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Feedlot 2011

Cattle Identification on U.S. Feedlots

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Cover photograph courtesy of Geni Wren.

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Acknowledgments

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

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

Introduction

Feedlot 2011 and two earlier NAHMS cattle feedlot studies (Cattle on Feed Evaluation (COFE) 1994 and Feedlot '99) examined a variety of feedlot management practices, including animal identification (ID). This document presents results of the Feedlot 2011 study related to animal ID and discusses trends observed across the three NAHMS feedlot studies.

Cattle ID is a key component of a complete meat/beef traceback system. Hide brands, tattoos, registration certificates, and tags attached to animals are common methods used to identify cattle. Most ID devices are designed to be read visibly; some devices contain radio-frequency identification (RFID), chip, which requires an electronic reader. The identifier is usually an alphanumeric code and may be assigned to an individual animal (i.e., individual-animal ID) or all members of a cohort/group (i.e., group/owner ID). The identifier is unique when assigned to a single animal or group of animals and never reused.

There are costs and benefits associated with identifying cattle. Costs include purchasing ID devices and application tools, record-storage systems, RFID tag-reading technology, and human resources required to apply ID devices, collect the data, and administer/maintain the ID system. Benefits connected to animal ID and a traceback system include improved management of animals and herd inventory, enhanced production efficiency, price premiums tied to quality-attribute verification, enhanced market access, and improved disease control. Traceable animal ID must be coupled with competent management practices and the bidirectional flow of information through all segments of the production chain. The effectiveness and efficiency of response to animal disease incidents are substantially improved when a "critical mass"[1] of cattle has traceable ID. Effective and efficient response to public health incidents, such as drug residue and contaminated products, require "farm-to-fork" traceability. Improvements in animal disease control and response to public health incidents are achievable when traceable ID is coupled with competent incident management practices and the bidirectional flow of information.

The NAHMS Feedlot 2011 study[2] surveyed large U.S. feedlots (1,000 head or more capacity) in 12 States[3] and small feedlots (fewer than 1,000 head capacity) in 13 States.[4] States selected for study participation accounted for at least 90 percent of U.S. cattle on feed and at least 90 percent of U.S. feedlots. Population estimates were generated for large and small feedlots by capacity and by region.

During the Feedlot 2011 study, data collected to examine animal ID included:

1) The presence of individual-animal ID attached to cattle on arrival.
2) The practice of removing and applying ID when receiving cattle.
3) The application of individual-animal and/or group/owner ID.
4) The occurrence of hide-branding at feedlots.

[1] The USDA has estimated that 70 percent of the animals in a specific species and/or sector would need to be identified and traceable to their premises of origin to achieve the anticipated disease control benefits.

[2] The "Feedlot 2011 Part I: Management Practices on U.S. Feedlots with a Capacity of 1,000 or more Head" and "Feedlot 2011 Part II: Management Practices on U.S. Feedlots with a Capacity of Fewer than 1,000 Head" reports contain comprehensive study results and descriptions of the methodologies used.

[3] **Large feedlots, States/regions:**
Central: Colorado, Kansas, Nebraska, Oklahoma, and Texas.
Other: Arizona, California, Idaho, Iowa, New Mexico, South Dakota, and Washington.

[4] **Small feedlots, States/regions:**
Central: Kansas, Nebraska, South Dakota, and Texas.
Other: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Pennsylvania, and Wisconsin.

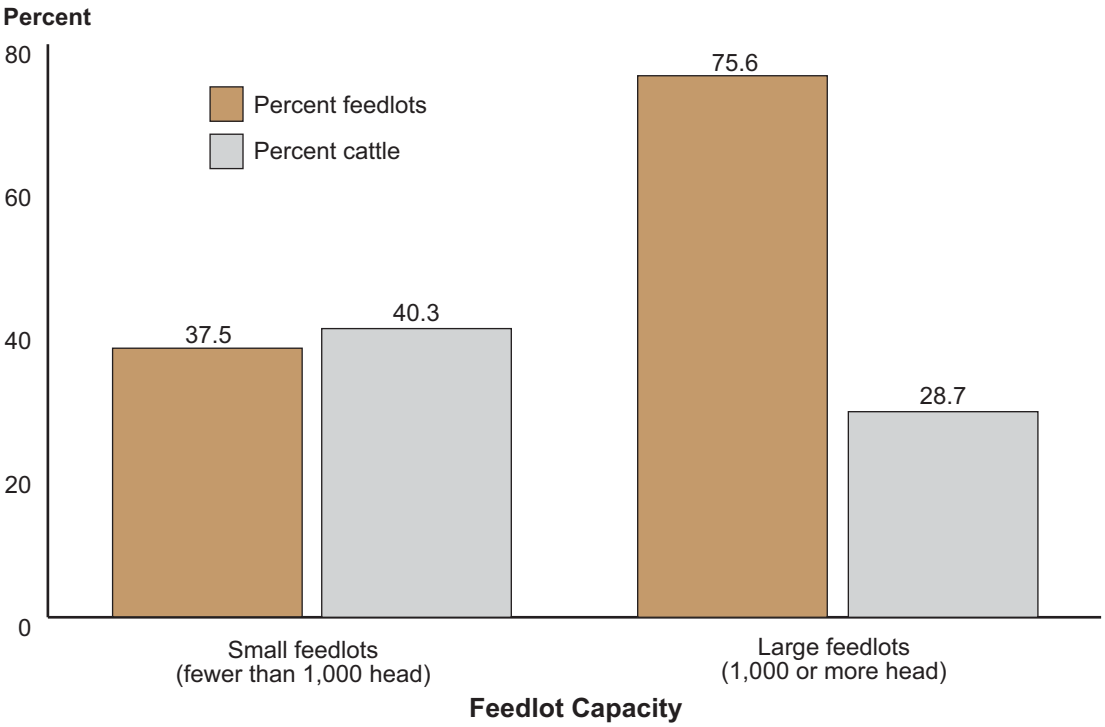
A. Population Estimates

1. Presence of ID at time of arrival

The Feedlot 2011 study assessed the presence of individual-animal ID on cattle and calves arriving at small feedlots (fewer than 1,000-head capacity) and large feedlots (capacity of 1,000 or more head). Data were summarized to estimate the percentage of feedlots that received at least some cattle that had individual-animal ID on arrival and the percentage of cattle that arrived with individual-animal ID.

About two of five small feedlots (37.5 percent) received at least some cattle and calves with preexisting individual-animal ID, and about two of five cattle (40.3 percent) that arrived at those small feedlots had individual-animal ID. Three-fourths of large feedlots (75.6 percent) received at least some cattle with preexisting individual-animal ID, and about 3 of 10 cattle (28.7 percent) that arrived at those large feedlots had individual-animal ID.

Percentage of feedlots that had any cattle or calves that arrived with an individual-animal ID, and percentage of cattle or calves that had an individual-animal ID at arrival, by feedlot capacity



Note: In the following tables, small feedlots were broken into two catagories: 1-to-499-head capacity and 500-to-999-head capacity; large feedlots were also broken into two catagories: 1,000-to-7,999-head capacity and 8,000-or-more-head capacity.

A higher percentage of **feedlots** with a capacity of 500 to 999 head (69.4 percent) received any cattle with individual-animal ID compared with feedlots with a capacity of 1 to 499 head (36.0 percent). The percentage of large feedlots that received any cattle with individual-animal ID was similar by region and by capacity.

A higher percentage of **cattle** arrived with individual-animal ID in feedlots with a 500-to-999-head capacity (52.5 percent) compared with feedlots with a 1-to-499-head capacity (36.0 percent). The percentage of cattle that arrived with individual-animal ID at large feedlots was slightly higher in the “Other” region (39.2 percent) than in the Central region (26.5 percent).

A.1.a. Percentage of feedlots that had any cattle or calves that arrived with individual-animal ID, and percentage of cattle and calves that had an individual-animal ID at arrival, by feedlot capacity and by region:

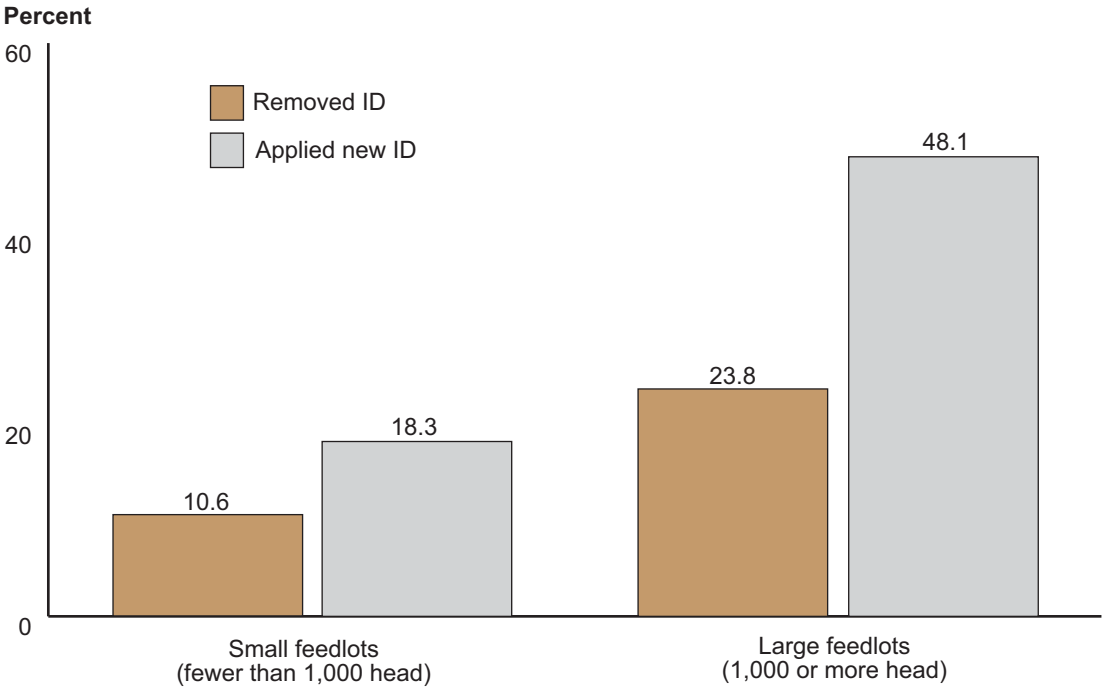
	Percent			
	Feedlots		Cattle	
	Percent	Std. error	Percent	Std. error
Small feedlots				
1–499 head	36.0	(3.8)	36.0	(5.6)
500–999 head	69.4	(6.1)	52.5	(6.1)
Central region	29.0	(6.8)	39.6	(7.0)
Other region	41.1	(4.2)	40.8	(5.9)
All	37.5	(3.6)	40.3	(4.5)
Large feedlots				
1,000–7,999 head	72.6	(2.7)	30.7	(2.8)
8,000 or more head	82.7	(2.5)	28.3	(1.8)
Central region	77.5	(2.4)	26.5	(1.9)
Other region	72.7	(3.7)	39.2	(3.1)
All	75.6	(2.1)	28.7	(1.6)

2. Removal and application of ID postarrival

For feedlots that received cattle or calves with individual-animal ID, a higher percentage of large feedlots than small feedlots removed preexisting ID from cattle and replaced it with a new ID, or applied another ID in addition to a preexisting ID. Removing preexisting ID occurred less frequently than applying new ID. IDs typically applied to cattle that received treatment for disease were not included in these estimates.

For feedlots that received cattle with existing individual-animal ID, approximately 1 of 4 large feedlots (23.8 percent) and 1 of 10 small feedlots (10.6 percent) removed existing individual-animal ID from some cattle during initial processing. About half of these large feedlots (48.1 percent) and one-fifth of small feedlots (18.3 percent) applied new individual-animal ID to cattle that arrived with existing individual-animal ID during initial processing. There were no substantial differences by region within large or small feedlots.

For feedlots that received cattle or calves with an individual-animal ID, percentage of feedlots that removed the existing ID or applied a new individual-animal ID, by feedlot capacity

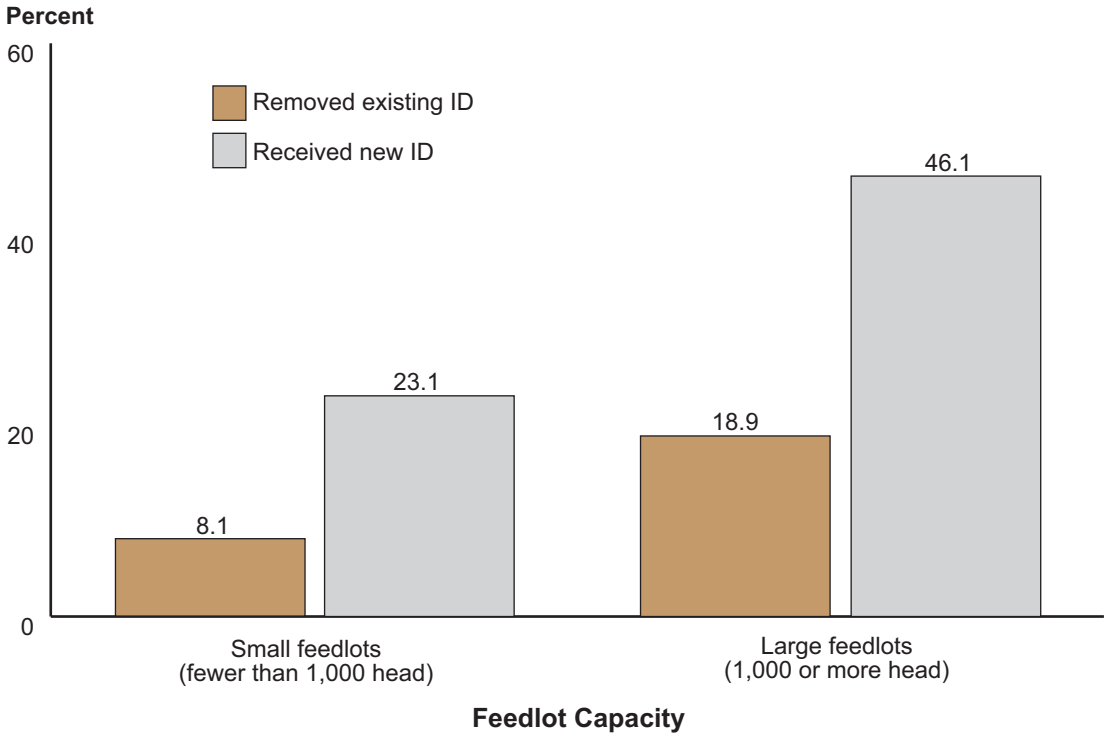


A.2.a. For feedlots that received cattle or calves with an individual-animal ID, percentage of feedlots that removed the preexisting ID or applied a new individual-animal ID, by feedlot capacity and by region:

	Feedlots that removed ID		Feedlots that applied ID	
	Percent	Std. error	Percent	Std. error
Small feedlots				
1–499 head	11.0	(3.5)	17.1	(4.6)
500–999 head	6.5	(3.1)	31.1	(6.9)
Central region	10.5	(6.3)	17.2	(7.1)
Other region	10.6	(3.7)	18.6	(5.2)
All	10.6	(3.2)	18.3	(4.3)
Large feedlots				
1,000–7,999 head	26.5	(3.1)	45.4	(3.5)
8,000 or more head	18.1	(3.0)	53.5	(4.9)
Central region	23.1	(2.8)	48.3	(3.6)
Other region	24.8	(4.0)	47.7	(4.8)
All	23.8	(2.3)	48.1	(2.9)

For cattle that arrived with an individual-animal ID, a higher percentage of cattle on large feedlots than on small feedlots had the preexisting ID removed during initial processing (18.9 and 8.1 percent, respectively). Almost half the cattle that arrived with individual-animal ID at large feedlots (46.1 percent) received new ID; less than one-fourth of cattle that arrived at small feedlots with preexisting ID (23.1 percent) received new ID.

For cattle and calves that had an individual-animal ID at arrival, percentage of cattle and calves that had existing ID removed and/or received new ID



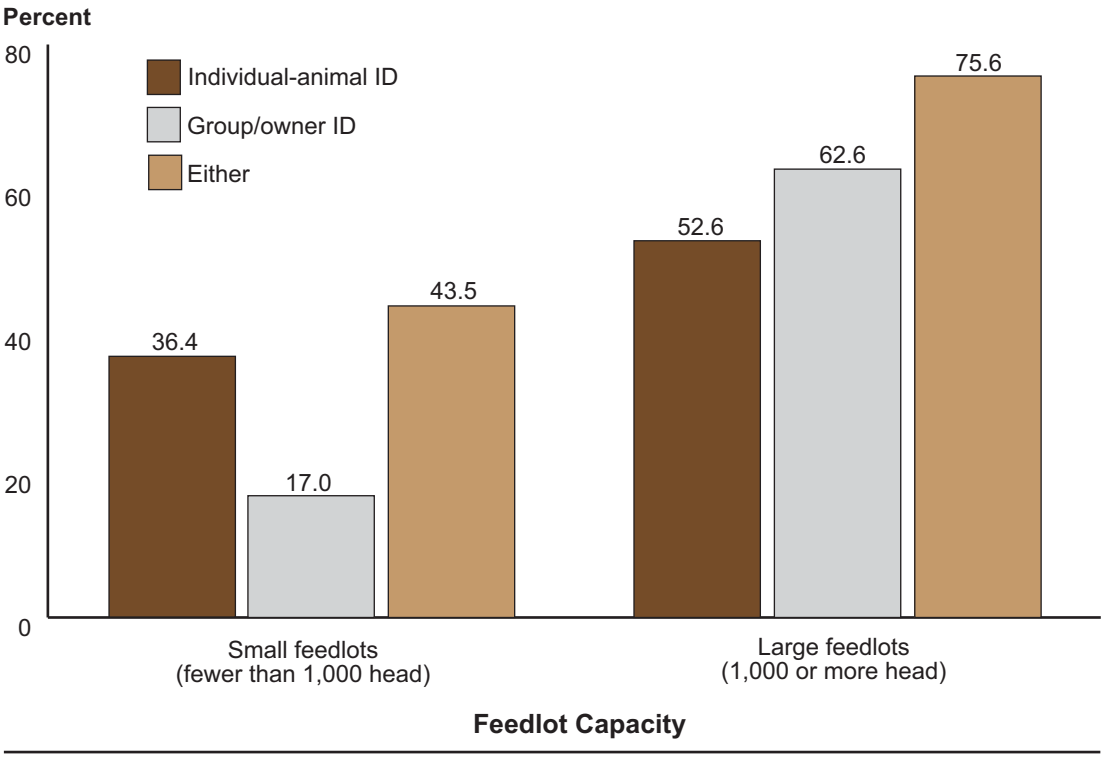
A.2.b. For cattle and calves that had an individual-animal ID at arrival, percentage of cattle and calves that had the preexisting ID removed and percentage that received new ID, by feedlot capacity and by region:

	Cattle that had ID removed		Cattle that received additional ID	
	Percent	Std. error	Percent	Std. error
Small feedlots				
1–499 head	8.2	(3.0)	19.2	(5.5)
500–999 head	7.9	(5.5)	30.6	(7.3)
Central region	7.6	(5.1)	25.7	(9.0)
Other region	8.5	(2.8)	21.1	(4.2)
All	8.1	(2.7)	23.1	(4.4)
Large feedlots				
1,000–7,999 head	20.9	(4.8)	43.6	(5.6)
8,000 or more head	18.5	(3.9)	46.6	(5.0)
Central region	21.6	(4.1)	47.8	(5.3)
Other region	10.4	(3.3)	40.7	(5.9)
All	18.9	(3.3)	46.1	(4.2)

3. Application of individual-animal ID and group/owner ID

Large feedlots commonly applied individual-animal IDs and/or group/owner IDs. Three-fourths of large feedlots (75.6 percent) applied ID to at least some cattle. About two of five small feedlots (43.5 percent) applied ID to at least some cattle.

Percentage of feedlots that applied individual-animal ID and/or group/owner ID to at least some cattle, by feedlot capacity



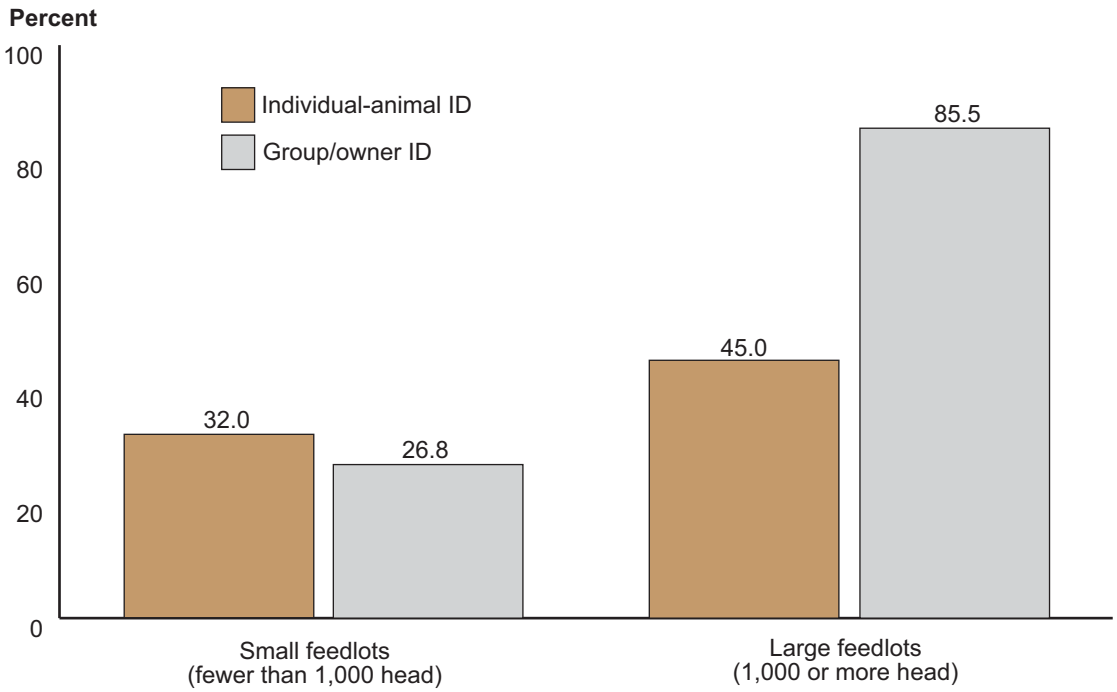
A.3.a. Percentage of feedlots that tagged cattle and calves with an individual-animal ID and/or a group/owner ID, by feedlot capacity and by and region:

	Percentage of feedlots that applied…					
	Individual-animal ID		Group/owner ID		Either	
	Percent	Std. error	Percent	Std. error	Percent	Std. error
Small feedlots						
1–499 head	36.3	(4.5)	16.3	(2.7)	43.0	(4.6)
500–999 head	37.7	(6.0)	33.8	(6.0)	54.2	(6.1)
Central region	45.5	(11.1)	21.2	(5.2)	55.5	(11.5)
Other region	32.6	(4.0)	15.3	(3.0)	38.5	(4.1)
All	36.4	(4.3)	17.0	(2.6)	43.5	(4.4)
Large feedlots						
1,000–7,999 head	47.5	(3.0)	51.7	(2.8)	67.5	(2.7)
8,000 or more head	64.8	(3.0)	88.8	(2.8)	94.8	(1.5)
Central region	56.7	(2.7)	69.6	(2.7)	82.2	(2.2)
Other region	46.5	(4.1)	52.1	(3.7)	65.6	(3.8)
All	52.6	(2.3)	62.6	(2.2)	75.6	(2.0)

The NAHMS Feedlot 2011 study showed that a higher percentage of cattle in large feedlots were tagged with a group/owner ID than an individual-animal ID (85.5 and 45.0 percent of cattle, respectively). These estimates were similar to estimates for cattle ID in the 2011 National Beef Quality Assurance (NBQA),[5] which reported hide-on carcass identification statistics. The NBQA reported that at slaughter facilities "lot visual tags" were more common than "individual visual tags" (85.7 and 50.6 percent of cattle, respectively).

In small feedlots, about the same percentage of individual-animal IDs and group-owner IDs were applied to cattle (32.0 and 26.8 percent of cattle respectively).

Percentage of cattle and calves tagged at the feedlot with an individual-animal ID, and percentage tagged with a group/owner ID, by feedlot capacity



[5] Full Report: National Beef Quality Audit – 2011: In-plant survey phase (Savell et al., 2012).

A.3.b. Percentage of cattle and calves tagged at the feedlot with an individual-animal ID, and percentage tagged with a group/owner ID, by feedlot capacity and by region:

	Percent Cattle and Calves Tagged With . . .			
	Individual-animal ID		Group/owner ID	
	Percent	Std. error	Percent	Std. error
Small feedlots				
1–499 head	27.6	(6.8)	24.5	(7.2)
500–999 head	44.6	(6.9)	33.5	(6.8)
Central region	32.1	(8.3)	29.0	(8.5)
Other region	32.0	(7.5)	25.2	(7.5)
All	32.0	(5.6)	26.8	(5.6)
Large feedlots				
1,000–7,999 head	47.1	(4.4)	58.1	(3.5)
8,000 or more head	44.6	(3.0)	90.8	(1.8)
Central region	45.3	(3.0)	87.2	(1.9)
Other region	43.8	(5.1)	77.9	(3.2)
All	45.0	(2.6)	85.5	(1.6)

4. Hide-branding

Hide-branding was used on about 1 of 10 small feedlots (10.2 percent) and 2 of 10 large feedlots (22.5 percent). Hide-branding was most common in the Central region for both small and large feedlots.

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

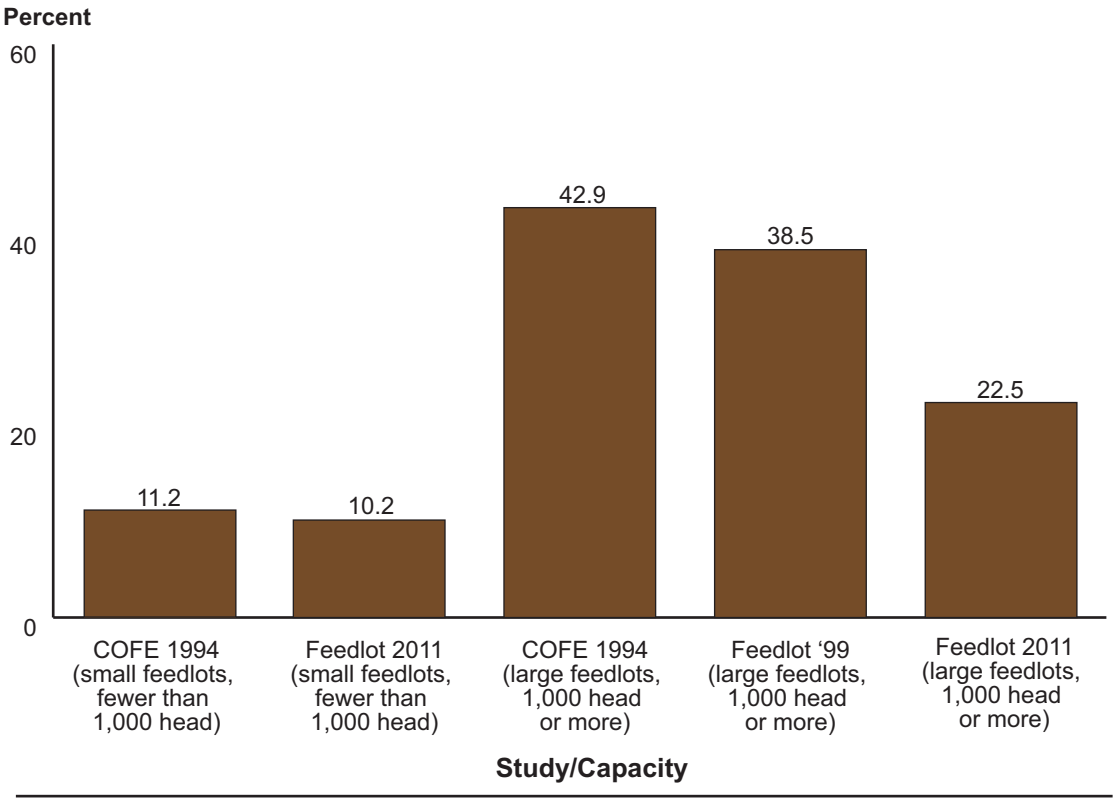
	Percent Feedlots	
	Percent	**Std. error**
Small feedlots		
1–499 head	9.9	(3.4)
500–999 head	17.3	(4.7)
Central region	33.4	(10.8)
Other region	0.6	(0.3)
All	10.2	(3.3)
Large feedlots		
1,000–7,999 head	20.3	(2.2)
8,000 or more head	27.6	(3.9)
Central region	28.8	(2.7)
Other region	13.0	(2.7)
All	22.5	(2.0)

B. Trends

1. Hide-branding

Hide-branding has been examined in all three NAHMS feedlot studies (COFE 1994, Feedlot '99, and Feedlot 2011). Unlike the earlier studies, Feedlot 2011 did not investigate the percentage of cattle that received a hide-brand, the branding site, or reason for branding, so comparisons across all three studies are limited. The percentage of small feedlots that hide-branded some cattle was similar in the 1994 and 2011 studies[6] (11.2 and 10.2 percent, respectively). For the 1994 and 1999 studies, the percentage of large feedlots that hide-branded some cattle was also similar (42.9 and 38.5 percent, respectively), but was lower for large feedlots in the 2011 study (22.5 percent).

Percentage of feedlots that hide-branded any cattle, by NAHMS study and by feedlot capacity

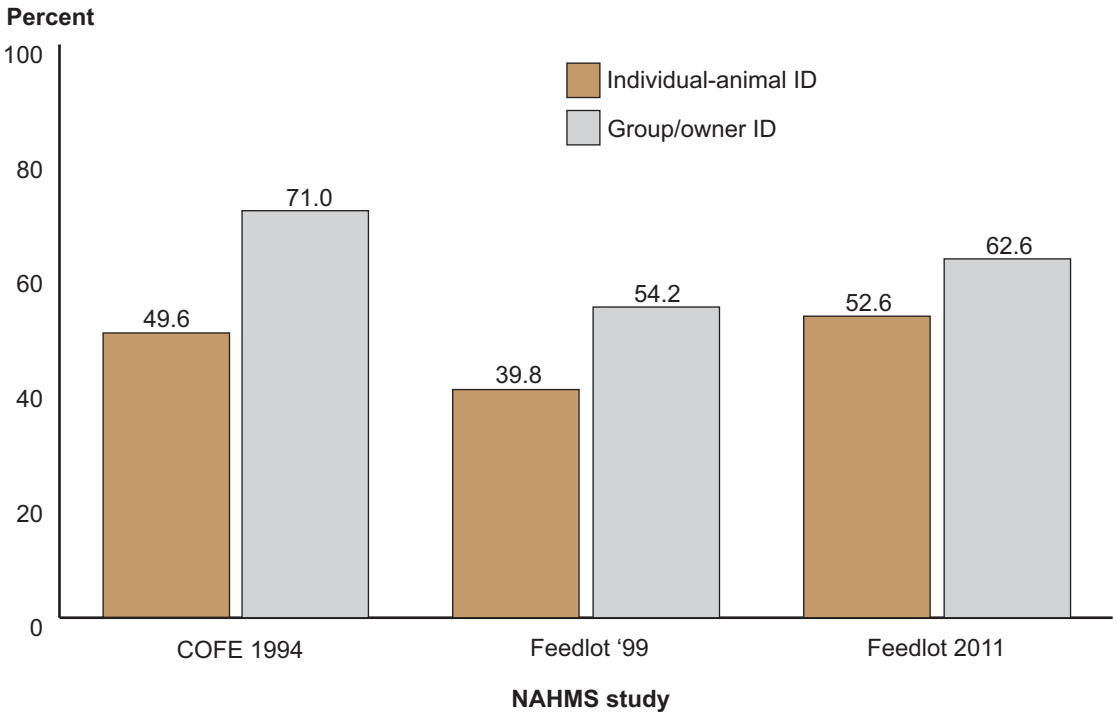


[6] Small feedlots were not surveyed in the Feedlot '99 study.

2. Feedlots that applied ID

The percentage of large feedlots[7] that tagged cattle with an individual-animal ID and the percentage that tagged cattle with a group/owner ID decreased from 1994 to 1999, but increased from 1999 to 2011. In 1999, about two of five large feedlots (39.8 percent) applied individual-animal ID to any cattle; more than half of large feedlots (52.6 percent) applied individual-animal ID to any cattle in 2011. Group/owner IDs were applied by a little more than half of large feedlots in 1999 (54.2 percent), and about three of five large feedlots in 2011 (62.6 percent) .

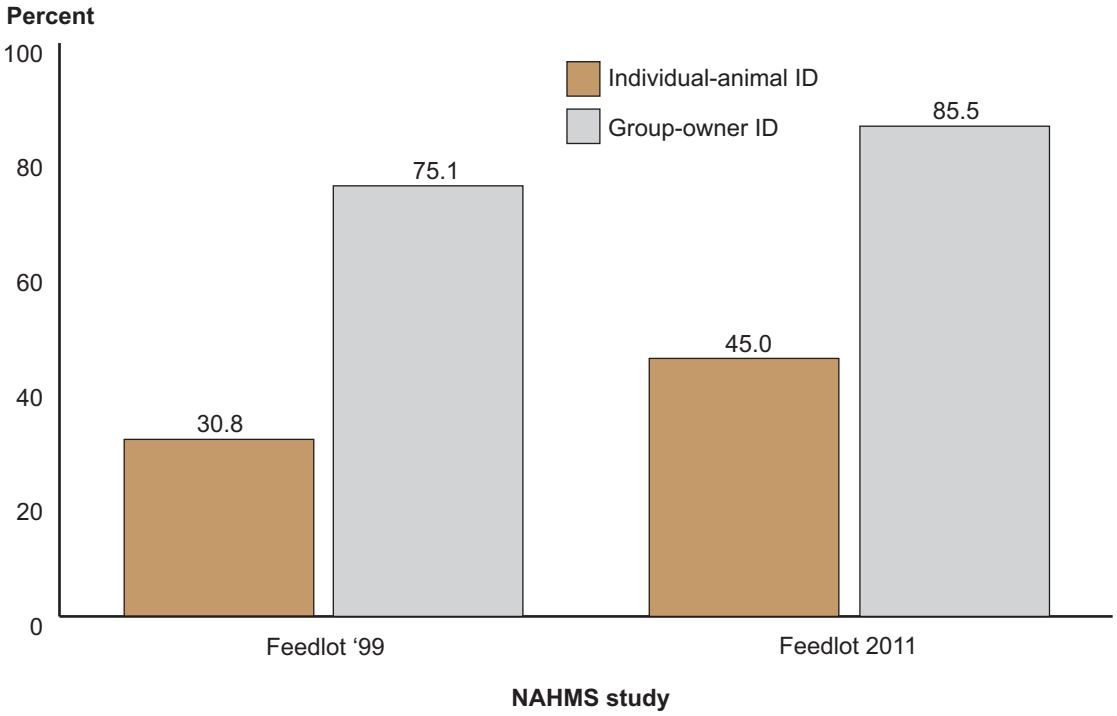
Percentage of large feedlots that tagged cattle and calves with an individual-animal ID or a group/owner ID, by NAHMS study



[7] Data were not collected to estimate the application of ID at small feedlots in 1994 and 1999.

On large feedlots, the percentage of cattle[8] tagged with an individual-animal ID increased from 30.8 percent in 1999 to 45.0 percent in 2011. The percentage of cattle tagged with a group/owner ID increased from 75.1 percent in 1999 to 85.5 percent in 2011.

For large feedlots, percentage of cattle and calves tagged at the feedlot with an individual-animal ID and percentage tagged with a group-owner ID, by NAHMS study



[8] The percentage of cattle that received ID was not estimated in the COFE 1994 study.

C. Discussion

Individual-animal traceability and the flow of production information from farm to product are required to achieve full producer benefits (e.g., increased efficiency, improved management, price premiums, and market access) connected to animal ID and a traceback system. The 2011 NBQA identified the lack of information and data flow between all segments of the production chain as a barrier to progress. The development and implementation of an effective animal-ID sharing system was ranked by the 2011 NBQA as a top strategic priority; this priority was listed for the goals of 1) food safety and animal health, and 2) optimize value and eliminate waste.

The Feedlot 2011 study found that applying ID to cattle during initial processing was a common practice, especially in feedlots with a capacity of 8,000 or more head. While the application of ID at feedlots was routine, the study indicated that potential producer benefits facilitated by animal ID would be limited because individual-animal traceability and the flow of production information between production chain segments is limited. The survey found that there is a limited flow of information between source suppliers and feedlots; only one of four large feedlots (25.3 percent) “always” or “most of the time” returned information to the source supplier about cattle received. The survey also showed that many cattle arrived at feedlots without existing individual-animal ID; about one-fourth of large feedlots and three of five small feedlots did not receive any cattle that had existing individual-animal ID. Additionally, of feedlots that received cattle with existing ID, 23.8 percent of large feedlots and 10.6 percent of small feedlots removed existing ID from some cattle during initial processing.

Data from the Feedlot 2011 study indicated that the benefits of animal ID for disease control, which requires tracing animal movements between premises where disease exposure and transmission may have occurred, would also be limited. Some trackback investigations from feedlot to origin can be straightforward, with minimal reliance on traceable ID; however, other cases can be complex because many cattle are aggregated from multiple sources and may have transited two or more production settings and several marketing locations before arriving at the feedlot. Most cattle shipments arriving at large feedlots (67.0 percent) came from an auction facility. Overall, the average distance cattle shipments traveled to large feedlots was 339 miles. On small feedlots, most cattle shipments came from other beef operations (e.g., cow-calf, stocker feedlot) and auction markets (45.1 and 38.0 percent of shipments, respectively); on average, cattle sourced from auctions traveled a greater distance than cattle sourced from other beef operations (142 and 61 miles, respectively). Cattle that leave feedlots to destinations other than slaughter present additional risks of disease spread. The Feedlot 2011 study showed that 1.9 percent of shipments leaving large feedlots and 32.7 percent of shipments leaving small feedlots went to a sale/auction, another feedlot, or another beef operation.

Traceability will likely improve in the future. Production benefits and market pressure for source and age verification will play a role in increasing animal ID and improving data flow between industry segments. The USDA final rule “Traceability for Livestock Moving Interstate” published January 9, 2013, will result in a higher percentage of cattle with traceable ID; however, the percentage of feeder cattle that are identified will probably not change significantly as a result of the rule. During implementation of the traceability rule, most cattle that enter feedlots (beef cattle less than 18 months of age and steers/spayed heifers less than 18 months of age) are exempt from the interstate movement rule. Traceability for feeder cattle moving across State lines may be considered in a separate rule. The Feedlot 2011 study found that over half of the shipments received by large feedlots (55.3 percent) and one-fourth of shipments received by small feedlots (25.7 percent) crossed State lines.