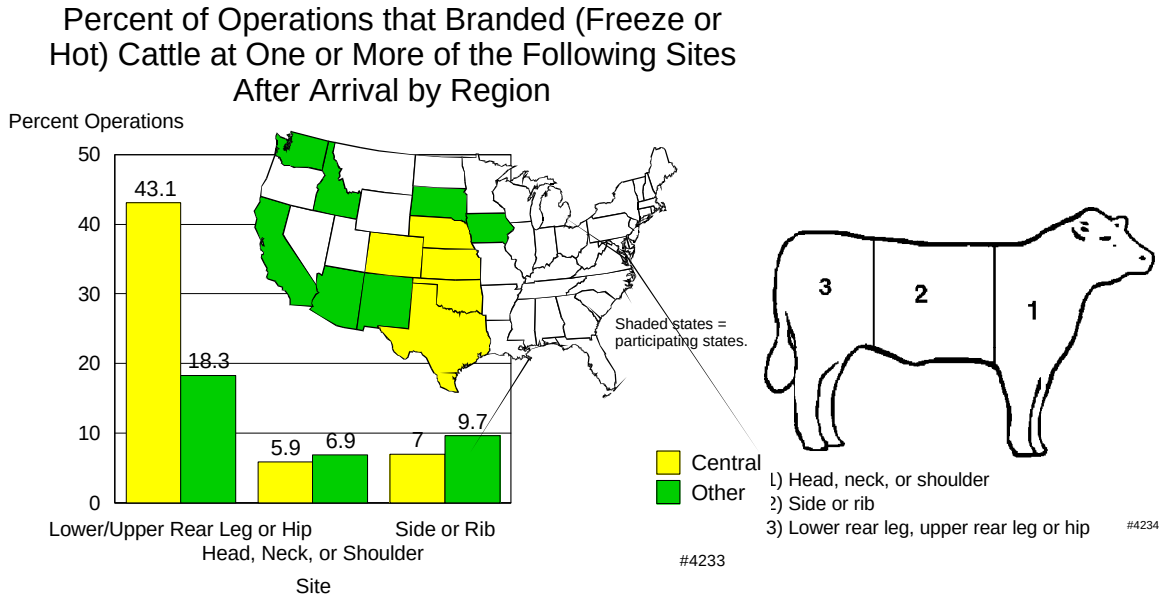
	Operation Capacity (Number Head)			
	1,000 - 7,999		8,000 or More	
Measure	Percent	Standard Error	Percent	Standard Error
Operations	39.1	(2.4)	37.1	(2.1)
Cattle	36.4	(2.6)	27.7	(2.5)

Brands on the side or rib result in considerable damage and decreased value of the hide. Overall, 8.0 percent of all operations branded at this location. More operations (34.5 percent) used the lower rear leg, upper rear leg, or hip than any other location. The branding sites listed below are not mutually exclusive as operations may have branded in more than one location.

h. Percent of all ***operations*** that hide branded (freeze or hot) cattle at one or more of the following sites ***after*** arrival by region:

Percent Operations

	Region					
	Central		Other		All Operations	
Site	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Head, neck, or shoulder	5.9	(0.8)	6.9	(1.2)	6.3	(0.7)
Side or rib	7.0	(1.3)	9.7	(1.7)	8.0	(1.0)
Lower rear leg, upper rear leg, or hip	43.1	(2.4)	18.3	(2.1)	34.5	(1.8)



i. Percent of all ***operations*** that hide branded (freeze or hot) cattle at one or more of the following sites after arrival by operation capacity:

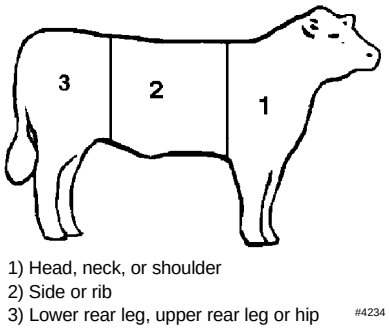
Percent Operations

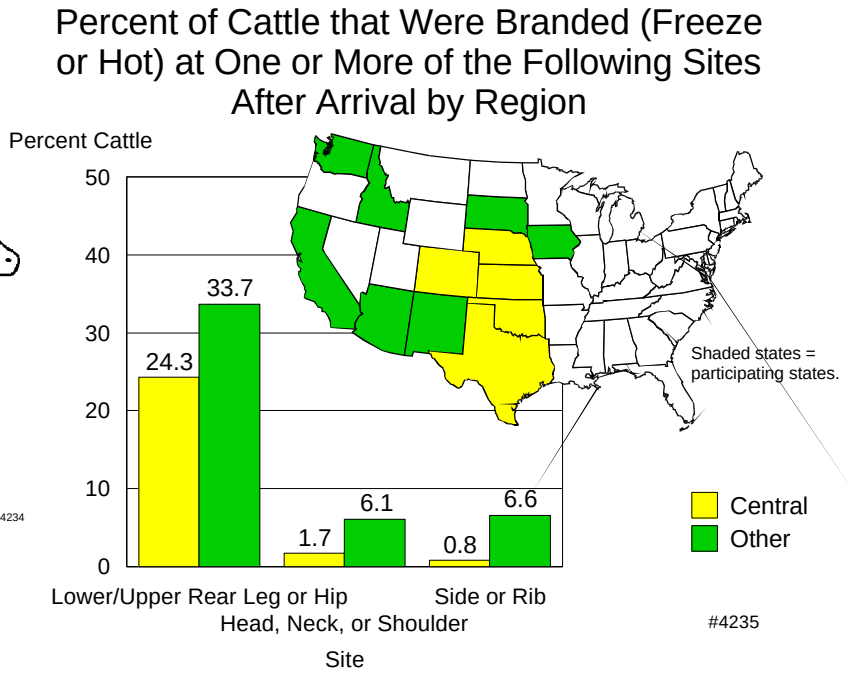
	Operation Capacity (Number Head)			
	1,000 - 7,999		8,000 or More	
Site	Percent	Standard Error	Percent	Standard Error
Head, neck, or shoulder	5.1	(0.8)	9.2	(1.3)
Side or rib	7.6	(1.3)	9.0	(1.2)
Lower rear leg, upper rear leg, or hip	34.7	(2.3)	34.2	(2.1)

The Central region had a greater percentage (73.3 percent) of cattle placed that were not hide branded after arrival compared to operations in the Other region (55.5 percent). For operations in the Other region, 6.6 percent of cattle placed were hide branded after arrival on the side or rib compared with only 0.8 percent in Central region. The branding sites listed below are not mutually exclusive since cattle may have been branded at more than one site.

j. Percent of all ***cattle*** placed that were hide branded (freeze or hot) at one or more of the following sites after arrival by region:

	Percent Cattle					
	Region					
	Central		Other		All Operations	
Site	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Head, neck, or shoulder	1.7	(0.4)	6.1	(1.7)	2.3	(0.4)
Side or rib	0.8	(0.2)	6.6	(1.7)	1.6	(0.3)
Lower rear leg, upper rear leg, or hip	24.3	(2.2)	33.7	(6.0)	25.5	(2.1)
Not hide branded	73.3	(2.3)	55.5	(6.5)	70.9	(2.2)

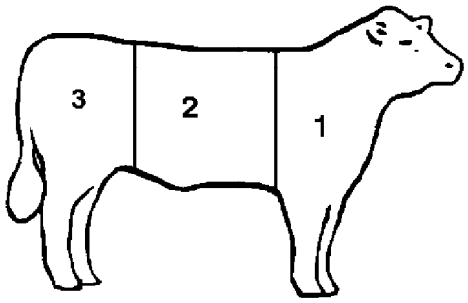




A greater percentage of cattle placed in small operations (4.6 percent) were hide branded after arrival on their side or rib than in large operations (1.0 percent). A larger percentage of cattle placed in large operations (72.3 percent) were ***not*** hide branded after arrival compared to small operations (63.6 percent).

k. Percent of all ***cattle*** placed that were hide branded (freeze or hot) at one or more of the following sites after arrival by operation capacity:

	Percent Cattle			
	Operation Capacity (Number Head)			
	1,000 - 7,999		8,000 or More	
Site	Percent	Standard Error	Percent	Standard Error
Head, neck, or shoulder	3.9	(1.0)	1.9	(0.5)
Side or rib	4.6	(1.1)	1.0	(0.2)
Lower rear leg, upper rear leg, or hip	28.2	(2.3)	25.0	(2.4)
Not hide branded	63.6	(2.6)	72.3	(2.5)



1) Head, neck, or shoulder
2) Side or rib
3) Lower rear leg, upper rear leg or hip #4234

Overall, the most common reasons for hide branding were brand laws (44.7 percent of operations) and to deter theft (40.9 percent).

Reasons for hide branding did not significantly differ between regions except that operations in the Central region were more likely than those in the Other region to brand because cattle were on pasture temporarily and for nonspecified reasons in the 'other' category. Operations in the Other region were more likely to brand for feedlot management reasons than those in the Central region. Feedlot management reasons may have included identification of a group of cattle.

Reasons for hide branding listed below are not mutually exclusive as cattle may have been branded for more than one reason.

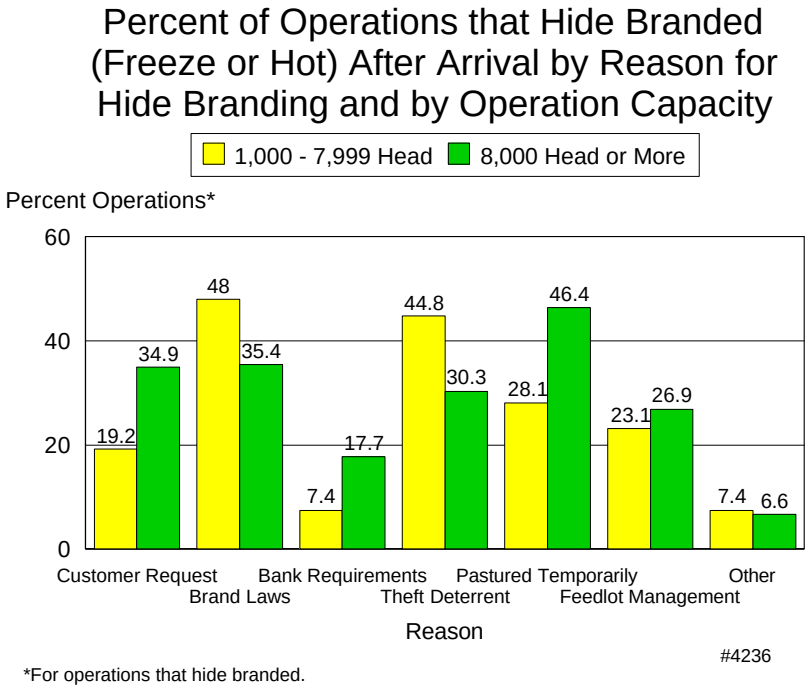
l. For operations that hide branded cattle after arrival, percent of ***operations*** that hide branded (freeze or hot) for the following reasons by region:

	Percent Operations					
	Region					
	Central		Other		All Operations	
Reason	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Customer request	23.3	(2.8)	23.6	(4.0)	23.4	(2.4)
Brand laws	44.5	(3.6)	45.0	(5.2)	44.7	(3.1)
Bank requirements	9.0	(1.4)	14.3	(3.5)	10.1	(1.3)
Theft deterrent	41.9	(3.6)	37.5	(5.1)	40.9	(3.0)
On pasture temporarily then back to feedlot	36.8	(3.3)	18.7	(4.2)	32.9	(2.8)
Feedlot management	21.9	(3.0)	32.1	(4.9)	24.1	(2.6)
Other	8.1	(1.5)	3.7	(1.9)	7.2	(1.2)

Percentages of small and large operations that hide branded after arrival for feedlot management reasons and reasons in the 'other' category were similar. Large operations were more likely to brand cattle that were on pasture temporarily (46.4 percent of operations) and because of bank requirements (17.7 percent) and customer requests (34.9 percent). Large operations were ***less*** likely to brand because of brand laws or to deter theft than small operations. Reasons for hide branding listed below are not mutually exclusive.

m. For operations that hide branded after arrival, percent of ***operations*** that hide branded (freeze or hot) for the following reasons by operation capacity:

	Percent Operations			
	Operation Capacity (Number Head)			
	1,000 - 7,999		8,000 or More	
Reason	Percent	Standard Error	Percent	Standard Error
Customer request	19.2	(3.0)	34.9	(3.5)
Brand laws	48.0	(3.9)	35.4	(3.4)
Bank requirements	7.4	(1.4)	17.7	(2.9)
Theft deterrent	44.8	(4.0)	30.3	(3.4)
On pasture temporarily then back to feedlot	28.1	(3.5)	46.4	(3.6)
Feedlot management	23.1	(3.3)	26.9	(3.2)
Other	7.4	(1.5)	6.6	(2.0)

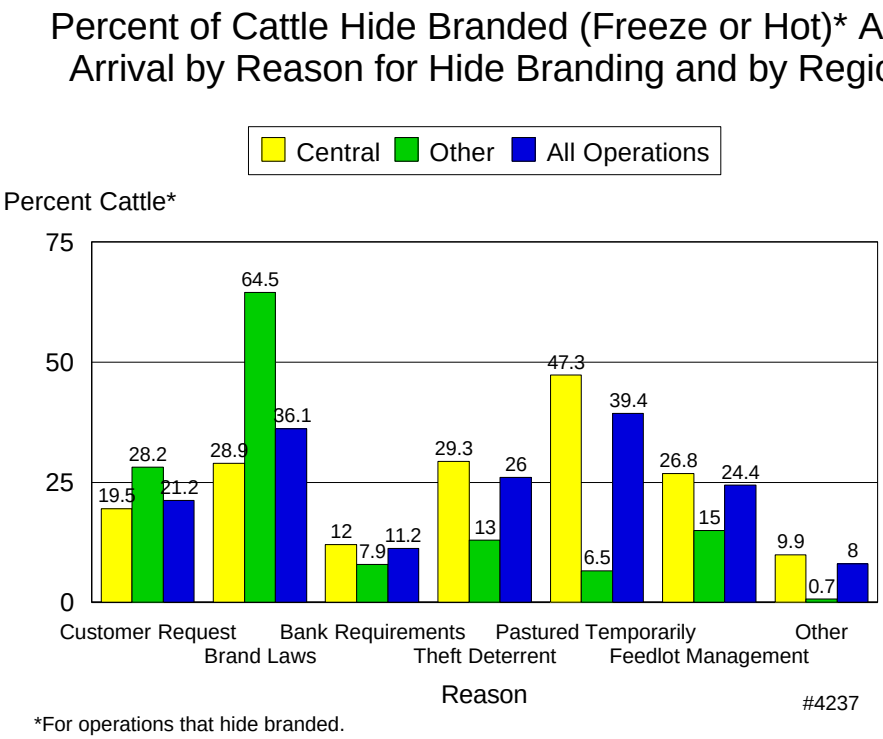


*For operations that hide branded.

Nearly 30 percent of cattle branded on operations in the Central region and 64.5 percent of cattle branded on operations in the Other region were hide branded because of brand laws. Nearly one-half (47.3 percent) of cattle branded on Central region operations were hide branded because they were on pasture temporarily then returned to the operation. Cattle may have been branded for more than one reason.

n. For operations that hide branded after arrival, percent of ***cattle*** hide branded (freeze or hot) by the operation for the following reasons by region:

	Percent Cattle Branded					
	Region					
	Central		Other		All Operations	
Reason	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Customer request	19.5	(4.4)	28.2	(6.9)	21.2	(3.7)
Brand laws	28.9	(4.7)	64.5	(8.2)	36.1	(4.5)
Bank requirements	12.0	(3.7)	7.9	(3.1)	11.2	(3.0)
Theft deterrent	29.3	(5.2)	13.0	(4.3)	26.0	(4.3)
On pasture temporarily then back to feedlot	47.3	(5.9)	6.5	(2.7)	39.4	(5.0)
Feedlot management	26.8	(5.4)	15.0	(4.9)	24.4	(4.5)
Other	9.9	(4.8)	0.7	(0.4)	8.0	(3.9)



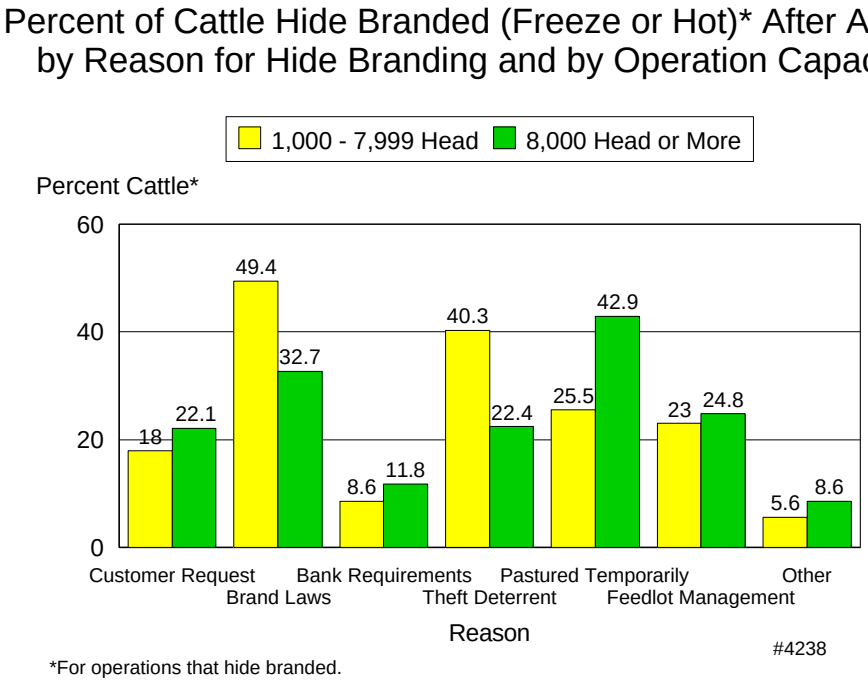
*For operations that hide branded.

The percentages of ***operations*** that hide branded cattle (see Table B.4.l) and the percentages for ***cattle*** branded on those operations (shown below) are similar by operation capacity for many of the reasons listed. Reasons for hide branding listed below are not mutually exclusive.

There was no predominant reason that accounted for most of the cattle being branded in either small or large operations. Thus, to attempt to decrease the number of cattle that are branded by operations would require efforts targeted at multiple reasons.

o. For operations that hide branded after arrival, percent of ***cattle*** hide branded (freeze or hot) by the operation for the following reasons by operation capacity:

	Percent Cattle Branded			
	Operation Capacity (Number Head)			
	1,000 - 7,999		8,000 or More	
Reason	Percent	Standard Error	Percent	Standard Error
Customer request	18.0	(3.7)	22.1	(4.6)
Brand laws	49.4	(4.6)	32.7	(5.6)
Bank requirements	8.6	(2.7)	11.8	(3.7)
Theft deterrent	40.3	(4.7)	22.4	(5.2)
On pasture temporarily then back to feedlot	25.5	(4.0)	42.9	(6.2)
Feedlot management	23.0	(3.9)	24.8	(5.6)
Other	5.6	(1.3)	8.6	(4.9)



*For operations that hide branded.

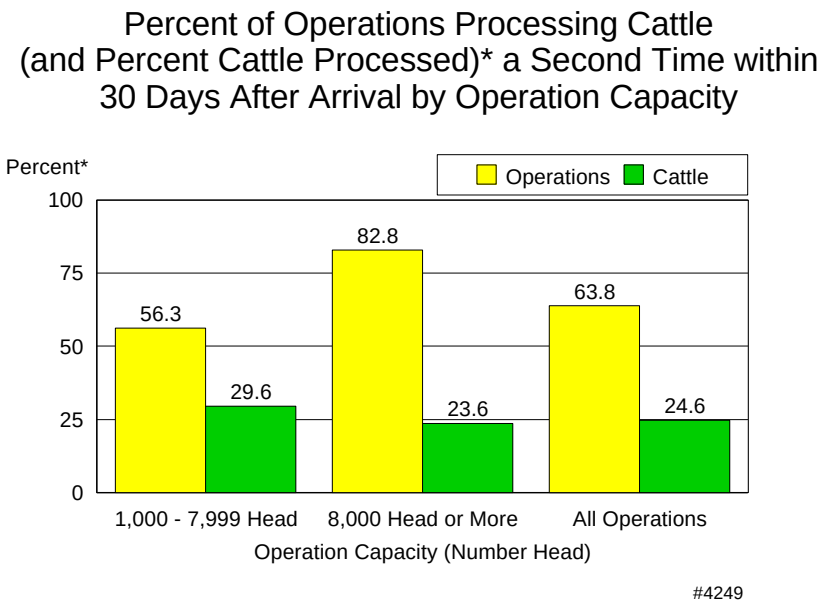
5. Processing a second time within 30 days of arrival

Most large operations (82.8 percent) processed some cattle a second time within 30 days of arrival. A smaller percentage of small operations (56.3 percent) processed some cattle a second time. A greater percentage of cattle in small operations (29.6 percent) was reprocessed compared to large operations (23.6 percent).

a. For operations that initially processed cattle as a group within 30 days of arrival, percent of operations processing cattle (and percent cattle processed) a second time within 30 days after arrival by operation capacity:

Percent

	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Measure	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Operations	56.3	(2.7)	82.8	(1.6)	63.8	(2.0)
Cattle	29.6	(1.9)	23.6	(1.5)	24.6	(1.3)



*For operations that initially processed cattle as a group within 30 days of arrival at the operation.

The following table represents those operations that processed any cattle a second time within 30 days of arrival. Reprocessing may be performed to administer vaccine boosters, metaphylactic antimicrobial therapy in response to a disease outbreak, or other reasons. Multiple procedures may be performed during reprocessing.

By far, the most common reason for reprocessing was to revaccinate cattle against respiratory diseases (87.5 percent of all operations that reprocessed cattle within 30 days of arrival). The next most common reasons were to reimplant (32.3 percent), revaccinate against clostridial diseases (30.6 percent), and provide an initial implant (28.4 percent).

A higher percentage of small operations than large operations processed cattle a second time for initial vaccinations against respiratory diseases or to revaccinate against clostridial diseases. A higher percentage of large operations than small operations processed cattle a second time to reimplant or to retreat with an injectable antibiotic.

b. For operations that processed any cattle a second time within 30 days of arrival at the operation, percent of operations by procedure and by operation capacity:

	Percent Operations					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Procedure	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Initial vaccination against respiratory diseases	26.7	(3.4)	15.1	(2.1)	22.4	(2.3)
Revaccinated against respiratory diseases	86.4	(2.7)	89.3	(1.5)	87.5	(1.8)
Initial vaccination against clostridial diseases	17.5	(2.5)	13.5	(2.0)	16.0	(1.7)
Revaccinated against clostridial diseases	35.1	(3.6)	23.0	(2.2)	30.6	(2.4)
Initial treatment with an injectable antibiotic	12.8	(2.4)	30.5	(2.5)	19.3	(1.8)
Retreatment with an injectable antibiotic	13.9	(2.1)	21.5	(2.2)	16.7	(1.6)
Initial implant	32.7	(3.4)	21.1	(2.3)	28.4	(2.3)
Reimplant	25.2	(3.0)	44.5	(2.6)	32.3	(2.1)
Treated for parasites	19.6	(2.8)	19.8	(2.2)	19.7	(1.9)
Reprocessed for other reasons	2.6	(0.8)	3.3	(1.0)	2.9	(0.6)

6. Implants

Implants are a cost-effective method of increasing cattle performance, feed efficiency, and lean muscle mass. However, some implants, particularly the implants containing the androgenic compound trenbalone acetate (TBA), have been associated with increased numbers of bullers and decreased marbling. Implanting strategies have been developed to decrease the negative impact of implants while maintaining the economic benefits. Regardless of weight of steers and heifers at the time of placement (less than 700 lbs. versus 700 lbs. or more), greater percentages of small operations did not implant compared to large operations. A higher percentage of large operations than small operations implanted cattle less than 700 lbs. at arrival two or more times.

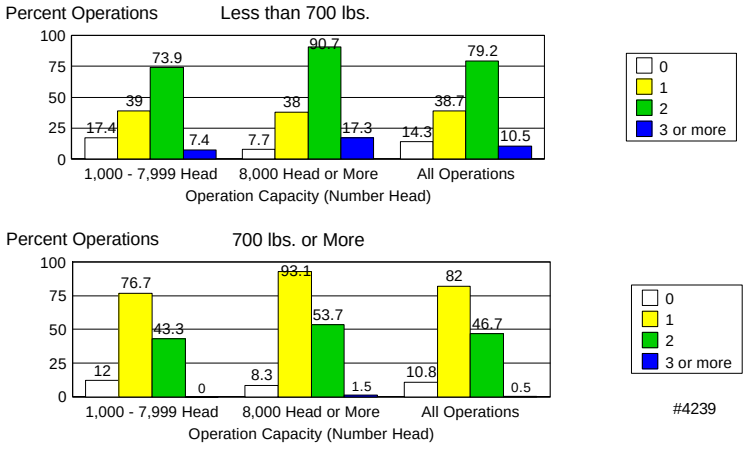
a. Number of implants

i. For operations that placed cattle in the specified weight group, percent of ***operations*** that implanted any steers and heifers the following number of times (and percent of steers and heifers that were implanted by the operation) from the time of placement until marketing by operation capacity and by weight at placement:

Percent Operations

	Operation Capacity (Number Head) and Weight at Placement					
	1,000 - 7,999		8,000 or More		All Operations	
Number of Times Implanted	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Steers and Heifers Less than 700 lbs.						
0	17.4	(2.3)	7.7	(1.4)	14.3	(1.6)
1	39.0	(3.1)	38.0	(2.2)	38.7	(2.2)
2	73.9	(2.8)	90.7	(1.4)	79.2	(2.0)
3 or more	7.4	(1.7)	17.3	(1.7)	10.5	(1.3)
Steers and Heifers 700 lbs. or More						
0	12.0	(1.9)	8.3	(1.4)	10.8	(1.4)
1	76.7	(2.8)	93.1	(1.3)	82.0	(2.0)
2	43.3	(3.2)	53.7	(2.3)	46.7	(2.3)
3 or more	0.0	(--)	1.5	(0.5)	0.5	(0.2)

Percent of Operations that Implanted Any Steers and Heifers the Following Number of Times by Operation Capacity and by Weight at Placement



A greater percentage (80.0 percent) of steers and heifers weighing less than 700 lbs. at the time of placement received more than one implant compared to those weighing 700 lbs. or more (30.4 percent). A likely reason for the greater percentage was that lighter cattle were on feed for a greater number of days than heavier cattle.

Overall, 74.0 percent of cattle less than 700 lbs. received two implants, whereas 66.8 percent of cattle 700 lbs. or more received only a single implant. Within each weight category, large operations tended to implant a greater percentage of cattle than small operations.

ii. Percent of ***steers and heifers*** by number times implanted (by the operation) and by operation capacity and weight group:

Percent Steers and Heifers

	Operation Capacity (Number Head) and Weight Group					
	1,000 - 7,999		8,000 or More		All Operations	
Number of Times Implanted	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Steers and Heifers Less than 700 lbs. When Placed						
0	5.7	(1.3)	1.2	(0.4)	1.9	(0.4)
1	24.1	(2.8)	17.0	(1.7)	18.1	(1.5)
2	66.8	(3.0)	75.3	(1.9)	74.0	(1.7)
3 or more	3.4	(1.1)	6.5	(1.0)	6.0	(0.9)
Total	100.0		100.0		100.0	
Steers and Heifers 700 lbs. or More When Placed						
0	8.4	(1.9)	1.7	(0.7)	2.8	(0.7)
1	66.0	(2.9)	67.0	(2.6)	66.8	(2.2)
2	25.6	(2.6)	30.8	(2.5)	30.0	(2.1)
3 or more	0.0	(--)	0.5	(0.2)	0.4	(0.2)
Total	100.0		100.0		100.0	

The following table is for operations on which any steers or heifers received only one implant. The list of growth promotants is not mutually exclusive.

Large operations were more likely to give cattle weighing less than 700 lbs. an androgenic implant than small operations and less likely to give an estrogenic implant. Implanting strategies by operations for cattle 700 lbs. or more at placement were similar to those for cattle less than 700 lbs.

b. Growth promotant type - single implant

i. For operations that implanted any steers or heifers of the specified weight group with only one growth promotant, percent of ***operations*** that implanted the following growth promotants by operation capacity and by weight group:

Percent Operations

	Operation Capacity (Number Head) and Weight Group					
	1,000 - 7,999		8,000 or More		All Operations	
Growth Promotant	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Steers and Heifers Less than 700 lbs. When Placed						
An androgenic implant (trenbalone acetate containing product) alone or in combination with other growth promotants	49.0	(4.9)	62.3	(3.5)	53.2	(3.6)
An estrogenic implant containing estrogen, estrogen-like progesterone, testosterone, or a combination of these growth promotants	77.3	(3.9)	63.4	(3.6)	73.0	(2.9)
Steers and Heifers 700 lbs. or More When Placed						
An androgenic implant (trenbalone acetate containing product) alone or in combination with other growth promotants	61.7	(3.5)	69.4	(2.1)	64.6	(2.3)
An estrogenic implant containing estrogen, estrogen-like progesterone, testosterone, or a combination of these growth promotants	58.0	(3.6)	52.5	(2.5)	56.0	(2.4)

The following table is for cattle that only received one implant. The list of growth promotants is not mutually exclusive.

On small operations, cattle less than 700 lbs. when placed were more likely to receive an estrogenic implant than an androgenic implant, whereas there was little difference on large operations.

Implanting strategies for cattle 700 lbs. or more were similar for large and small operations. Overall, a greater percentage of cattle 700 lbs. or more (59.1 percent) received an implant containing trenbalone acetate (TBA) than those that received an estrogenic implant (40.9 percent).

ii. For steers and heifers of the specified weight group implanted with only one growth promotant by the operation, percent of ***steers and heifers*** implanted with the following growth promotants by operation capacity and by weight group:

Percent Steers and Heifers Implanted

	Operation Capacity (Number Head) and Weight Group					
	1,000 - 7,999		8,000 or More		All Operations	
Growth Promotant	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Steers and Heifers Less than 700 lbs. When Placed						
An androgenic implant (trenbalone acetate containing product) alone or in combination with other growth promotants	29.6	(5.4)	45.8	(6.6)	42.3	(5.3)
An estrogenic implant containing estrogen, estrogen-like progesterone, testosterone, or a combination of these growth promotants	70.4	(5.4)	54.2	(6.6)	57.7	(5.3)
Total	100.0		100.0		100.0	
Steers and Heifers 700 lbs. or More When Placed						
An androgenic implant (trenbalone acetate containing product) alone or in combination with other growth promotants	59.7	(4.1)	59.0	(3.8)	59.1	(3.2)
An estrogenic implant containing estrogen, estrogen-like progesterone, testosterone, or a combination of these growth promotants	40.3	(4.1)	41.0	(3.8)	40.9	(3.2)
Total	100.0		100.0		100.0	

The following table is for operations that administered two or more implants to some cattle and refers to the final implant the animals received. The list of growth promotants is not mutually exclusive.

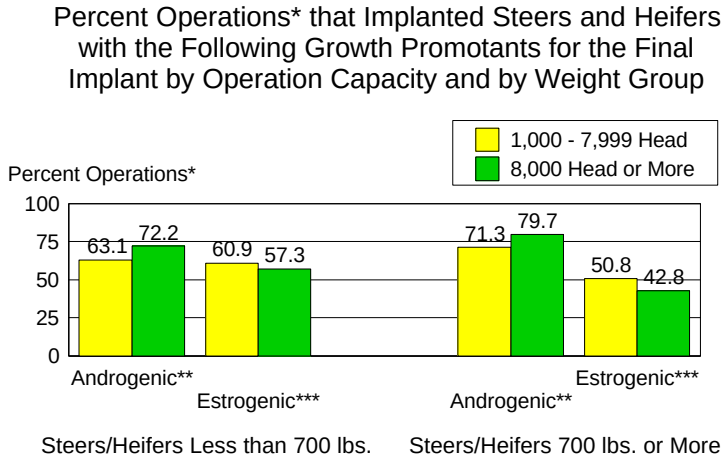
Greater percentages of large operations gave some cattle in both weight classes an androgenic implant compared to an estrogenic implant as a final implant. Both small and large operations were more likely to give cattle weighing 700 lbs. or more at placement an androgenic implant than an estrogenic implant as a final implant.

c. Growth promotant type - final implant when two or more given

i. For operations that implanted any steers and heifers of the specified weight group two or more times with a growth promotant, percent of ***operations*** that implanted steers and heifers with the following growth promotants for the final implant by operation capacity and by weight group:

Percent Operations Implanting Steers and Heifers Two or More Times

	Operation Capacity (Number Head) and Weight Group					
	1,000 - 7,999		8,000 or More		All Operations	
Growth Promotant	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Steers and Heifers Less than 700 lbs. When Placed						
An androgenic implant (trenbalone acetate containing product) alone or in combination with other growth promotants	63.1	(3.5)	72.2	(2.0)	66.3	(2.4)
An estrogenic implant containing estrogen, estrogen-like progesterone, testosterone, or a combination of these growth promotants	60.9	(3.6)	57.3	(2.5)	59.6	(2.5)
Steers and Heifers 700 lbs. or More When Placed						
An androgenic implant (trenbalone acetate containing product) alone or in combination with other growth promotants	71.3	(4.5)	79.7	(2.5)	74.5	(2.9)
An estrogenic implant containing estrogen, estrogen-like progesterone, testosterone, or a combination of these growth promotants	50.8	(4.9)	42.8	(3.3)	47.7	(3.3)



*For operations that implanted any steers and heifers of the specified weight group two or more times with a growth promotant.

#4240

** Trenbalone acetate containing product alone or in combination with other growth promotants.

***Containing estrogen, estrogen-like progesterone, testosterone, or a combination of these growth promotants.

The following table is for cattle that received two or more implants and refers to the final implant the animals received.

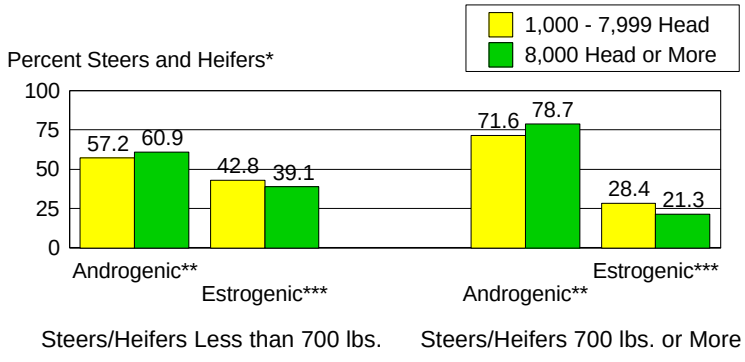
Operation capacity did not affect the percentage of cattle receiving final implants of androgenic or estrogenic promotants. In both weight categories, the final implant given to cattle was more likely an androgenic implant. The disparity between percentages of cattle receiving each type of implant was greatest for cattle weighing 700 lbs. or more at the time of placement.

ii. For steers and heifers of the specified weight group implanted two or more times with a growth promotant by the operation, percent of ***steers and heifers*** implanted with the following growth promotants for the final implant by operation capacity and by weight group:

Percent Steers and Heifers Implanted

	Operation Capacity (Number Head) and Weight Group					
	1,000 - 7,999		8,000 or More		All Operations	
Growth Promotant	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Steers and Heifers Less than 700 lbs. When Placed						
An androgenic implant (trenbalone acetate containing product) alone or in combination with other growth promotants	57.2	(3.7)	60.9	(3.3)	60.4	(2.8)
An estrogenic implant containing estrogen, estrogen-like progesterone, testosterone, or a combination of these growth promotants	42.8	(3.7)	39.1	(3.3)	39.6	(2.8)
Total	100.0		100.0		100.0	
Steers and Heifers 700 lbs. or More When Placed						
An androgenic implant (trenbalone acetate containing product) alone or in combination with other growth promotants	71.6	(5.0)	78.7	(4.0)	77.8	(3.5)
An estrogenic implant containing estrogen, estrogen-like progesterone, testosterone, or a combination of these growth promotants	28.4	(5.0)	21.3	(4.0)	22.2	(3.5)
Total	100.0		100.0		100.0	

Percent Steers and Heifers* Implanted with the Following Growth Promotants for the Final Implant by Operation Capacity and by Weight Group



* For steers and heifers implanted two or more times with a growth promotant by the operation.
** Trenbalone acetate containing product alone or in combination with other growth promotants.
***Containing estrogen, estrogen-like progesterone, testosterone, or a combination of these growth promotants.

#4241

C. Nutritional Management

1. Feed additives

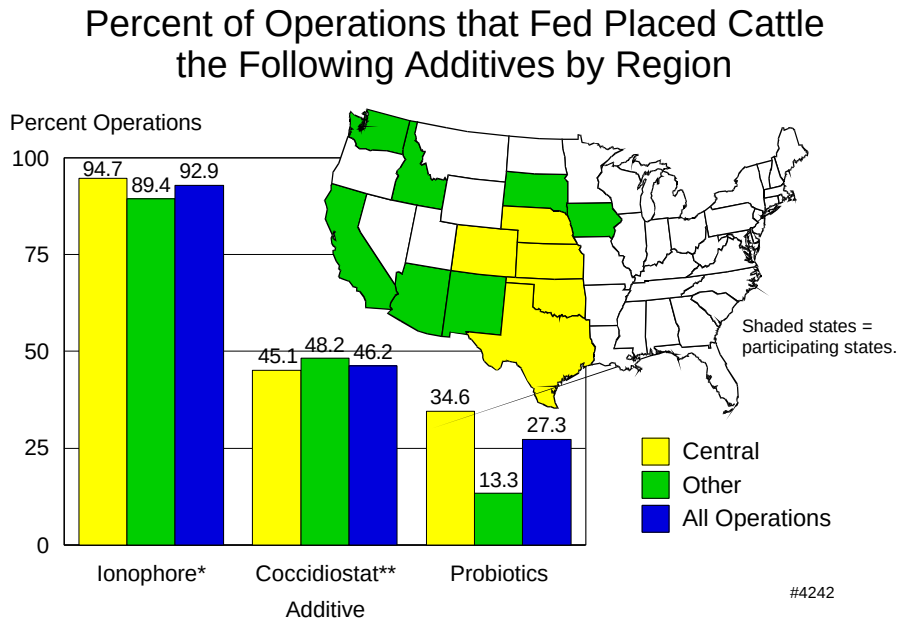
Ionophores are rumen modifiers that increase feed efficiency and provide control of coccidiosis. Coccidiostats are anticoccidial drugs that may be used to treat or prevent coccidiosis. Probiotics are combinations of rumen microbes that are meant to enhance the development of a healthy rumen microbial flora.

Overall, 92.9 percent of operations fed ionophores, and 46.2 percent fed coccidiostats. A higher percentage of operations in the Central region fed probiotics (34.6 percent) to any cattle than operations in the Other region (13.3 percent). The list of additives is not mutually exclusive since operations may have used more than one additive.

a. Percent of operations that fed placed cattle the following additives by region:

Percent Operations

	Region					
	Central		Other		All Operations	
Additive	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Ionophore[1]	94.7	(1.2)	89.4	2.9	92.9	(1.3)
Coccidiostat[2]	45.1	(2.4)	48.2	4.0	46.2	(2.1)
Probiotics	34.6	(2.4)	13.3	2.6	27.3	(1.8)



* Ionophore: such as Rumensin 7 , Bovatec 7 , or Cattlyst 7 .

** Coccidiostat other than an ionophore such as Corid 7 or Deccox 7 .

1 Ionophore such as Rumensin®, Bovatec®, or Cattlyst®.

2 Coccidiostat other than an ionophore such as Corid® or Deccox®.

A slightly greater percentage of large than small operations fed ionophores and probiotics to any cattle. Small operations (47.6 percent) were slightly more likely to feed a coccidiostat than large operations (42.6 percent). The additives listed are not mutually exclusive since operations may have used more than one additive.

b. Percent of ***operations*** that fed placed cattle the following additives by operation capacity:

Percent Operations

	Operation Capacity (Number Head)			
	1,000 - 7,999		8,000 or More	
Additive	Percent	Standard Error	Percent	Standard Error
Ionophore[1]	91.5	(1.7)	96.5	(0.8)
Coccidiostat[2]	47.6	(2.8)	42.6	(2.3)
Probiotics	25.0	(2.4)	33.1	(2.2)

The percentage of cattle that were fed a coccidiostat was greater in small operations (30.6 percent) compared to large operations (21.7 percent), whereas a greater percentage of cattle in large operations (15.7 percent) were fed probiotics compared to small operations (8.1 percent). It appears that at least some cattle in large and small operations received both a coccidiostat and an ionophore. The additives listed are not mutually exclusive since cattle may have received more than one additive.

c. Percent of ***cattle*** placed that were fed the following additives by operation capacity:

Percent Cattle

	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Additive	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Ionophore[1]	92.7	(1.3)	96.5	(0.9)	95.9	(0.8)
Coccidiostat[2]	30.6	(2.5)	21.7	(3.2)	23.1	(2.7)
Probiotics	8.1	(1.5)	15.7	(2.0)	14.4	(1.7)

1 Ionophore such as Rumensin®, Bovatec®, or Cattlyst®.

2 Coccidiostat other than an ionophore such as Corid® or Deccox®.

2. Other nutritional management

Cycling heifers may result in erratic feed intake. Melengesterol acetate (MGA®) is an estrogen compound that acts as a heat suppressant for females. Additionally, MGA® administration results in increased average daily gains and gain to feed ratio.

Large operations that placed female cattle (75.7 percent) were more likely to feed MGA® than small operations that placed female cattle (56.8 percent).

a. For operations that placed female cattle on feed, percent of ***operations*** feeding MGA®[1] by operation capacity:

Percent Operations

Operation Capacity (Number Head)					
1,000 - 7,999		8,000 or More		All Operations	
Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
56.8	(3.1)	75.7	(2.0)	63.2	(2.1)

MGA® was fed to all of the female cattle on 61.7 percent of the large operations and 46.2 percent of the small operations that placed female cattle.

i. For operations that placed female cattle on feed and fed MGA®[1], percent of operations by percent of females fed MGA® and by operation capacity:

Percent Operations

Percent Females Fed MGA®[1]	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
0	43.2	(3.1)	24.3	(2.0)	36.8	(2.1)
1 - 49	5.1	(1.1)	5.6	(1.0)	5.2	(0.8)
50 - 99	5.5	(1.4)	8.4	(1.5)	6.5	(1.0)
100	46.2	(3.1)	61.7	(2.3)	51.5	(2.2)
Total	100.0		100.0		100.0	

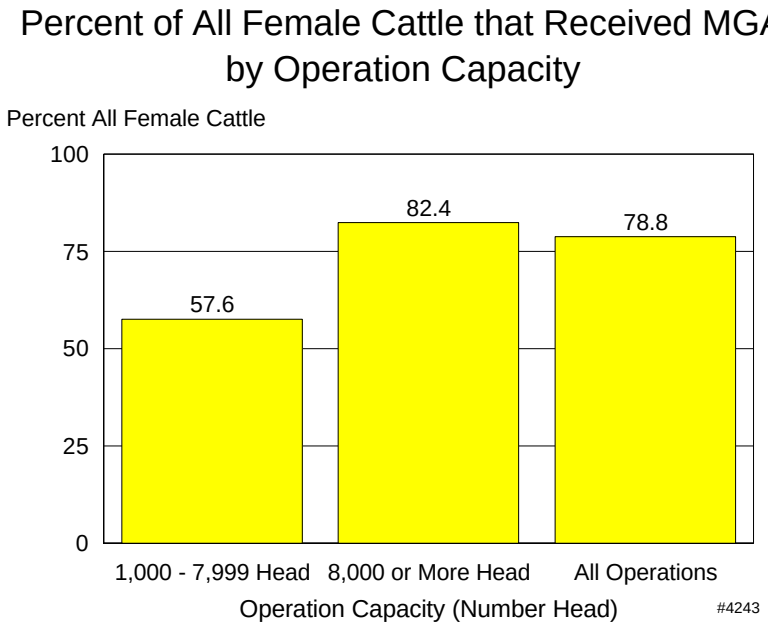
1 MGA® is melengesterol acetate, a heat suppressant for females.

A greater percentage of female placements in large operations (82.4 percent) were fed MGA® compared to small operations (57.6 percent).

ii. Percent of all female cattle placed that received MGA®[1] by operation capacity:

Percent Female Cattle

Operation Capacity (Number Head)					
1,000 - 7,999		8,000 or More		All Operations	
Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
57.6	(3.5)	82.4	(2.0)	78.8	(1.9)



1 MGA® is melengesterol acetate, a heat suppressant for females.

Cattle require a period of adaptation to high-energy (non-structural carbohydrate) ration. Maladapted cattle that overeat readily fermentable carbohydrates will suffer rumen lactic acidosis and related diseases.

Forty-four percent of large operations fed a receiving ration of 56 percent or greater energy concentrate on a dry matter basis compared to 28.3 percent of small operations. Thus, small operations were more likely to feed receiving rations with lower energy concentrate levels than large operations.

b. Percent of operations that fed the following average levels of concentrates (dry matter basis) to cattle in rations ***upon arrival*** by operation capacity:

Percent Operations

	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Percent Concentrates	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
0	5.9	(1.5)	3.7	(0.9)	5.3	(1.1)
1 - 35	34.5	(2.8)	22.3	(2.0)	31.0	(2.1)
36 - 55	31.3	(2.5)	30.0	(2.1)	30.9	(1.9)
56 - 74	11.4	(1.9)	20.5	(1.9)	14.0	(1.5)
75 or more	16.9	(2.2)	23.5	(1.8)	18.8	(1.7)
Total	100.0		100.0		100.0	

Once cattle are adapted to a high concentrate ration, they can tolerate higher intakes of readily fermentable carbohydrates without any undue affects.

Large operations (71.7 percent) were more likely to feed finishing rations with 75 percent or greater energy concentrate on a dry matter basis than small operations (54.7 percent). Over 25 percent of small operations fed a finishing ration containing 0 to 35 percent concentrates on a dry matter basis compared to 8.6 percent of large operations.

i. Percent of operations that fed the following average levels of concentrates (dry matter basis) to cattle in the finishing rations by operation capacity:

Percent Operations

	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Percent Concentrates	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
0	5.6	(1.4)	1.2	(0.6)	4.3	(1.0)
1 - 35	20.2	(2.5)	7.4	(1.5)	16.6	(1.8)
36 - 55	4.0	(1.0)	1.3	(0.5)	3.2	(0.7)
56 - 74	15.5	(2.1)	18.4	(1.9)	16.4	(1.6)
75 or more	54.7	(2.9)	71.7	(2.2)	59.5	(2.2)
Total	100.0		100.0		100.0	

Nearly all (99.1 percent) large operations used the services of a nutritionist compared to 87.9 percent of small operations. A greater percentage of small operations used the services of a ***feed company nutritionist*** (66.9 percent) compared to large operations (27.5 percent). Large operations (72.5 percent) were more likely than small operations (25.1 percent) to use the services of a ***private nutritionist who made regular visits***. Also, a greater percentage of large operations (6.3 percent) employed a ***full-time nutritionist*** than did small operations (2.7 percent).

The following list of nutritional consultants is not mutually exclusive as operations may have used the services of more than one category of nutritionists.

c. Percent of operations that used the services of a nutritional consultant during the year ending June 30, 1999, by operation capacity:

	Percent Operations					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Nutritional Consultant Use	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Full-time nutritionist on staff	2.7	(0.9)	6.3	(1.0)	3.7	(0.7)
Private nutritionist who made regular or routine visits	25.1	(2.3)	72.5	(2.1)	38.2	(1.8)
Private nutritionist called as needed	14.9	(1.9)	18.3	(1.7)	15.8	(1.4)
Feed company nutritionist	66.9	(2.7)	27.5	(2.1)	56.0	(2.1)
Other nutritionist	2.2	(0.9)	1.7	(0.5)	2.1	(0.7)
Any nutritionist	87.9	(1.2)	99.1	(0.4)	91.0	(1.5)

D. Health Management

1. Sick animal records and veterinary services

Records kept on sick animals can provide valuable information on treatment success and areas for training within the animal health crew. Since animals with different diseases may show similar signs, it is possible to confuse diagnoses.

Measuring an animal's body temperature may help differentiate an infectious condition from a non-infectious condition. The majority of operations (60.8 percent) recorded body temperature ***always*** or ***most of the time.***

Recording the treatment date is essential for accurate calculation of withdrawal time so that animals shipped for slaughter are free of violative residues. Over 81 percent of operations ***always*** or ***most of the time*** recorded treatment date. The treatment withdrawal period was recorded ***always*** or ***most of the tim***e on 65.0 percent of operations.

Disease condition and disease outcome were recorded ***always*** or ***most of the time*** in 69.1 percent and 66.2 percent of operations, respectively.

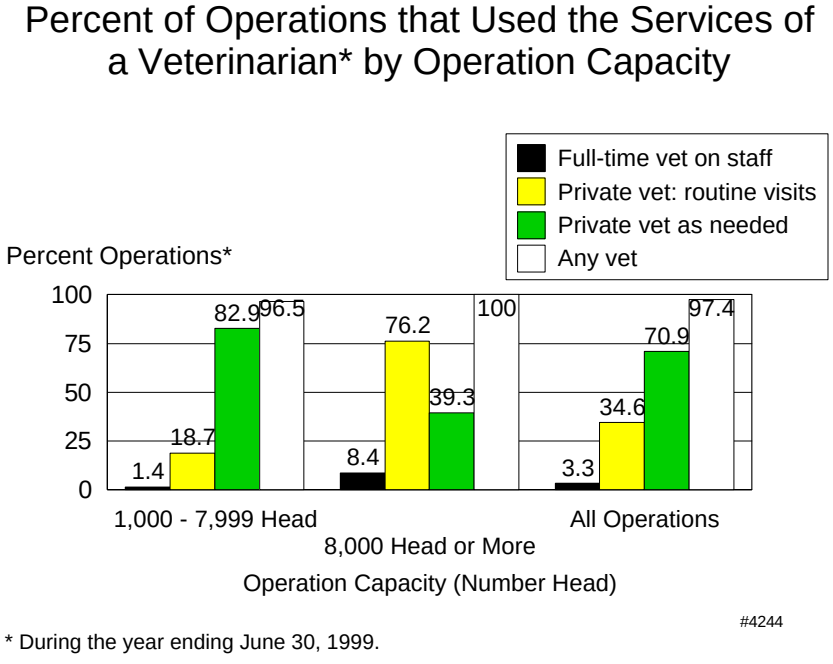
a. Percent of operations by frequency of actually recording the following for sick animals:

	Percent Operations								
	Frequency of Recording								
	Always		Most of the Time		Sometimes		Never		Total
Record	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error	Percent
Body temperature	42.3	(2.0)	18.5	(1.7)	16.3	(1.6)	22.9	(1.9)	100.0
Date treated	71.8	(2.0)	9.3	(1.4)	6.0	(1.1)	12.9	(1.7)	100.0
Weight at time of treatment	25.5	(1.7)	10.4	(1.4)	14.0	(1.4)	50.1	(2.1)	100.0
Treatment given	73.5	(2.0)	10.0	(1.5)	4.1	(0.9)	12.4	(1.6)	100.0
Treatment withdrawal period	57.6	(2.1)	7.4	(1.3)	9.3	(1.3)	25.7	(2.0)	100.0
Disease condition (shipping fever, lameness, pneumonia, etc.)	57.6	(2.1)	11.5	(1.5)	12.5	(1.5)	18.4	(1.8)	100.0
Outcome of treatment (returned to pen, died, or culled, etc.)	57.0	(2.1)	9.2	(1.4)	10.1	(1.3)	23.7	(2.0)	100.0

All large operations and nearly all (96.5 percent) small operations used the services of a veterinarian. Large operations were more likely to use a veterinarian that made regular or routine visits or employ a full-time veterinarian on staff than small operations. Conversely, small operations were more likely to use a veterinarian when the need for one arose.

b. Percent of operations that used the services of a veterinarian during the year ending June 30, 1999, by operation capacity:

	Percent Operations					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Veterinarian Use	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Full-time veterinarian on staff	1.4	(0.4)	8.4	(1.2)	3.3	(0.5)
Private veterinarian who made regular or routine visits	18.7	(2.0)	76.2	(2.0)	34.6	(1.6)
Private veterinarian called as needed	82.9	(1.9)	39.3	(2.3)	70.9	(1.6)
Any veterinarian	96.5	(0.9)	100.0	(--)	97.4	(0.7)



* During the year ending June 30, 1999.

A postmortem examination provides the best practical way to effectively categorize cause of death for an animal. Failure to do postmortem examinations on all dead cattle will result in misclassification of causes of death and may lead to the inability to identify trends in cattle health such as treatment failure, misdiagnosis of live animals, or seasonal peaks in the incidence of diseases such as acute interstitial pneumonia.

Postmortem examinations were performed on 57.7 percent and 24.9 percent of dead cattle in large and small operations, respectively.

c. Percent of total cattle deaths during the year ending June 30, 1999, that had a postmortem examination by examiner and by operation capacity:

Percent Deaths

	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Examiner	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
A veterinarian	18.0	(1.9)	12.5	(0.8)	13.2	(0.7)
A nonveterinarian	6.9	(1.2)	45.2	(2.1)	40.7	(2.1)
No postmortem performed	75.1	(2.1)	42.3	(2.2)	46.1	(2.3)
Total	100.0		100.0		100.0	

A greater percentage of large operations (93.9 percent) provided written guidelines to their employees on treatment regimens for specific diseases than small operations (49.1 percent). In some cases, the absence of written guidelines for employees on small operations may reflect an absence of employees.

d. Percent of operations that provided feedlot workers with written guidelines on what drugs or medications to use in treating diseases during the year ending June 30, 1999, by operation capacity:

Percent Operations

Operation Capacity (Number Head)					
1,000 - 7,999		8,000 or More		All Operations	
Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
49.1	(2.6)	93.9	(1.1)	61.5	(2.0)

2. Carcass disposal methods

The proportion of operations using each of the following cattle disposal methods did not vary by operation capacity. In large and small operations, 90 percent or more of dead animals were disposed of via a renderer. The following list of disposal methods is not mutually exclusive as operations may have employed more than one disposal method.

a. For operations with cattle that died, percent of operations (and percent of dead cattle) by disposal method of dead cattle in the year ending June 30, 1999, and by operation capacity:

Percent

	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Method of Disposal	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Operations						
Buried on this operation	10.8	(1.7)	10.5	(1.2)	10.7	(1.3)
Landfill	1.6	(0.5)	1.6	(0.5)	1.6	(0.4)
Renderer	94.5	(1.1)	94.1	(0.8)	94.4	(0.8)
Other	0.5	(0.2)	0.4	(0.3)	0.4	(0.2)
Dead Cattle						
Buried on this operation	7.4	(1.7)	4.9	(1.7)	5.3	(1.5)
Landfill	1.5	(0.7)	0.4	(0.2)	0.5	(0.2)
Renderer	89.9	(1.9)	94.7	(1.7)	94.1	(1.6)
Other	1.2	(0.7)	0.0	(0.0)	0.1	(0.1)
Total	100.0		100.0		100.0	

E. Quality Assurance and Environmental Programs

1. Quality assurance

Large operations were more likely (18.9 percent) to test any cattle for antibiotic residues prior to shipping them to slaughter than small operations (2.9 percent). Testing usually occurs on those animals deemed to be at high risk of having a violative antibiotic residue.

a. Percent of operations that tested any cattle for antibiotic residues prior to shipping for slaughter during the year ending June 30, 1999, by operation capacity:

Percent Operations

Operation Capacity (Number Head)					
1,000 - 7,999		8,000 or More		All Operations	
Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
2.9	(1.0)	18.9	(2.0)	7.3	(0.9)

National and state industry groups have spent considerable time and effort to increase producer awareness of quality assurance programs in beef production. These programs are generally referred to as Beef Quality Assurance (BQA) programs.

Notably, greater than 95 percent of operations considered each of the following quality assurance programs ***very*** or ***somewhat important***.

b. Percent of operations by importance of the following quality assurance practices to them:

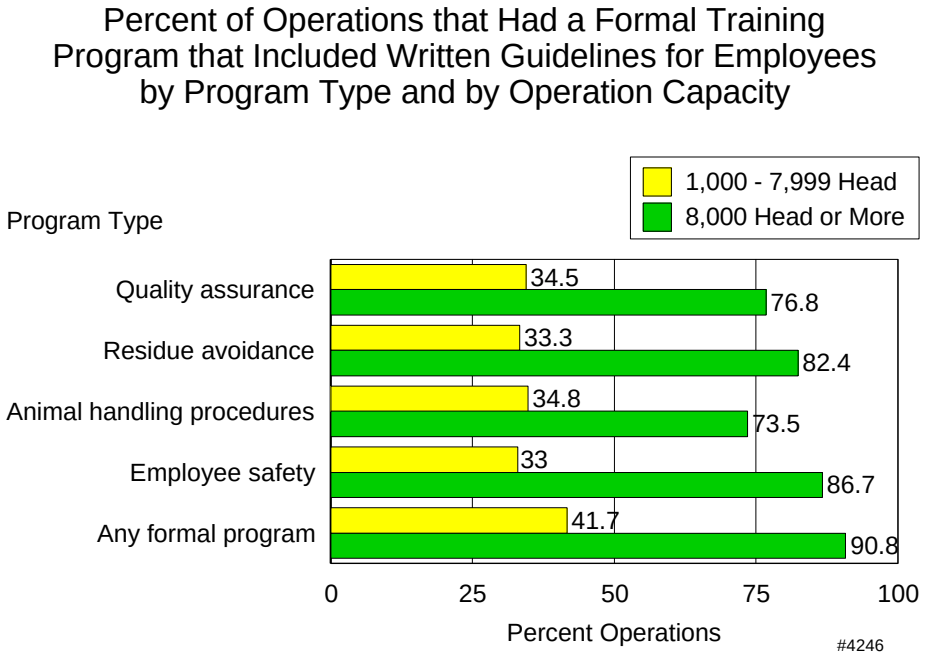
Percent Operations

	Importance								
	Very Important		Somewhat Important		Not Important		Don't Know		Total
Practice	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error	Percent
Location used for administration of injectable products (in neck, shoulder, side, or leg)	94.9	(1.0)	3.8	(0.9)	0.3	(0.2)	1.0	(0.4)	100.0
Route used for administration of injectable products (muscle, vein, or under skin)	91.3	(1.4)	6.5	(1.3)	1.1	(0.5)	1.1	(0.4)	100.0
Implanting strategy	87.7	(1.6)	8.0	(1.4)	1.8	(0.6)	2.5	(0.8)	100.0
Antibiotic selection (such as type of antibiotic used or duration of action) to manage disease	91.9	(1.2)	6.4	(1.1)	0.1	(0.1)	1.6	(0.5)	100.0
Residue avoidance	93.5	(1.1)	4.1	(0.9)	0.9	(0.5)	1.5	(0.4)	100.0

For each of the following program types, large operations were more likely than small operations to provide formal training that included written guidelines to their employees. In some cases, the absence of a training program for employees on small operations may reflect an absence of employees.

c. Percent of operations that had a formal training program that included written guidelines for employees by program type and by operation capacity:

	Percent Operations					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Program Type	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Quality assurance	34.5	(2.4)	76.8	(1.9)	46.3	(1.9)
Residue avoidance	33.3	(2.4)	82.4	(1.7)	46.9	(1.9)
Animal handling procedures	34.8	(2.5)	73.5	(2.0)	45.5	(1.9)
Employee safety	33.0	(2.5)	86.7	(1.6)	47.9	(1.9)
Any formal program	41.7	(2.6)	90.8	(1.4)	55.3	(2.0)



2. Environmental programs

The percentage of operations that provided formal training which included written guidelines for environmental issues was less than for beef quality assurance issues (see Table E.1.c). Large operations were more likely to provide environmental training than small operations.

a. Percent of operations that had a formal training program that included written guidelines for employees regarding environmental issues by issue and by operation capacity:

	Percent Operations					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Environmental Issue	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Manure management	18.5	(2.0)	51.2	(2.3)	27.5	(1.6)
Dust control	12.8	(1.7)	38.5	(2.1)	19.9	(1.4)
Any other environmental training program	7.6	(1.2)	32.7	(2.2)	14.6	(1.1)
Any formal written guidelines	20.3	(2.0)	59.8	(2.2)	31.2	(1.7)

Large operations were more likely than small operations to do some testing of water, manure, and air. Approximately 79 percent of large operations tested ground water, and 69.5 percent of large operations tested the nutrient content of manure. Air quality was tested on 15.4 percent of large operations during the year ending June 30, 1999.

b. Percent of operations that tested environmental samples during the year ending June 30, 1999, by sample type and by operation capacity:

	Percent Operations					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Environmental Sample Type	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Ground water (well water)	41.3	(2.7)	78.5	(1.9)	51.6	(2.1)
Surface water (ponds, lakes, streams)	11.1	(1.6)	44.0	(2.3)	20.2	(1.4)
Nutrient content of manure (such as nitrogen)	33.8	(2.7)	69.5	(2.1)	43.7	(2.0)
Air quality	1.9	(0.7)	15.4	(1.7)	5.6	(0.7)
Any of the above	56.9	(2.7)	90.4	(1.3)	66.2	(2.0)

Higher percentages of operations in the Central region than in the Other region tested water and manure.

c. Percent of operations that tested environmental samples during the year ending June 30, 1999, by sample type and by region:

Percent Operations

	Region			
	Central		Other	
Environmental Sample Type	Percent	Standard Error	Percent	Standard Error
Ground water (well water)	57.6	(2.3)	40.2	(4.0)
Surface water (ponds, lakes, streams)	22.9	(1.6)	15.1	(2.7)
Nutrient content of manure (such as nitrogen)	46.9	(2.3)	37.6	(4.0)
Air quality	5.3	(0.7)	6.1	(1.5)
Any of the above	68.4	(2.3)	61.9	(3.8)

A greater percentage of small operations (90.9 percent) applied manure to land owned or managed by the operation compared to large operations (61.7 percent). This finding may represent a greater proportion of farmer-feeders operating feedlots with less than an 8,000-head capacity. Large operations were more likely to dispose of manure by selling it (26.7 percent), giving it away (57.3 percent), paying someone to take it (9.9 percent), and other methods (5.2 percent) than small operations. The following list of methods is not mutually exclusive since operations may have disposed of manure by more than one method.

d. Percent of operations that used the following manure disposal methods by operation capacity:

Percent Operations

	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Manure Disposal Method	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Applied on land owned or managed by the feedlot	90.9	(1.2)	61.7	(2.2)	82.9	(1.1)
Sold	5.0	(0.9)	26.7	(2.0)	11.0	(0.9)
Given away	15.1	(1.6)	57.3	(2.3)	26.7	(1.4)
Removed by paying someone to take it	0.8	(0.3)	9.9	(1.2)	3.3	(0.4)
Removed by another method	2.7	(0.7)	5.2	(1.0)	3.4	(0.6)

Small operations disposed of the largest percentage (74.6 percent) of manure by applying it to land owned or managed by the operation. For large operations, the largest percentage of manure was given away (48.5 percent).

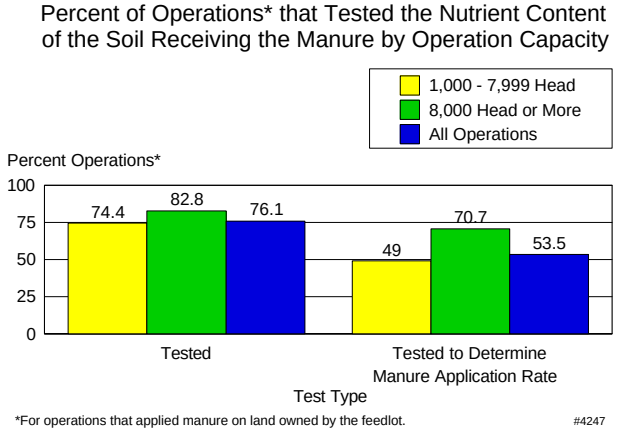
e. Percent of manure[1] by disposal method and by operation capacity:

	Percent Manure					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Disposal Method	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Applied on land owned or managed by the feedlot	74.6	(2.3)	25.5	(3.1)	33.4	(2.5)
Sold	4.8	(1.1)	14.8	(1.9)	13.2	(1.6)
Given away	16.2	(2.0)	48.5	(3.0)	43.3	(2.5)
Removed by paying someone to take it	1.9	(0.7)	8.4	(1.5)	7.3	(1.3)
Removed by another method	2.5	(0.8)	2.8	(0.8)	2.8	(0.7)
Total	100.0		100.0		100.0	

When operations applied manure to land owned or managed by the operation, large operations were somewhat more likely to test the nutrient content of the soil than small operations. A greater percentage of large operations tested to determine application rate compared to small operations.

f. For operations that applied manure on land owned or managed by the operation, percent of operations that tested the nutrient content of the soil receiving the manure by operation capacity:

	Percent Operations					
	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Test Type	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Tested	74.4	(2.5)	82.8	(2.1)	76.1	(2.0)
Tested to determine manure application rate	49.0	(3.0)	70.7	(2.6)	53.5	(2.5)



1 Adjusted by the number of cattle placed in the year ending June 30, 1999.

Almost all large operations (93.1 percent) and 73.5 percent of small operations implemented at least one dust control practice during the year ending June 30, 1999. Primary methods of dust control on large operations were use of sprinklers, either permanent or mobile (17.6 and 69.4 percent) and mechanical scrapers (80.9 percent of operations). The primary method of dust control on small operations was via mechanical scrapers (63.8 percent). Interestingly, 38.7 percent of large and 18.2 percent of small operations used increased cattle density to control dust. The following list of practices is not mutually exclusive since more than one dust control method may have been used by an operation.

g. Percent of operations that used the following practices primarily for dust control in any pen or on the feedlot premise during the year ending June 30, 1999, by operation capacity:

Percent Operations

	Operation Capacity (Number Head)					
	1,000 - 7,999		8,000 or More		All Operations	
Practice	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Permanent sprinklers	8.0	(1.6)	17.6	(1.8)	10.7	(1.2)
Mobile sprinklers (water truck)	26.7	(2.2)	69.4	(2.2)	38.5	(1.8)
Mechanical scrapers	63.8	(2.7)	80.9	(1.9)	68.5	(2.0)
Increased cattle density	18.2	(1.9)	38.7	(2.3)	23.9	(1.5)
Other	3.3	(1.2)	5.7	(1.4)	4.0	(0.9)
Any dust control	73.5	(2.6)	93.1	(1.1)	78.9	(1.9)

Higher percentages of operations in the Central region used lagoons, i.e., holding or settling ponds, (77.5 percent) and berms (63.7 percent) to capture water runoff than in the Other region (44.8 percent each).

h. Percent of operations by practices used to manage water runoff by region:

Percent of Operations

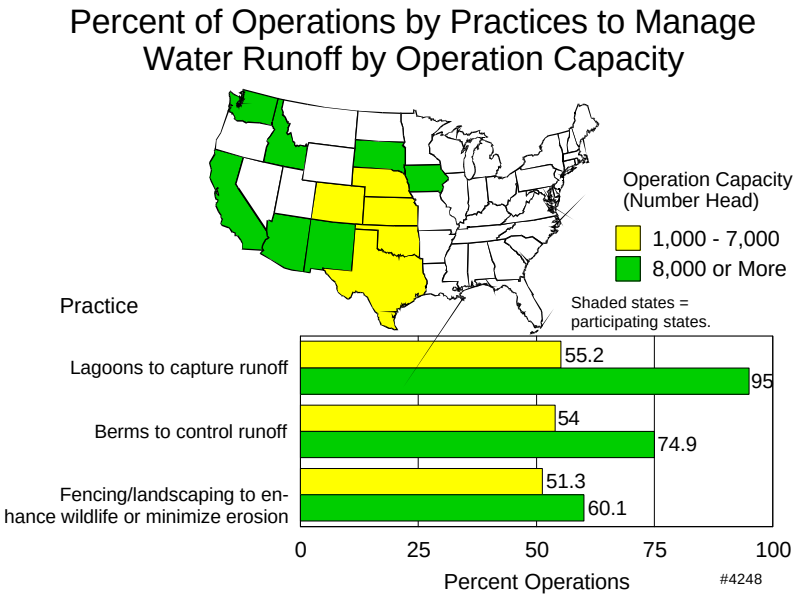
Practice	Region: Central Percent	Central Standard Error	Other Percent	Other Standard Error	All Operations Percent	All Operations Standard Error
Lagoons to capture runoff	77.5	(2.4)	44.8	(3.8)	66.2	(2.1)
Berms to control runoff	63.7	(2.5)	44.8	(4.1)	59.8	(2.1)
Fencing/landscaping to enhance wildlife or minimize erosion	50.6	(2.4)	59.7	(4.0)	53.7	(2.1)

Nearly all (95.0 percent) operations with a capacity of 8,000 or more head used lagoons to capture water runoff. Three-quarters (74.9 percent) of the large operations had berms to control runoff.

i. Percent of operations by practices used to manage water runoff by operation capacity:

Percent of Operations

Practice	Operation Capacity (Number Head): 1,000 - 7,999 Percent	1,000 - 7,999 Standard Error	8,000 or More Percent	8,000 or More Standard Error	All Operations Percent	All Operations Standard Error
Lagoons to capture runoff	55.2	(2.7)	95.0	(1.3)	66.2	(2.1)
Berms to control runoff	54.0	(2.8)	74.9	(2.0)	59.8	(2.1)
Fencing/landscaping to enhance wildlife or minimize erosion	51.3	(2.8)	60.1	(2.2)	53.7	(2.1)



Section II: Methodology

A. Needs Assessment

Objectives were developed for the Feedlot '99 study from input obtained over a period of several months via a number of focus groups and individual contacts. Participants included producer representatives, government personnel, veterinary consultants, researchers, and animal health officials.

Feedlot '99 study objectives were to:

1) Describe animal health management practices in feedlots and their relationship to cattle health.

2) Describe changes in management practices and animal health in feedlots from 1994 to 1999.

3) Identify factors associated with shedding of specified pathogens by feedlot cattle, such as:
   - *E. coli* 0157
   - *Salmonellae* spp.
   - Campylobacter spp.

4) Describe antimicrobial usage in feedlots.

5) Identify areas for pre-arrival processing of cattle and calves.

6) Describe the management in feedlots that impacts product quality.

B. Sampling and Estimation

1. State selection

A goal of the NAHMS national studies is to include states that account for at least 70 percent of the animal and producer population. The National Agricultural Statistics Service (NASS) publishes the number of cattle on feed and the number of feedlots in the U.S. The February 1999 report shows that 2 percent of the feedlots had over 80 percent of the U.S. inventory. These feedlots were those with 1,000 head or more one-time capacity. Therefore, to enhance prudent use of available resources, our goal of focusing on animal health was achieved by concentrating efforts where most of the animals were located. This plan meant examining those feedlots with 1,000-head or more capacity. On a monthly and quarterly basis, the NASS surveys these large feedlots in 12 key cattle feeding states, which in general are those states with the largest inventories. To minimize respondent burden on these large feedlots, NAHMS chose to direct efforts in these same 12 feedlot states which were Arizona, California, Colorado, Idaho, Iowa, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Washington. The number of feedlots published for these 12 states in 1998 was 1,746. On January 1, 1999, they had 10,217,000 head on feed.

2. Operation selection

A total of 1,250 feedlots were selected from a population of 1,782 operations based on NASS' May 1999 Cattle on Feed survey. In eight of the 12 NAHMS states, all feedlots were selected. In the remaining four states (Colorado, Iowa, Kansas, and Nebraska), samples were taken to match resource availability both within the state and nationally. These four states were chosen for subsampling because of their relatively large number of smaller operations. In these four states, all operations with

more than 4,000 head were included in the sample, while the sampling interval varied between one in 1.61 (Colorado) to one in 4.39 (Nebraska) for smaller feedlots.

3. Population inferences

Inferences cover the population of feedlots with 1,000 head or more one-time capacity in the 12 study states since these feedlots were the only ones eligible for sample selection. These states accounted for 84.3 percent of the feedlots with a 1,000-head or more capacity in the U.S. and 95.8 percent of the U.S. cattle on feed inventory as of January 1, 1999, or 77.3 percent of all cattle on feed in the U.S. *All respondent data were properly weighted to reflect the population from which it was selected.* The inverse of the probability of selection for each of the 1,250 feedlots was the initial selection weight. This selection weight was adjusted for non-response within each of two regions and two size groups to allow for inferences back to the original population from which the sample was selected.

C. Data Collection

1. Feedlot Management Report, August 16 - September 7, 1999

NASS enumerators administered the Feedlot Management Report. The interview took approximately 1 hour to complete.

D. Data Analysis

1. Validation and estimation

Initial data entry and validation for the Feedlot Management Report (results reported in Feedlot '99 Part I) were performed in each individual NASS state office. Data were entered into a SAS data set. NAHMS national staff performed additional data validation on the entire data set after data from all states were combined.

2. Response rates

A total of 520 of the initially selected 1,250 feedlots completed the Feedlot Management Report. There were 130 selected feedlots (10.4 percent) that had zero cattle on feed, were out of business, or were otherwise out of scope for the study (Table 1). These two groups combined (n=650) represented the respondents to the survey. The response rate (650/1,250 = 52%) was similar to the response rate from the NAHMS' 1994 Cattle on Feed Evaluation (43.5% for operations with a capacity of 1,000 or more head). Forty-one selected feedlots were inaccessible or could not be contacted within the study timelines.

Response Category	Number Operations	Percent Operations
Completed survey	520	41.6
Had zero cattle on feed	83	6.6
Out of business	40	3.2
Out of scope of survey	7	0.6
Refusals	559	44.7
Inaccessible	41	3.3
Total	1,250	100.0

Appendix I: Sample Profile

A. Responding Operations

1. Number (and percent) of operations by commodity placed during the year ending June 30, 1999

	Number (and Percent) Operations					
	Operation Capacity					
	1,000 - 7,999		8,000 or More		All Operations	
Commodities Placed	Number	Percent	Number	Percent	Number	Percent
Dairy only	3	0.6	0	0	3	0.6
Beef only	258	49.6	138	26.5	396	76.1
Dairy and beef	41	7.9	80	15.4	121	23.3
Total	302	58.1	218	41.9	520	100.0

2. Number operations that placed at least one cow or bull during the year ending June 30, 1999

	Number (and Percent) Operations					
	Operation Capacity					
	1,000 - 7,999		8,000 or More		All Operations	
	Number	Percent	Number	Percent	Number	Percent
Yes	80	26.5	88	40.4	168	32.3
No	222	73.5	130	59.6	352	67.7
Total	302	100.0	218	100.0	520	100.0

3. Number of operations by number of placements during the year ending June 30, 1999

	Number Operations	Percent Operations
1-2,499	134	25.8
2,500-9,999	160	30.7
10,000-39,999	133	25.6
40,000 or more	93	17.9
Total	520	100.0

Appendix II: Number of Feedlots & Inventory

State	Number of Feedlots by Operation Capacity				
	Number of Lots, 1998*	Number of Lots, 1999*	January 1, 1999 Inventory* (1,000 Head)	June 1, 1999 Inventory* (1,000 Head)	January 1, 2000 Inventory* (1,000 Head)
	Feedlots 1,000-Head or More Capacity				
Arizona	9	7	206	207	272
California	24	24	400	370	415
Colorado	166	162	1,140	1,090	1,180
Idaho	55	55	285	285	310
Iowa	310	325	335	330	375
Kansas	200	220	2,110	2,010	2,310
Nebraska	665	685	2,110	2,000	2,300
New Mexico	10	10	118	87	116
Oklahoma	26	27	410	330	430
South Dakota	121	123	184	164	194
Texas	142	142	2,720	2,530	2,900
Washington	18	19	199	199	228
Total (12 states)	1,746	1,799	10,217	9,602	11,030
Other States	325	320	450	375	445
Total U.S. (50 states)	2,071	2,119	10,667	9,977	11,475
	Feedlots Less than 1,000-head Capacity - All States				
	102,000	100,000	2,547	Not available	2,508
	Total U.S. Feedlots				
	104,071	102,119	13,214	Not available	13,983

* Number of feedlots is the number of lots operating at any time during the year.
Inventory is the number on hand January 1 and June 1.

NAHMS FEEDLOT '99 STUDY: Completed and Expected Outputs and Related Study Objectives

1. Describe changes in management practices and animal health in feedlots from 1994 to 1999.
   - Changes in the U.S. Beef Feedlot Industry, 1994-1999, expected summer 2000

2. Describe the management in feedlots that impacts product quality.
   - ***Part I: Baseline Reference of Feedlot Management Practices****, 1999*, May 2000
   - Part II: Baseline Reference of Feedlot Health and Health Management Practices, 1999, expected summer 2000
   - Quality assurance (interpretive report), expected summer 2000
   - Water quality (info sheet), expected summer 2000
   - Feed quality (info sheet), expected summer 2000

3. Identify factors associated with shedding by feedlot cattle of specified pathogens, such as *E. coli* 0157, *Salmonellae* spp., and *Campylobacter* spp.
   - *E. coli* 0157:H7 (info sheet), expected 2001
   - *Salmonella* (info sheet), expected 2001
   - *Campylobacter* (info sheet), expected 2001

4. Describe antimicrobial usage in feedlots.
   - ***Part I: Baseline Reference of Feedlot Management Practices****, 1999*, May 2000
   - Part II: Baseline Reference of Feedlot Health and Health Management Practices, 1999, expected summer 2000
   - Antimicrobial usage in feedlots (interpretive report), expected summer 2001

5. Identify priority areas for pre-arrival processing of cattle and calves.
   - ***Part I: Baseline Reference of Feedlot Management Practices****, 1999*, May 2000
   - Part II: Baseline Reference of Feedlot Health and Health Management Practices, 1999, expected summer 2000
   - Implants (info sheet), May 2000
   - Prearrival processing (info sheet), expected summer 2000
   - Vaccination practices (info sheet), expected summer 2000

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