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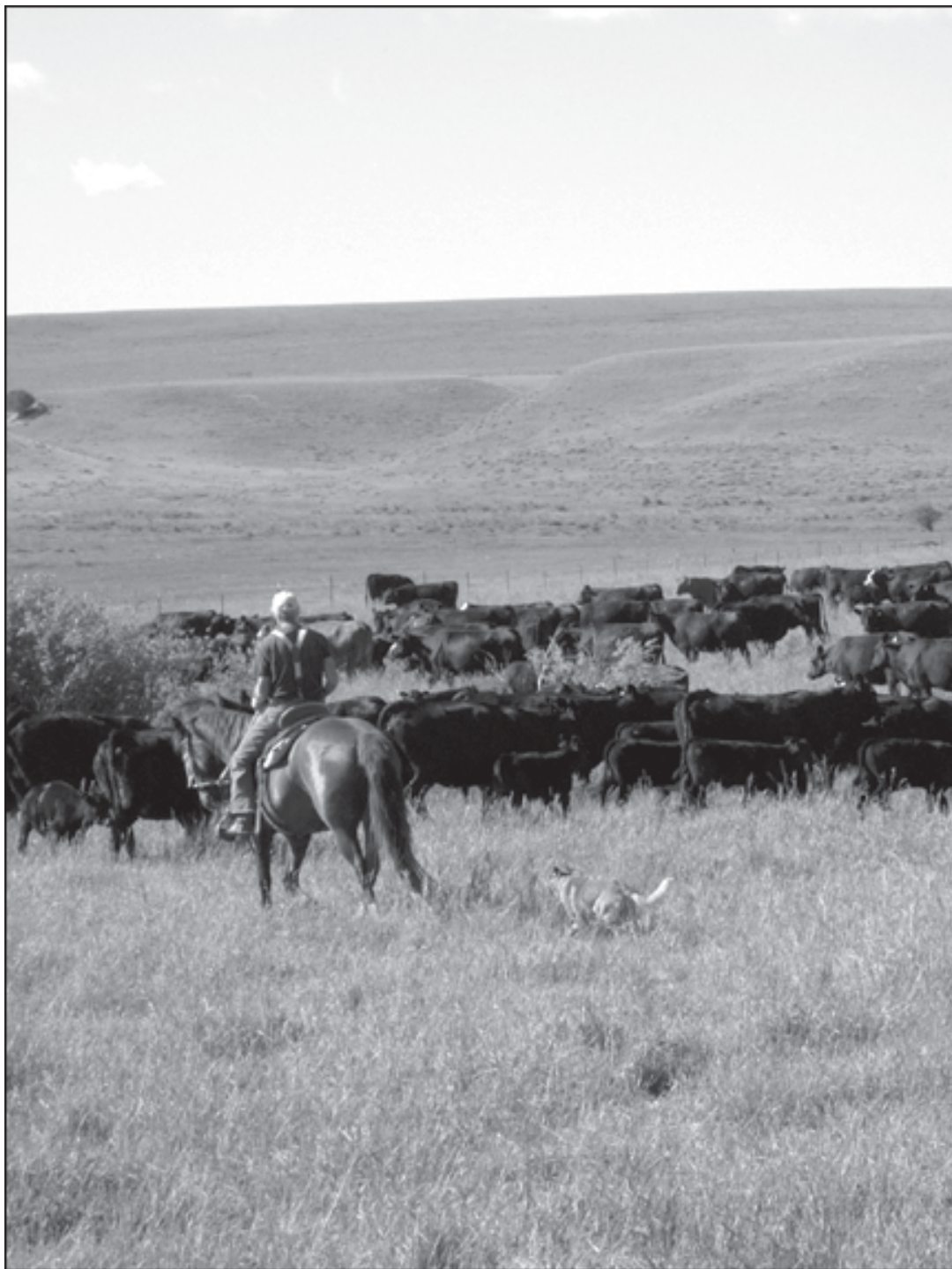
National
Animal Health
Monitoring
System

May 2009



Beef 2007-08

Part III: Changes in the U.S. Beef Cow-calf Industry, 1993-2008



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Selected Highlights of Trends in the U.S. Beef Cow-calf Industry

The Beef 2007–08 study marks the first time in 10 years that the National Animal Health Monitoring System has taken an in-depth look at the U.S. beef cow-calf industry. In the following pages, you'll find the latest information on trends in the animal health and management practices on one of the Nation's most important livestock industries.

Here are just a few highlights from the third report of the Beef 2007-08 study, which provides demographic changes of the U.S. beef cow-calf industry from data provided by the National Agricultural Statistics Service and the Census of Agriculture, and a comparison of health and management practices on U.S. beef operations as identified from three NAHMS beef-cow studies: the Cow/calf Health and Productivity Audit 1992/93 (CHAPA), Beef '97, and Beef 2007–08.

On January 1, 2008, the United States had 32.4 million beef cows, about 2.5 times the 12.5 million in 1920. These 32.4 million beef cows accounted for 77.8 percent of all cows in 2008. In comparison, the 12.5 million beef cows in 1920 accounted for only 36.9 percent of all U.S. cows at that time.

The January 1, 2008, number of beef cows was 97.2 percent of the 1993 number. The number of beef cows changed little from 1993 (33.3 million head) to 2008 (32.5 million head).

In 2007, there were 766,350 operations with one or more beef cows in the United States. The number of beef-cow operations in the United States has declined gradually since 1995.

About one of every three of the current 2.08 million farms and ranches in the United States have beef cows. The average herd size increased from 37 beef cows in 1992 to 42 in 2007.

Following an increase from 1992 to 1997, the percentage of operations that utilized hand-written records was similar between 1997 and 2007 (79.1 and 78.6 percent, respectively). The percentage of operations that used an on-site computer for record keeping increased from 1992 to 2007 (4.7 to 17.0 percent, respectively). Despite this increase, fewer than one of five operations used an on-site computer for record keeping in 2007. The use of any record-keeping system has remained stable over the last 10 years.

For all study years, veterinarians were identified by the highest percentage of operations as a very important source of information. In 1992, 34.3 percent of operations reported that beef magazines and agricultural journals were very important sources of information compared with just 17.6 percent of operations in 2007.

The percentage of calves marketed with horns decreased from 8.4 percent in 1992 to 6.3 percent in 2007.

Weaning weights were higher in 2007 than in 1992 and 1997 (530, 502, and 515, pounds, respectively).

Despite heavier weaning weights in 2007, average age of calves at weaning decreased from 221 days in 1997 to 207 days in 2007.

The percentage of bulls on operations that performed a semen test, scrotal measurement, or *Tritrichomonas* culture increased from 1997 to 2007.

The percentage of replacement heifers that required no assistance during calving increased slightly from 1997 to 2007 (83.3 to 88.4 percent, respectively). Conversely, the percentage of cows that required no assistance decreased slightly from 1997 to 2007 (97.3 to 95.7 percent, respectively). The percentages of heifers and cows that required no assistance were similar in 1992 and 1997.

The percentage of operations that gave intramuscular injections decreased from 1992 to 2007 (78.7 to 50.9 percent, respectively).

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) via three national studies conducted between 1992 and 2008 of health management and animal health on U.S. beef cow-calf operations.

The 1992/93 Cow/Calf Health and Productivity Audit, Beef '97, and Beef 2007-08 were cooperative efforts among State and Federal agricultural statisticians, animal health officials, university researchers, and extension personnel. We want to thank the National Agricultural Statistics Service (NASS) enumerators, State and Federal veterinary medical officers (VMOs), and animal health technicians (AHTs) who visited the farms and collected the data. Their hard work and dedication to the National Animal Health Monitoring System (NAHMS) are invaluable. The roles of the producer, Area Veterinarian in Charge, NAHMS Coordinator, VMOs, AHTs, and NASS enumerators were critical in providing quality data for Beef 2007-08 reports. Thanks also to the personnel at the Centers for Epidemiology and Animal Health for their efforts in generating and distributing valuable reports from Beef 2007-08.

Additional biological sampling and testing were afforded by the generous contributions of collaborators for the Beef 2007-08 study, including:

- USDA–APHIS, National Veterinary Services Laboratories
- USDA–ARS, Beltsville Agricultural Research Center
 - Bovine Functional Genomics Laboratory
 - Environmental Microbial Safety Laboratory
- USDA–ARS, Russell Research Center
 - Bacterial Epidemiology and Antimicrobial Resistance Research Unit
- USDA–ARS, National Animal Disease Center
 - Virus and Prion Diseases of Livestock Research Unit
- Idexx Laboratories

All participants are to be commended, particularly the producers whose voluntary efforts made the Beef 2007–08 study possible.



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Feedback

Feedback, comments, and suggestions regarding Beef 2007–08 study reports are welcomed. Please forward correspondence via e-mail to:

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Table of Contents

Introduction 1

Terms Used in This Report 3

Section I: Demographics 5

A. Historical Changes in the U.S. Beef Cow-calf Industry 5

1. Beef cow inventory 5
2. Number of beef cow operations and herd size 10
3. Beef cow slaughter 13
4. Red meat production 14
5. Value of production 15

B. Beef Cow-calf Industry Changes by State 16

1. Beef cow inventory 16
2. Beef operations 19
3. Average herd size 21

Section II: NAHMS Population Estimates, 1993–2007 24

A. Beef Herd Information and Management Practices 24

1. Record-keeping systems 24
2. Information sources 25
3. Individual animal identification 26
4. Herd identification 33
5. Source of female replacements 36
6. Dehorning 37
7. Castration 41
8. Weaning weight 42
9. Weaning age 42
10. Monthly calving distribution 43
11. Calving percentage 46
12. Factors in determining when to wean calves 47
13. Marketing 48
14. Forward pricing 49

B. Breeding and Calving Management 50

1. Timing of calving season 50
2. Breeding methods 53
3. Bull management 53
4. Calving observation 60
5. Calving assistance 63

C. Health and Health Management 67

1. Injections given by operator or workers 67
2. Injections given by a veterinarian 72

D. Nutrition Management 78

1. Growth promotant implant practices 78

Appendix: Study Objectives and Related Outputs 79

Introduction

In 1983, promoters of the concept that would become the USDA's National Animal Health Monitoring System (NAHMS) envisioned a program that would monitor changes and trends in national animal health and management, thereby providing periodic snapshots of the U.S. food animal industries. With these industry overviews, stakeholders could identify opportunities for improvement, provide changing priorities for research and special studies, and detect emerging problems.

Section I of this report shows demographic changes of the U.S. beef cow-calf industry from data provided by the National Agricultural Statistics Service (NASS) and the Census of Agriculture. Results of three NAHMS national studies in Section II complete the overview of change in the U.S. beef cow-calf industry from 1992 to 2008.

NAHMS' first national study of the U.S. beef cow-calf industry, the 1992/93 Beef Cow/calf Health and Productivity Audit (CHAPA), provided a snapshot of animal health and management that would serve as a baseline from which to measure industry changes. CHAPA Phase I included data collected via telephone from 2,539 cow-calf operations in the 48 continental States. Subsequent data collection in 18 States was done on operations with 5 or more beef cows and 50 percent or more of their calf crop born between January 1 and June 30 (spring calving). These 18 States represented 70 percent of the U.S. beef-cow inventory. The CHAPA study design is documented in several reports available through NAHMS online at: <http://nahms.aphis.usda.gov/beefcowcalf/index.htm>.

NAHMS' second national study of the U.S. beef cow-calf industry, Beef '97, included 2,713 producers from a 23-State target population representing 85.7 percent of U.S. beef cows on January 1, 1997, and 77.6 percent of U.S. beef operations. These producers were contacted via on-farm visits from December 30, 1996, through February 3, 1997.

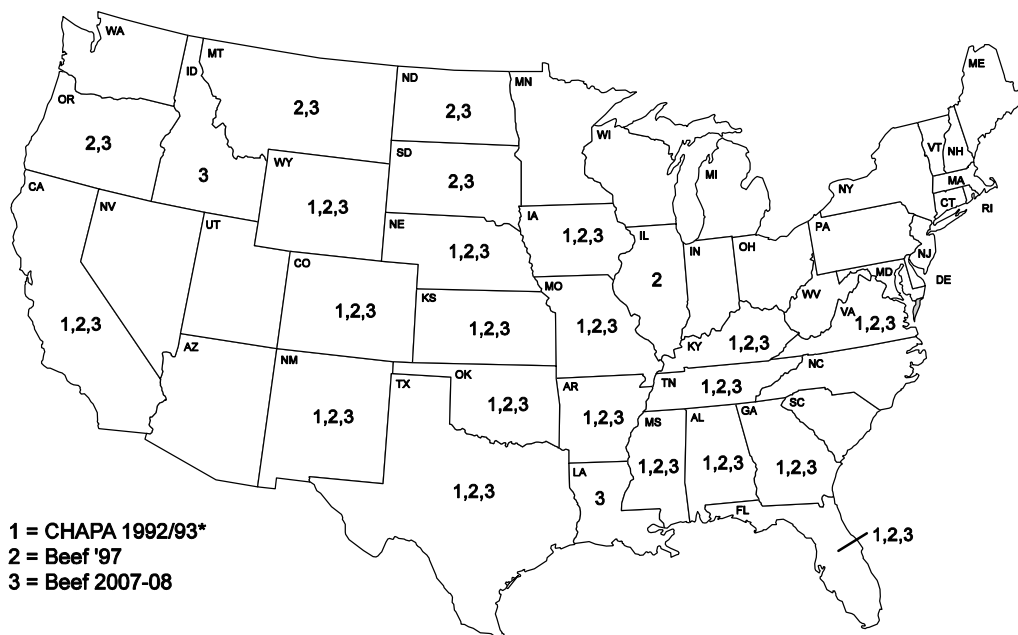
NAHMS' third national beef cow-calf study, Beef 2007–08, focused on beef cow-calf health and management practices in 24 States. These States represented 79.6 percent of U.S. operations with beef cows and 87.8 percent of U.S. beef cows. Any producer with one or more beef cows was eligible to participate in all parts of the study.

This report provides national estimates of animal health and management practices from the three NAHMS beef studies. Interpretation of changes in estimates among three national studies conducted between 1992 and 2008 are sometimes difficult. Major influences behind differences in estimates may be due

to differences in the composition of the target population as described previously. These differences are documented in each summary table to aid in interpretation. Differences also may occur in how the factors were measured, e.g., changes in question wording, random variation, and true secular time trends in the beef industry. These wording differences have been documented to aid in interpretation.

Reports and information sheets from all three NAHMS beef studies are available at: <http://nahms.aphis.usda.gov>

States Participating in NAHMS Beef Studies, 1992/93, 1997, 2007-08



*Data were collected via telephone survey from 48 States; subsequent data were collected from the 18 States depicted above.

Terms Used in This Report

Animal average: The average value for all animals; the single reported value for each operation multiplied by the number of animals on that operation is summed over all operations and divided by the number of animals on all operations. This way, the result is adjusted for the number of animals on each operation. For an example, see average age calves were dehorned on p 39.

Beef cow: Female bovine that has calved at least once.

Beef heifer: Female bovine that has not yet calved.

Born alive: Calves born alive and surviving at least 2 hours after birth.

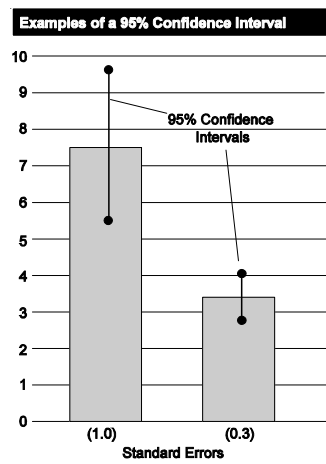
Calf crop percentage: Number of cows and heifers calving divided by number of cows and heifers exposed. The number exposed was adjusted by subtracting the number of cows or heifers exposed or artificially inseminated and that died, were sold, or moved off the operation before calving, and adding the number of cows or heifers exposed or artificially inseminated that were brought onto the operation for calving.

Creep feed: Supplementation of unweaned calves with a feed source not available to mother cows. Supplement may be high energy and/or high protein, free choice, or limit fed.

Forward pricing: A way for cattle sellers and buyers to contract for a price on their livestock ahead of an expected sale date. When used properly, forward pricing can reduce price risk. A forward pricing contract is a legal, binding commitment between a buyer and a seller. The contract guarantees a price for a specified amount and quality of product to be delivered at a certain time to a place specified in the contract.

Operation average: The average value for all operations; a single value for each operation is summed over all operations reporting divided by the number of operations reporting. For example, operation average age that calves were dehorned (shown on p 39) is calculated by summing reported average age over all operations divided by the number of operations.

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



Precision of population estimates: Estimates in this report are provided with a measure of precision called the standard error. A 95-percent confidence interval can be created with bounds equal to the estimate plus or minus two standard errors. If the only error is sampling error, the confidence intervals created in this manner will contain the true population mean 95 out of 100 times. In the example to the left, an estimate of 7.5 with a standard error of 1.0 results in limits of 5.5 to 9.5 (two times the standard error above and below the estimate). The second estimate of 3.4 shows a standard error of 0.3 and results in limits of 2.8 and 4.0. Alternatively, the 90-percent confidence interval would be created by multiplying the standard error by 1.65 instead of 2. Most estimates in this report are rounded to the nearest tenth. If rounded to 0, the standard error was reported (0.0). If there were no reports of the event, no standard error was reported (--).

Section I: Demographics

A. Historical Changes in the U.S. Beef Cow-calf Industry

1. Beef cow inventory

On January 1, 2008, the United States had 32.4 million beef cows, about 2.5 times the 12.5 million in 1920. These 32.4 million beef cows accounted for 77.8 percent of all cows in 2008. In comparison, the 12.5 million beef cows in 1920 accounted for only 36.9 percent of all U.S. cows at that time.

a. Changes in U.S. beef cow inventory, 1850–2008:

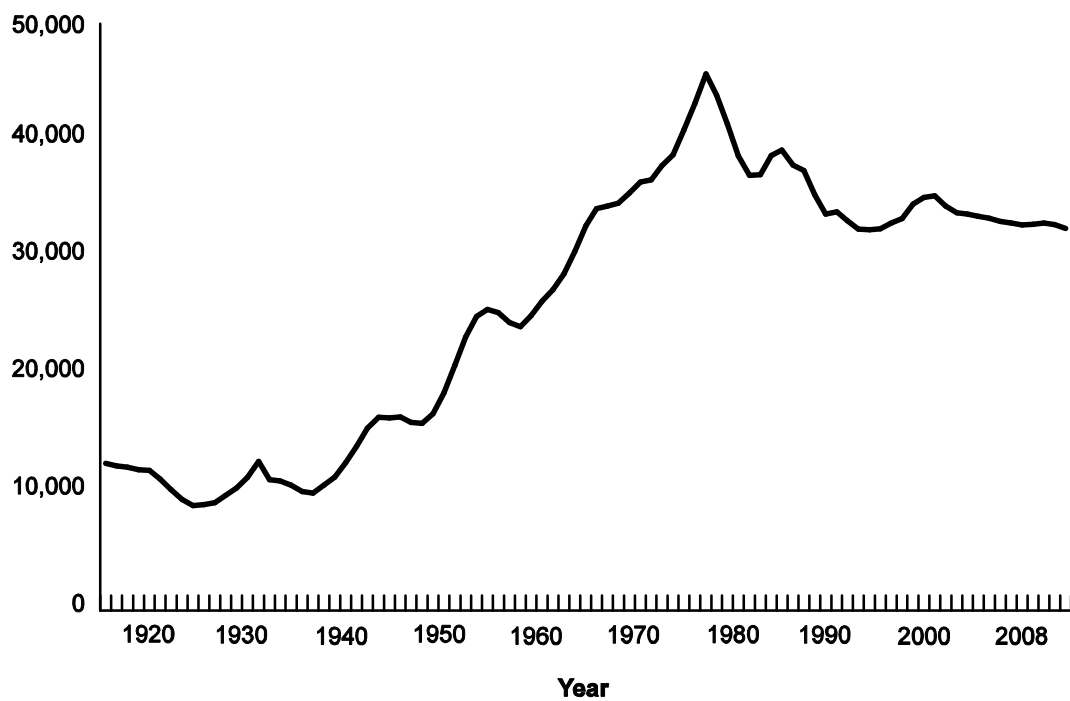
Year	Beef Cows (1,000 Head)	All Cows* (1,000 Head)	All Cattle and Calves (1,000 Head)	Beef Cows as Percent of All Cows	Beef Cows as Percent of All Cattle and Calves
1850	NA	NA	NA	NA	NA
1860	NA	NA	NA	NA	NA
1870	NA	NA	31,082.0	NA	NA
1880	NA	NA	43,347.0	NA	NA
1890	NA	NA	60,014.0	NA	NA
1900	NA	NA	59,739.0	NA	NA
1910	NA	NA	58,993.0	NA	NA
1920	12,525.0	33,980.0	70,400.0	36.9	17.8
1930	9,162.0	32,194.0	61,003.0	28.5	15.0
1940	10,676.0	35,616.0	68,309.0	30.0	15.6
1950	16,743.0	40,596.0	77,963.0	41.2	21.5
1960	26,344.0	45,871.0	96,236.0	57.4	27.4
1970	36,689.6	48,780.3	112,368.7	75.2	32.7
1980	37,107.4	47,865.6	111,242.4	77.5	33.4
1990	32,454.7	42,469.5	95,816.2	76.4	33.9
2000	33,575.0	42,757.8	98,199.0	78.5	34.2
2008	32,434.5	41,691.5	96,034.5	77.8	33.8

Source: NASS.

*Beef and milk cows.

Beef Cow Inventory, 1920-2008

Beef Cows
(1,000 Head)



The January 1, 2008, number of beef cows that had calved was 97.2 percent of the 1993 number.

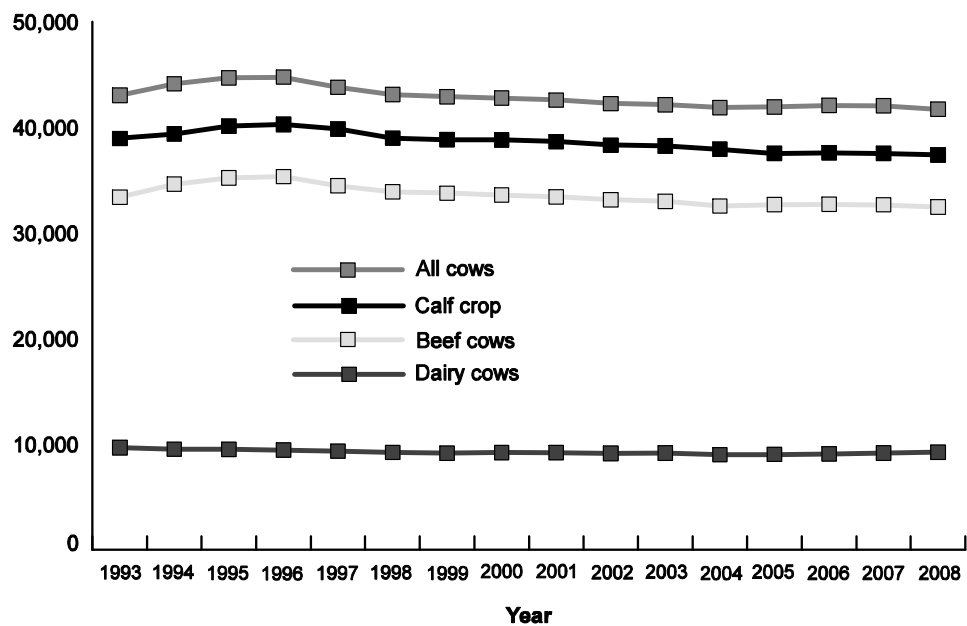
b. Changes in the U.S. beef cow inventory, January 1, 1993–2008:

Beef Cows that Have Calved				
Year	1,000 Head	Percent Previous Year	Percent 1993	Percent 1997
1993	33,364.9	101.1	100.0	NA
1994	34,602.9	103.7	103.7	NA
1995	35,190.3	101.7	105.5	NA
1996	35,318.7	100.4	105.9	NA
1997	34,457.9	97.6	103.3	100.0
1998	33,885.0	98.3	101.6	98.3
1999	33,750.4	99.6	101.2	97.9
2000	33,575.0	99.5	100.6	97.4
2001	33,398.2	99.5	100.1	96.9
2002	33,133.7	99.2	99.3	96.2
2003	32,983.3	99.5	98.9	95.7
2004	32,531.3	98.6	97.5	94.4
2005	32,674.4	100.4	97.9	94.8
2006	32,702.5	100.1	98.0	94.9
2007	32,644.2	99.8	97.8	94.7
2008	32,434.5	99.4	97.2	94.1

Source: NASS.

All Cows, Calf Crop, Beef Cow, and Dairy Cow Inventories, 1993-2008

Number
(1,000 Head)



Replacement heifers as a percentage of beef cow inventory ranged from 16.4 percent in 1999 and 2000 to 18.4 percent in 1994. The January 1, 2008, number of replacement heifers was 92.7 percent of the 1993 level, compared with 97.2 percent for beef cows over the same time period.

c. Changes in the U.S. beef replacement heifer inventory, January 1, 1993–2008:

Beef Replacement Heifers					
Year	1,000 Head	Percent Previous Year	Percent 1993	Percent of 1997	Percent of Beef Cows
1993	6,091.9	108.0	100.0	NA	18.3
1994	6,364.3	104.5	104.5	NA	18.4
1995	6,451.5	101.4	105.9	NA	18.3
1996	6,188.7	95.9	101.6	NA	17.5
1997	6,041.6	97.6	99.2	100.0	17.5
1998	5,763.9	95.4	94.6	95.4	17.0
1999	5,535.3	96.0	90.9	91.6	16.4
2000	5,503.0	99.4	90.3	91.1	16.4
2001	5,588.2	101.5	91.7	92.5	16.7
2002	5,571.2	99.7	91.5	92.2	16.8
2003	5,623.5	100.9	92.3	93.1	17.0
2004	5,508.3	98.0	90.4	91.2	16.9
2005	5,638.1	102.4	92.6	93.3	17.3
2006	5,863.5	104.0	96.3	97.1	17.9
2007	5,835.4	99.5	95.8	96.6	17.9
2008	5,646.6	96.8	92.7	93.5	17.4

Source: NASS.

2. Number of beef cow operations and herd size

In 2007, there were 766,350 operations with one or more beef cows in the United States. The number of beef cows in the United States has declined gradually since 1995. About one of every three of the 2.08 million farms and ranches in the United States have beef cows. The average herd size increased from 37.0 beef cows in 1992 to 42.3 in 2007.

a. Changes in the number of U.S. beef operations and average herd size, 1992–2007:

Year	Number of Operations	Percent Previous Year	Percent of 1992	Percent of 1996	Average Herd Size* (Cows)
1992	901,870	99.0	100.0	NA	37.0
1993	894,980	99.2	99.2	NA	38.7
1994	897,260	100.3	99.5	NA	39.2
1995	897,660	100.0	99.5	NA	39.3
1996	885,980	98.7	98.2	100.0	38.9
1997	872,840	98.5	96.8	98.5	38.8
1998	855,460	98.0	94.9	96.6	39.5
1999	844,170	98.7	93.6	95.3	39.8
2000	831,270	98.5	92.2	93.8	40.2
2001	814,520	98.0	90.3	91.9	40.7
2002	808,110	99.2	89.6	91.2	40.8
2003	792,050	98.0	87.8	89.4	41.1
2004	774,930	97.8	85.9	87.5	42.2
2005	770,170	99.4	85.4	86.9	42.5
2006	762,880	99.1	84.6	86.1	42.8
2007	766,350	100.5	85.0	86.5	42.3

Source: NASS.

*Number of beef cows on January 1 divided by number of operations with one or more beef cows from previous year.

The percentage of operations with fewer than 50 head of beef cows has decreased since 1992. Operations with 100 or more beef cows accounted for 9.7 percent of all beef-cow operations in 2007, compared with 7.8 percent in 1992.

b. Percentage of U.S. beef operations by herd size, 1992–2007:

Percent Operations					
Herd Size (Number of Cows)					
Year	1-49	50-99	100-499	500 or More	Total
1992	81.0	11.2	7.8*		100.0
1993	80.7	11.3	7.4	0.6	100.0
1994	80.3	11.5	7.6	0.6	100.0
1995	79.8	11.8	7.8	0.6	100.0
1996	79.5	12.0	7.9	0.6	100.0
1997	79.3	12.0	8.1	0.6	100.0
1998	79.3	11.9	8.2	0.6	100.0
1999	79.0	12.0	8.4	0.6	100.0
2000	78.8	12.0	8.5	0.7	100.0
2001	78.5	12.1	8.7	0.7	100.0
2002	78.4	12.2	8.7	0.7	100.0
2003	78.3	12.1	8.9	0.7	100.0
2004	77.7	12.3	9.3	0.7	100.0
2005	77.5	12.3	9.5	0.7	100.0
2006	77.4	12.3	9.6	0.7	100.0
2007	79.1	11.2	8.9	0.8	100.0

Source: NASS.

*Includes herds of 100 or more beef cows.

In 2007, operations with 100 or more beef cows accounted for over one-half of all cows (54.1 percent), compared with 47.8 percent in 1992.

c. Percentage of U.S. beef cow inventory by herd size, 1992–2007:

Percent Inventory					
Herd Size (Number of Cows)					
Year	1-49	50-99	100-499	500 or More	Total
1992	32.6	19.6	47.8*		100.0
1993	31.7	19.8	33.9	14.6	100.0
1994	31.5	19.4	34.6	14.5	100.0
1995	31.2	19.2	35.3	14.3	100.0
1996	30.8	19.6	35.4	14.2	100.0
1997	30.4	19.4	35.9	14.3	100.0
1998	30.5	18.8	36.1	14.6	100.0
1999	29.9	19.1	36.6	14.4	100.0
2000	29.5	19.1	36.7	14.7	100.0
2001	29.0	19.1	37.0	14.9	100.0
2002	29.0	19.2	37.3	14.5	100.0
2003	29.1	19.0	37.5	14.4	100.0
2004	28.1	19.1	38.3	14.5	100.0
2005	28.0	18.9	38.5	14.6	100.0
2006	27.7	18.6	38.7	15.0	100.0
2007	28.7	17.2	38.0	16.1	100.0

Source: NASS.

*Includes herds of 100 or more beef cows.

3. Beef cow slaughter

Although beef cows accounted for about three-fourths of the Nation's January 1, 2008, cow inventory (table a., p 5), beef cows—because of their longevity in the herd—made up about one-half of all cows slaughtered (56.0 percent in 2007).

Changes in beef cow slaughter, 1992–2007:

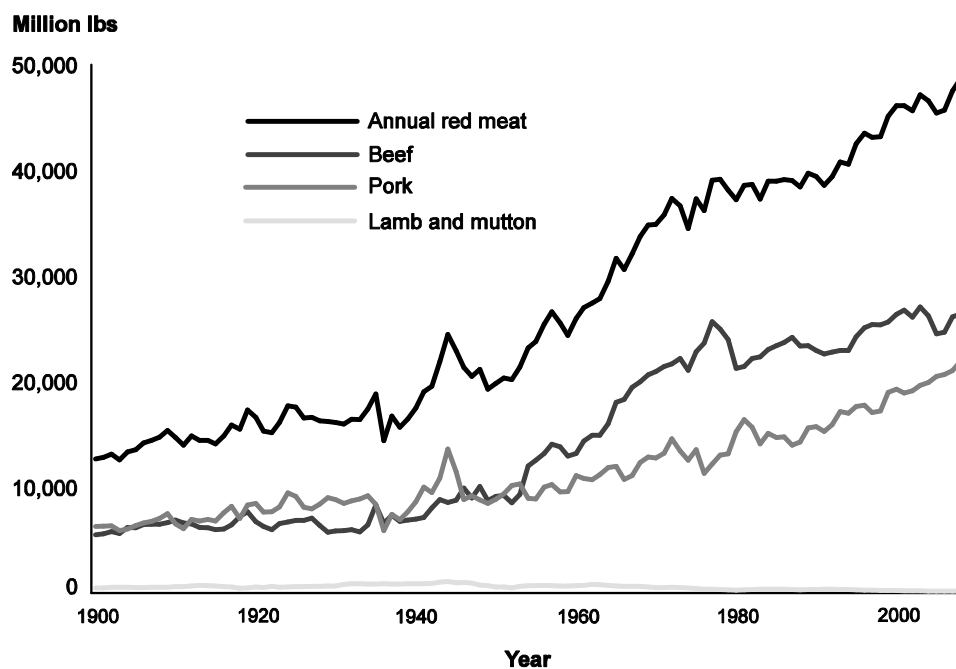
Beef Cow Slaughter ¹					
Year	Beef Cows ² (1,000 Head)	All Cows (1,000 Head)	Beef Cow Slaughter as Percent of All Cow Slaughter	Percent of January 1 Beef Cow Inventory	Percent Previous Year
1992	2,813.0	5,705.0	49.3	8.5	106.4
1993	2,959.0	5,953.8	49.7	8.9	105.2
1994	2,954.8	5,812.6	50.8	8.5	99.9
1995	3,281.1	6,142.8	53.4	9.3	111.0
1996	4,067.8	7,104.7	57.3	11.5	124.0
1997	3,498.0	6,424.2	54.5	10.2	86.0
1998	3,245.4	5,865.0	55.3	9.6	92.8
1999	3,029.7	5,603.0	54.1	9.0	93.4
2000	2,795.9	5,427.3	51.5	8.3	92.3
2001	3,092.3	5,674.2	54.5	9.3	110.6
2002	3,050.9	5,657.8	53.9	9.2	98.7
2003	3,163.0	6,022.9	52.5	9.6	103.7
2004	2,706.3	5,069.0	53.4	8.3	85.6
2005	2,522.9	4,775.0	52.8	7.7	93.2
2006	2,982.7	5,336.3	55.9	9.1	118.2
2007	3,178.0	5,674.9	56.0	9.7	106.5

¹Federally inspected annual slaughter.

²NASS slaughter report—"Other cows."

4. Red meat production

Red Meat Production, 1899-2007



5. Value of production

In 2007, cattle enterprises accounted for 30.5 percent of the value of production for all selected commodities, down from 38.4 percent in 1992. No specific value of production is estimated for just cow-calf operations or operations with beef cows.

Value of production for selected U.S. commodities, 1992–2007:

Commodity	Year							
	1992		1996		2004		2007	
	Value (\$1,000)	Pct.	Value (\$1,000)	Pct.	Value (\$1,000)	Pct.	Value (\$1,000)	Pct.
Cattle	28,632,524	38.4	22,034,934	27.6	34,830,872	33.0	36,066,735	30.5
Milk	19,994,141	26.9	23,002,715	28.8	27,567,726	26.1	35,652,656	30.2
Poultry*	15,057,067	20.2	21,863,414	27.3	28,857,215	27.3	31,899,987	27.0
Swine	9,854,258	13.2	11,902,326	14.9	13,072,025	12.4	13,467,996	11.4
Sheep	394,409	0.5	440,686	0.6	411,278	0.4	383,576	0.3
Wool	60,162	0.1	39,270	0.0	29,921	0.0	30,242	0.0
Catfish	319,130	0.4	425,383	0.5	463,413	0.5	454,593	0.4
Trout	59,112	0.1	66,059	0.1	66,215	0.1	87,856	0.1
Honey	121,922	0.2	177,166	0.2	196,259	0.2	159,763	0.1
Total	74,492,725	100.0	79,951,953	100.0	105,494,924	100.0	118,203,404	100.0

*Includes broilers, eggs, turkeys, and chickens (value of sales).

B. Beef Cow-calf Industry Changes by State

1. Beef cow inventory

On January 1, 2008, Texas had more beef cows than any other State (5,150,000), followed by Missouri (2,070,000) and Oklahoma (2,053,000). Across all States, the 2008 beef cow inventory was 97.2 percent of the 1993 inventory. Since 1993, the number of beef cows in Texas declined nearly 6 percent, while the number of beef cows in Missouri and Oklahoma increased by 0.5 and 10.1 percent, respectively.

Changes in January 1 beef cow inventories, by State:

Number of Beef Cows (1,000 Head) January 1					
State	1993	1997	2008	2008 as Percent of 1993	2008 as Percent of 1997
Alabama	810*	829*	667*	82.3	80.5
Alaska	2.5	3.7	5.9	236.0	159.5
Arizona	284	218	195	68.7	89.4
Arkansas	824*	956*	943*	114.4	98.6
California	840*	820*	655*	78.0	79.9
Colorado	800*	846*	724*	90.5	85.6
Connecticut	7	7	5.5	78.6	78.6
Delaware	4	3	4	100.0	133.3
Florida	1,060*	1,072*	940*	88.7	87.7
Georgia	658*	672*	553*	84.0	82.3
Hawaii	78	83	82.7	106.0	99.6
Idaho	505	512	460*	91.1	89.8
Illinois	512	445*	427	83.4	96.0
Indiana	305	310	234	76.7	75.5
Iowa	1,095*	1,045*	965*	88.1	92.3
Kansas	1,355*	1,509*	1,505*	111.1	99.7
Kentucky	1,120*	1,180*	1,159*	103.5	98.2
Louisiana	520	512	513*	98.7	100.2
Maine	16	15	12	75.0	80.0
Maryland	64	52	43	67.2	82.7
Massachusetts	10	8	8	80.0	100.0
Michigan	116	123	106	91.4	86.2
Minnesota	405	410	397	98.0	96.8
Mississippi	700*	632*	499*	71.3	79.0

Source: NASS.

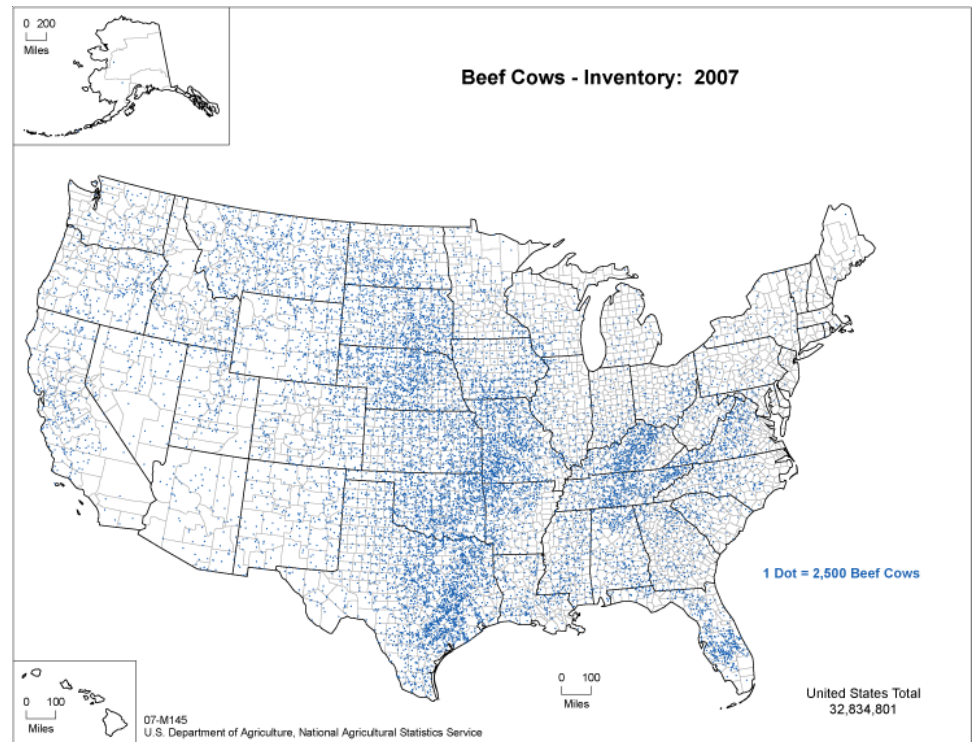
*NAHMS participating State.

Changes in January 1 beef cow inventories, by State (continued):

Number of Beef Cows (1,000 Head) January 1					
State	1993	1997	2008	2008 as Percent of 1993	2008 as Percent of 1997
Missouri	2,060*	2,140*	2,070*	100.5	96.7
Montana	1,497	1,570*	1,503*	100.4	95.7
Nebraska	1,795*	1,941*	1,883*	104.9	97.0
Nevada	250	244	238	95.2	97.5
New Hampshire	4	5	5	125.0	100.0
New Jersey	11	13	9	81.8	69.2
New Mexico	567*	573*	520*	91.7	90.8
New York	70	80	104	148.6	130.0
North Carolina	403	470	372	92.3	79.1
North Dakota	875	950*	924*	105.6	97.3
Ohio	305	305	296	97.0	97.0
Oklahoma	1,865*	1,957*	2,053*	110.1	104.9
Oregon	580	678*	595*	102.6	87.8
Pennsylvania	190	168	158	83.2	94.0
Rhode Island	1.4	1.2	1.4	100.0	116.7
South Carolina	250	244	192	76.8	78.7
South Dakota	1,545	1,650*	1,644*	106.4	99.6
Tennessee	995*	1,075*	1,079*	108.4	100.4
Texas	5,460*	5,460*	5,150*	94.3	94.3
Utah	345	355	365	105.8	102.8
Vermont	12	12	10	83.3	83.3
Virginia	695*	725*	692*	99.6	95.4
Washington	349	295	272	77.9	92.2
West Virginia	237	211	203	85.7	96.2
Wisconsin	190	210	270	142.1	128.6
Wyoming	723*	863*	723*	100.0	83.8
U.S.	33,364.9	34,457.9	32,434.5	97.2	94.1
NAHMS total	23,422	29,588	28,419	121.3	96.1

Source: NASS.

*NAHMS participating State.



2. Beef operations

From 1992 to 2007, the number of operations with beef cows declined in most States.

Changes in the number of operations with beef cows, by State:

Number of Operations with Beef Cows					
State	1992	1996	2007	2007 as Percent of 1992	2007 as Percent of 1996
Alabama	32,000*	32,000*	22,000*	68.8	68.8
Alaska	100	90	100	100.0	111.1
Arizona	2,700	2,400	5,300	196.3	220.8
Arkansas	28,000*	26,000*	25,000*	89.3	96.2
California	15,000*	15,000*	11,800*	78.7	78.7
Colorado	10,500*	10,000*	11,600*	110.5	116.0
Connecticut	900	700	750	83.3	107.1
Delaware	240	220	250	104.2	113.6
Florida	18,000*	19,000*	16,700*	92.8	87.9
Georgia	26,000*	22,000*	17,700*	68.1	80.5
Hawaii	850	800	850	100.0	106.3
Idaho	8,000	8,000	7,400*	92.5	92.5
Illinois	22,000	17,800*	14,800	67.3	83.1
Indiana	17,500	16,500	12,700	72.6	77.0
Iowa	29,000*	28,000*	21,000*	72.4	75.0
Kansas	29,000*	30,000*	26,000*	89.7	86.7
Kentucky	44,000*	45,000*	38,000*	86.4	84.4
Louisiana	18,000	14,500	12,400*	68.9	85.5
Maine	1,500	1,100	1,300	86.7	118.2
Maryland	3,600	3,200	2,500	69.4	78.1
Massachusetts	1,200	900	1,200	100.0	133.3
Michigan	8,000	8,500	7,800	97.5	91.8
Minnesota	16,000	16,000	14,400	90.0	90.0
Mississippi	26,000*	26,000*	16,000*	61.5	61.5

Source: NASS.

*NAHMS participating State.

Changes in the number of operations with beef cows, by State (continued):

Number of Operations with Beef Cows					
State	1992	1996	2007	2007 as Percent of 1992	2007 as Percent of 1996
Missouri	61,000*	63,000*	52,000*	85.2	82.5
Montana	12,100	11,700*	11,100*	91.7	94.9
Nebraska	23,000*	23,000*	18,300*	79.6	79.6
Nevada	1,400	1,400	1,300	92.9	92.9
New Hampshire	600	500	640	106.7	128.0
New Jersey	1,100	1,200	930	84.5	77.5
New Mexico	7,000*	6,900*	8,200*	117.1	118.8
New York	7,600	6,200	6,800	89.5	109.7
North Carolina	25,000	30,000	15,000	60.0	50.0
North Dakota	14,000	12,500*	9,700*	69.3	77.6
Ohio	20,000	18,000	17,400	87.0	96.7
Oklahoma	53,000*	54,000*	47,000*	88.7	87.0
Oregon	17,000	15,700*	12,900*	75.9	82.2
Pennsylvania	13000	12000	12,300	94.6	102.5
Rhode Island	180	170	230	127.8	135.3
South Carolina	13,000	11,000	8,200	63.1	74.5
South Dakota	18,000	18,000*	13,800*	76.7	76.7
Tennessee	57,000*	48,000*	42,000*	73.7	87.5
Texas	125,000*	133,000*	132,000*	105.6	99.2
Utah	5,000	5,600	5,600	112.0	100.0
Vermont	1,300	1,100	1,000	76.9	90.9
Virginia	25,000*	26,000*	22,000*	88.0	84.6
Washington	14,000	13,000	10,100	72.1	77.7
West Virginia	15,000	14,000	10,700	71.3	76.4
Wisconsin	9,600	11,000	14,800	154.2	134.5
Wyoming	4,900*	5,300*	4,800*	98.0	90.6
U.S.	901,870	885,980	766,350	85.0	86.5
NAHMS total	613,400	687,900	599,400	97.7	87.1

Source: NASS.

*NAHMS participating State.

3. Average herd size

For 2007, the largest average herd sizes were in Montana, Nevada, and Wyoming. Since 1992, average herd size has increased in 33 States, 18 of which participated in all three NAHMS studies.

Changes in U.S. average beef herd size by State:

Average Herd Size ¹ (Number of Beef Cattle)					
State	1992	1996	2007	2007 as Percent of 1992	2007 as Percent of 1996
Alabama	25.3*	25.9*	30.3*	119.8	117.1
Alaska	25.0	41.1	59.0	236.0	143.6
Arizona	105.2	90.8	36.8	35.0	40.5
Arkansas	29.4*	36.8*	37.7*	128.3	102.5
California	56.0*	54.7*	55.5*	99.1	101.5
Colorado	76.2*	84.6*	62.4*	81.9	73.8
Connecticut	7.8	10.0	7.3	94.0	73.3
Delaware	16.7	13.6	16.0	95.8	117.6
Florida	58.9*	56.4*	56.3*	95.6	99.8
Georgia	25.3*	30.5*	31.2*	123.5	102.4
Hawaii	91.8	103.8	97.3	106.0	93.7
Idaho	63.1	64.0	62.2*	98.5	97.1
Illinois	23.3	25.0*	28.9	123.8	115.4
Indiana	17.4	18.8	18.4	105.9	98.0
Iowa	37.8*	37.3*	46.0*	121.6	123.2
Kansas	46.7*	50.3*	57.9*	123.9	115.1
Kentucky	25.5*	26.2*	30.5*	119.6	116.4
Louisiana	28.9	35.3	41.4*	143.2	117.2
Maine	10.7	13.6	9.2	86.3	67.9
Maryland	17.8	16.3	17.2	96.6	105.5
Massachusetts	8.3	8.9	6.7	80.3	74.9
Michigan	14.5	14.5	13.6	93.7	93.7
Minnesota	25.3	25.6	27.6	109.0	107.7
Mississippi	26.9*	24.3*	31.2*	115.9	128.3

Source: NAASS.

¹Number of beef cows on January 1 divided by number of operations with one or more beef cows from previous year.

*NAHMS participating State.

Changes in U.S. average beef herd size by State (continued):

Average Herd Size¹ (Number of Beef Cattle)					
State	1992	1996	2007	2007 as Percent of 1992	2007 as Percent of 1996
Missouri	33.8*	34.0*	39.8*	117.8	117.1
Montana	123.7	134.2*	135.4*	109.5	100.9
Nebraska	78.0*	84.4*	102.9*	131.9	121.9
Nevada	178.6	174.3	183.1	102.5	105.0
New Hampshire	6.7	10.0	7.8	116.6	78.1
New Jersey	10.0	10.8	9.7	96.8	89.6
New Mexico	81.0*	83.0*	63.4*	78.3	76.4
New York	9.2	12.9	15.3	166.2	118.6
North Carolina	16.1	15.7	24.8	154.0	158.0
North Dakota	62.5	76.0*	95.3*	152.4	125.3
Ohio	15.3	16.9	17.0	111.2	100.7
Oklahoma	35.2*	36.2*	43.7*	124.1	120.7
Oregon	34.1	43.2	46.1*	135.3	106.8
Pennsylvania	14.6	14.0	12.8	88.0	91.8
Rhode Island	7.8	7.1	6.1	78.0	85.7
South Carolina	19.2	22.2	23.4	122.0	105.5
South Dakota	85.8	91.7*	119.1*	138.8	129.9
Tennessee	17.5*	22.4*	25.7*	146.8	114.7
Texas	43.7*	41.1*	39.0*	89.3	94.9
Utah	69.0	63.4	65.2	94.5	102.8
Vermont	9.2	10.9	10.0	108.7	91.7
Virginia	27.8*	27.9*	31.5*	113.1	112.7
Washington	24.9	22.7*	26.9	108.2	118.6
West Virginia	15.8	15.1	19.0	120.1	125.6
Wisconsin	19.8	19.1	18.2	92.1	95.5
Wyoming	147.6*	162.8*	150.6*	102.0	92.5
U.S.	37.0	38.9	42.3	114.3	108.7
NAHMS total	38.2	42.6	47.4	124.1	111.3

Source: NASS.

¹Number of beef cows on January 1 divided by number of operations with one or more beef cows from previous year.

*NAHMS participating State.



Photo by Dr. Dave Dargatz

Section II: NAHMS Population Estimates, 1993–2007

A. Beef Herd Information and Management Practices

1. Record-keeping systems

Following an increase from 1992 to 1997, the percentage of operations that utilized hand-written records was similar between 1997 and 2007 (79.1 and 78.6 percent, respectively). The percentage of operations that used an on-site computer for record keeping increased from 1992 to 2007 (4.7 to 17.0 percent). Despite this increase, fewer than one of five operations used an on-site computer for record keeping in 2007. The use of any record-keeping system has remained stable over the last 10 years.

Percentage of operations by type of record-keeping system used:

Type of System	Percent Operations							
	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ^{2,5}		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Hand-written records	65.2	(3.1)	80.0	(2.1)	79.1	(1.7)	78.6	(1.2)
Computer located on operation	4.7	(1.1)	9.5	(1.1)	10.2	(0.9)	17.0	(1.0)
Computer located off operation	3.8	(1.1)	3.3	(0.8)	3.5	(0.6)	2.9	(0.4)
Computer located on or off operation	7.7	(1.4)	12.3	(1.3)	13.0	(1.0)	NA	
Any of the above	66.8	(3.0)	82.3	(2.0)	81.3	(1.7)	83.3	(1.1)

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵For its first trends report (published May 1998) NAHMS reanalyzed the Beef '97 data to provide estimates for the same subset of operations covered by the 1992/93 CHAPA study (i.e., spring calving operations with five or more cows).

2. Information sources

For all study years, veterinarians were identified by the highest percentage of operations as a very important source of information. In 1992, 34.3 percent of operations reported that beef magazines and agricultural journals were very important sources of information; however, this percentage decreased in 1997 and 2007 to 15.4 and 17.6 percent of operations, respectively. The percentage of operations that reported salespersons as a very important source of information decreased from 30.8 percent in 1992 to 12.8 percent in 2007.

Percentage of operations in which the following information sources were very important for operating the cow-calf operation:

Source	Percent Operations						
	1992/93 CHAPA ^{1,2}	Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Extension service/university/ Vo-ag instructors	29.2	24.7	(2.2)	24.1	(1.8)	22.1	(1.2)
Veterinarians	56.1	64.1	(2.3)	60.8	(2.0)	54.3	(1.4)
Beef magazines/ agricultural journals	34.3	17.0	(1.7)	15.4	(1.3)	17.6	(1.1)
Producer associations	16.4	11.3	(1.6)	9.8	(1.1)	15.9	(1.0)
Other producers	24.8	22.8	(2.1)	22.7	(1.6)	25.0	(1.2)
Salespersons	30.8	17.0	(1.7)	16.0	(1.3)	12.8	(0.9)
Consultants	6.0	6.5	(1.0)	6.4	(0.8)	5.1	(0.6)
Radio, television, or newspapers	14.8	8.8	(1.6)	8.0	(1.2)	6.3	(0.7)
Internet	NA	NA		NA		7.5	(0.8)

¹Cow/calf Health and Productivity Audit. CHAPA asked about sources for beef production information. Standard errors were not calculated. Beef '97 asked about sources of information to operate the cow-calf operation. Percentage of operations for very important and extremely important were added together. Beef 2007-08 asked about sources of general information, breeding and genetics.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

3. Individual animal identification

The percentage of operations that used a hot-iron brand to identify individual cows decreased from 1992 to 1997 but increased from 1997 to 2007. The percentage of operations that used an electronic ID for individual cows was less than 1 percent for all study years.

a. Percentage of operations by type of *individual cow* ID used on at least some cows:

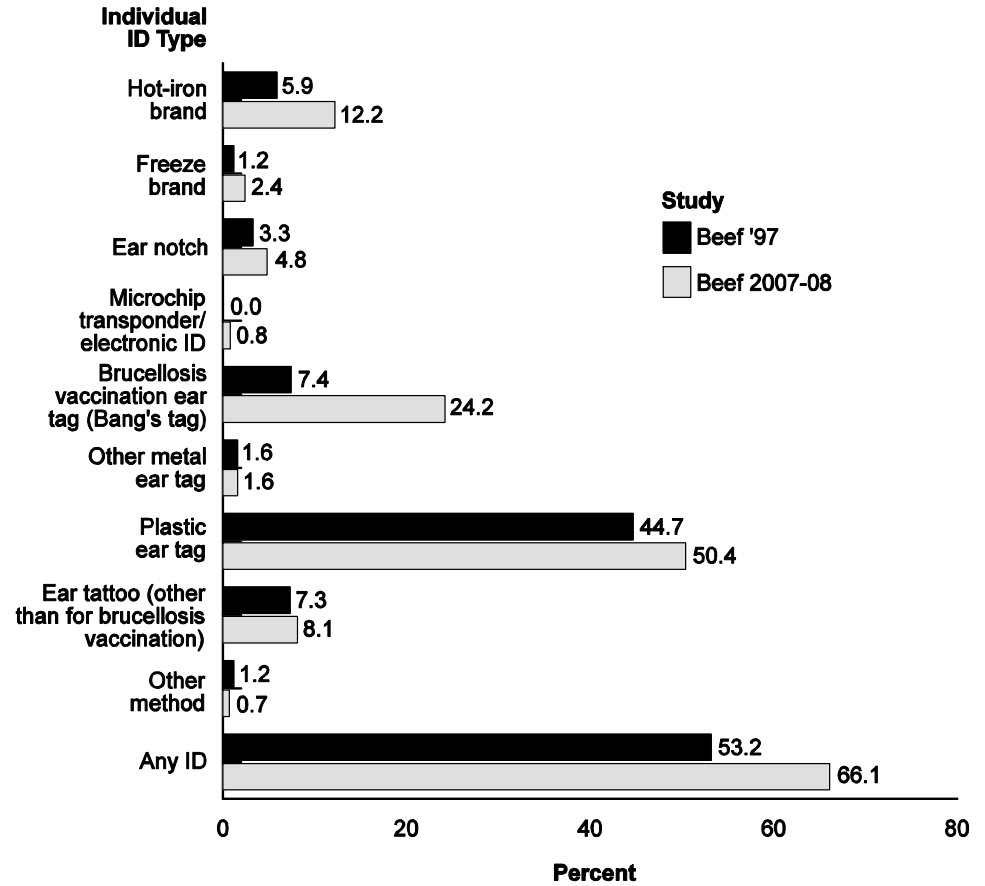
Individual ID Type	Percent Operations							
	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Hot-iron brand	17.9	(2.1)	4.3	(0.6)	5.9	(0.6)	12.2	(0.8)
Freeze brand	2.1	(1.2)	1.1	(0.4)	1.2	(0.3)	2.4	(0.4)
Ear notch	NA		2.8	(0.6)	3.3	(0.5)	4.8	(0.5)
Microchip transponder/ electronic ID	0.7	(0.5)	0.0	(0.0)	0.0	(0.0)	0.8	(0.2)
Brucellosis vaccination ear tag (Bang's tag)	28.3	(2.4)	7.7	(1.2)	7.4	(0.9)	24.2	(1.1)
Other metal ear tag	1.5	(0.5)	1.9	(0.6)	1.6	(0.4)	1.6	(0.3)
Plastic ear tag	45.3	(3.0)	44.2	(2.3)	44.7	(1.9)	50.4	(1.4)
Ear tattoo (other than for brucellosis vaccination)	12.9	(1.7)	6.7	(1.3)	7.3	(1.1)	8.1	(0.7)
Other method	NA		1.0	(0.2)	1.2	(0.2)	0.7	(0.2)
Any ID	60.3	(3.1)	52.3	(2.4)	53.2	(2.0)	66.1	(1.4)

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

Percentage of Operations by Type of *Individual* Cow ID Used on at Least Some Cows

The percentage of individual cows identified with a hot-iron brand decreased from 1992 to 1997 but increased from 1997 to 2007. Surprisingly, the percentage of individual cows identified with a brucellosis vaccination ear tag decreased from 1992 to 1997 but increased from 1997 to 2007. The percentage of cows identified with an ear tattoo decreased from 1992 to 1997 but remained unchanged from 1997 to 2007. Overall, the percentages of cows individually identified by some form of ID were similar in 1992 and 2007 but lower in 1997.

b. Percentage of beef cows by type of *individual cow* ID used on at least some cows:

Individual ID Type	Percent Beef Cows							
	1992/93 CHAPA ^{1, 2, 5}		Beef '97 Comparable ^{2, 5}		Beef '97 ^{3, 5}		Beef 2007-08 ^{4, 6}	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Hot-iron brand	31.3	(3.1)	10.0	(1.7)	14.0	(1.5)	20.5	(1.1)
Freeze brand	2.6	(1.1)	1.8	(0.5)	2.7	(0.5)	3.9	(0.6)
Ear notch	NA		4.9	(0.8)	6.2	(1.1)	9.8	(0.9)
Microchip transponder/ electronic ID	0.4	(0.3)	0.0	(0.0)	0.0	(0.0)	1.2	(0.3)
Brucellosis vaccination ear tag (Bang's tag)	40.3	(3.1)	11.5	(1.4)	13.1	(1.4)	38.1	(1.2)
Other metal ear tag	2.4	(0.8)	2.1	(0.5)	1.9	(0.4)	2.1	(0.4)
Plastic ear tag	61.3	(2.8)	53.0	(2.1)	56.8	(1.7)	57.5	(1.3)
Ear tattoo (other than for brucellosis vaccination)	20.2	(2.5)	8.9	(1.3)	9.6	(1.0)	7.7	(0.6)
Other method	NA		1.5	(0.4)	2.2	(0.4)	0.9	(0.2)
Any ID	78.5	(2.2)	65.5	(2.0)	69.8	(1.5)	79.1	(1.0)

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵1992 and 1997: percentage of calves on operations that used specific ID methods.

⁶Percentage of cows by ID method.

The use of a hot-iron brand to identify at least some individual calves decreased from 12.1 percent of operations in 1992 to 4.9 percent of operations in 1997 and changed little from 1997 to 2007 (4.9 to 5.4 percent, respectively). Use of brucellosis vaccination ear tags for individual calves decreased from 21.7 percent in 1992 to 3.6 percent in 1997, and then increased to 8.5 percent in 2007. Overall, the percentages of operations that individually identified calves with some form of ID were similar in 1992, 1997, and 2007 (53.1, 48.1, and 46.7 percent, respectively).

c. Percentage of operations by type of *individual calf* ID used on at least some calves:

Individual ID Type	Percent Operations							
	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Hot-iron brand	12.1	(1.7)	3.5	(0.5)	4.9	(0.5)	5.4	(0.6)
Freeze brand	0.5	(0.3)	0.1	(0.1)	0.1	(0.1)	0.7	(0.2)
Ear notch	NA		4.3	(0.7)	4.7	(0.6)	5.6	(0.6)
Microchip transponder/ electronic ID	0.4	(0.4)	0.0	(0.0)	0.0	(0.0)	0.7	(0.2)
Brucellosis vaccination ear tag (Bang's tag)	21.7	(2.2)	3.6	(1.1)	3.6	(0.8)	8.5	(0.7)
Other metal ear tag	1.4	(0.5)	1.0	(0.2)	0.9	(0.2)	1.1	(0.3)
Plastic ear tag	40.8	(2.8)	39.2	(2.3)	40.7	(1.9)	37.7	(1.3)
Ear tattoo (other than for brucellosis vaccination)	10.2	(1.5)	5.7	(1.3)	6.0	(1.0)	5.2	(0.6)
Other method	NA		0.4	(0.1)	0.5	(0.1)	0.3	(0.2)
Any ID	53.1	(2.9)	46.3	(2.4)	48.1	(1.9)	46.7	(1.4)

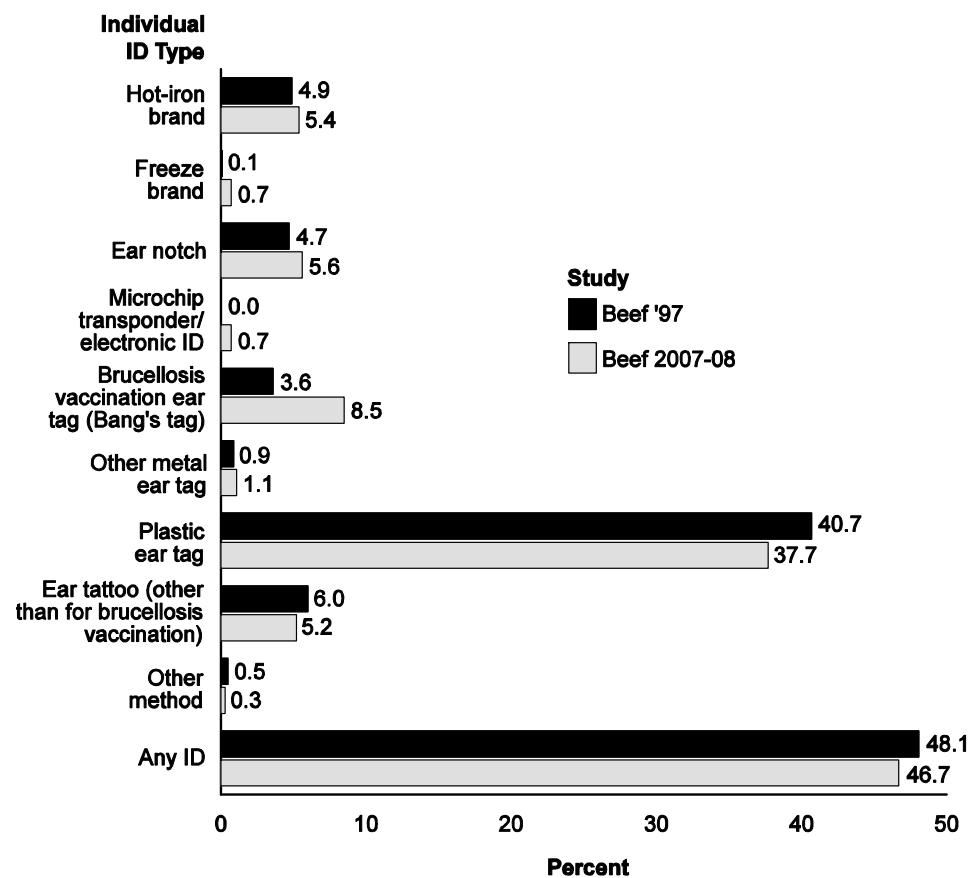
¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

Percentage of Operations by Type of *Individual Calf* ID Used on at Least Some Calves



The percentage of beef calves identified with a hot-iron brand decreased from 1992 to 1997 but was similar from 1997 to 2007. The percentage of beef calves identified with a brucellosis vaccination ear tag decreased from 1992 to 1997 but increased from 1997 to 2007. The percentage of beef calves identified with electronic ID was similar from 1992 to 1997 but increased from 1997 to 2007, though only 1 calf in 35 was identified electronically in 2007. Overall, the percentages of beef calves individually identified by some form of ID were similar in 1992, 1997, and 2007, with roughly two out of three calves having individual ID.

d. Percentage of beef calves by type of *individual calf* ID used:

Individual ID Type	Percent Beef Calves							
	1992/93 CHAPA ^{1, 2, 5}		Beef '97 Comparable ^{2, 5}		Beef '97 ^{3, 5}		Beef 2007-08 ^{4, 6}	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Percent beef calves born		Percent beef calves born alive					
Hot iron brand	22.0	(2.8)	9.4	(2.1)	12.9	(1.7)	11.8	(1.1)
Freeze brand	0.9	(0.5)	0.4	(0.2)	0.6	(0.3)	1.1	(0.4)
Ear notch	NA		7.1	(0.9)	8.5	(1.0)	11.2	(1.0)
Microchip transponder/ electronic ID	0.5	(0.4)	0.0	(0.0)	0.0	(0.0)	2.9	(0.7)
Brucellosis vaccination ear tag (Bang's tag)	30.4	(2.8)	5.4	(1.3)	6.3	(1.0)	12.3	(1.0)
Other metal ear tag	2.1	(0.6)	1.6	(0.4)	1.8	(0.4)	2.0	(0.5)
Plastic ear tag	55.9	(2.9)	46.6	(2.1)	52.0	(1.8)	50.2	(1.4)
Ear tattoo (other than for brucellosis vaccination)	13.6	(1.7)	6.7	(1.0)	7.6	(0.9)	5.6	(0.7)
Other method	NA		0.8	(0.3)	0.6	(0.2)	0.3	(0.1)
Any ID	70.2	(2.6)	60.0	(2.1)	64.7	(1.7)	64.8	(1.3)

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

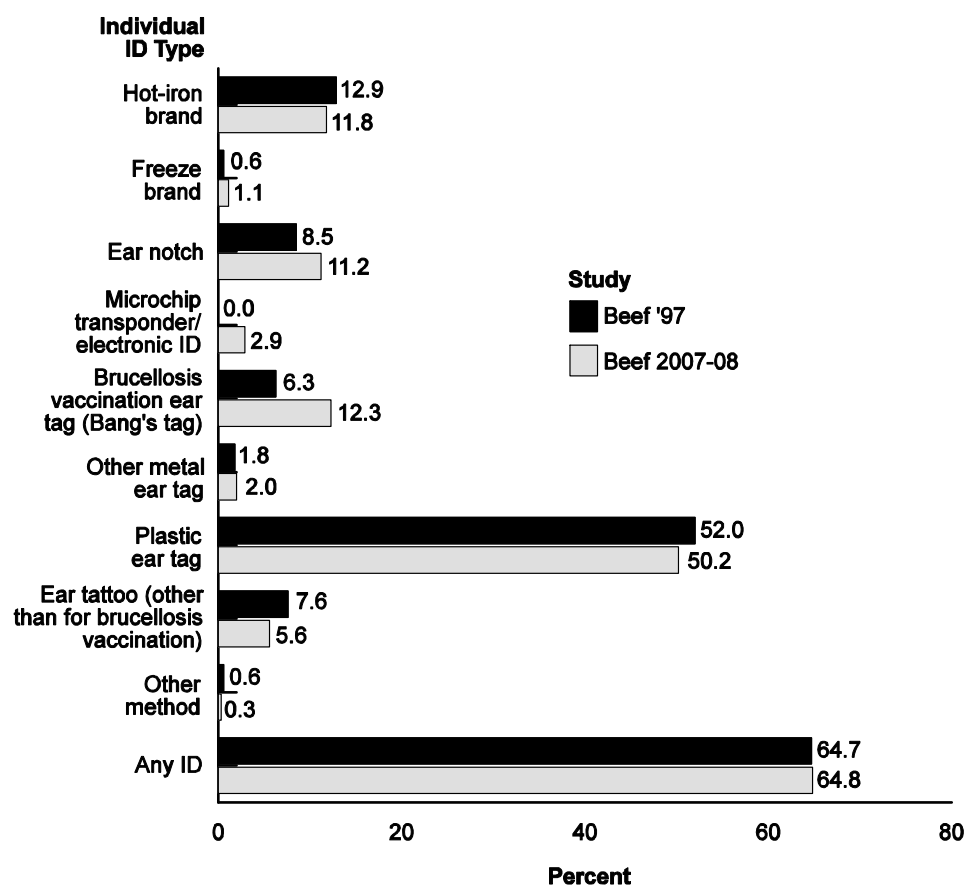
³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵1992 and 1997: percentage of calves on operations that used specific ID methods.

⁶Percentage of calves by ID method.

Percentage of Beef Calves by Type of *Individual Calf* ID Used



4. Herd identification

Overall, the percentages of operations that used any form of herd ID decreased from 1997 to 2007. The percentages of operations that used plastic ear tags or ear tatoos were similar in 1992 and 1997 but decreased in 2007. The percentages of operations that used all other forms of herd ID were similar across all study years.

a. Percentage of operations by type of **herd** ID used (all animals have the same ID):

Herd ID Type	Percent Operations							
	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Hot-iron brand	21.4	(2.2)	23.8	(1.5)	26.6	(1.2)	23.8	(1.1)
Freeze brand	1.2	(0.5)	1.1	(0.4)	1.3	(0.3)	1.1	(0.3)
Ear notch	6.5	(1.1)	7.7	(1.0)	8.0	(0.8)	7.8	(0.7)
Microchip transponder/ electronic ID	0.4	(0.4)	0.0	(0.0)	0.0	(0.0)	0.2	(0.1)
Metal ear tag other than Bang's tag	1.0	(0.4)	1.6	(0.6)	1.6	(0.5)	1.0	(0.3)
Plastic ear tag	27.1	(2.7)	27.9	(2.3)	27.0	(1.7)	20.4	(1.1)
Ear tattoo (other than for brucellosis vaccination)	6.8	(1.2)	6.0	(1.5)	5.7	(1.1)	2.6	(0.4)
Other method	NA		0.2	(0.1)	0.3	(0.1)	0.2	(0.1)
Any ID	45.7	(3.0)	51.1	(2.3)	51.0	(1.9)	40.4	(1.3)

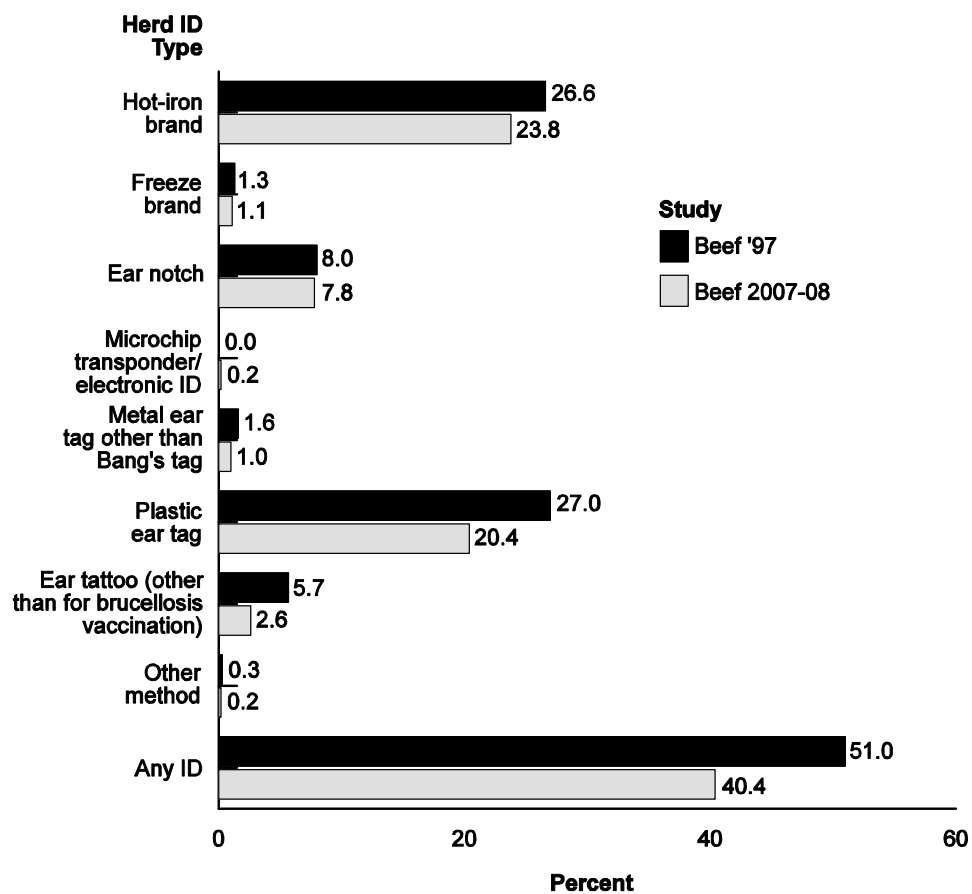
¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

Percentage of Operations by Type of *Herd ID* Used (All Animals Have the Same ID)



Although different animal-type populations were used in each of the three studies to estimate the percentage of animals on operations that used herd ID, the percentages were relatively similar.

b. Percentage of cattle or cows on operations by type of **herd** ID used (all animals have the same ID):

Herd ID Type	Percent Cattle							
	1992/93 CHAPA ^{1, 2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Percent total cattle		Percent cows				Percent cattle and calves	
Hot-iron brand	40.2	(2.8)	49.0	(2.0)	54.5	(1.5)	44.8	(1.5)
Freeze brand	1.5	(0.6)	1.0	(0.3)	1.7	(0.4)	1.0	(0.2)
Ear notch	17.5	(2.1)	19.2	(2.1)	19.7	(1.8)	16.2	(1.6)
Microchip transponder/ electronic ID	0.2	(0.2)	0.0	(0.0)	0.0	(0.0)	0.6	(0.2)
Metal ear tag other than Bang's tag	1.6	(0.6)	1.7	(0.5)	1.6	(0.4)	1.1	(0.3)
Plastic ear tag	32.8	(2.9)	28.5	(1.7)	30.9	(1.4)	27.6	(1.6)
Ear tattoo (other than for brucellosis vaccination)	11.3	(2.2)	6.1	(1.0)	6.4	(0.8)	3.2	(0.5)
Other method	NA		0.5	(0.2)	0.8	(0.3)	0.4	(0.2)
Any ID	65.9	(2.9)	70.6	(1.6)	74.1	(1.1)	61.3	(1.5)

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.



Photo courtesy of Dr. Dave Dargatz.

5. Source of female replacements

The percentages of females raised on the operation were similar in 1992, 1997, and 2007.

Of replacement females that calved, percentage of replacement females, by source:

Source	Percent Females							
	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Of replacement females that calved		Of replacement heifers that calved in 1996				Of heifers that calved or were to calve in 2007	
Purchased	11.6	(1.9)	12.6	(3.1)	12.8	(2.2)	17.0	(2.0)
Raised on operation	88.4	(1.9)	87.4	(3.1)	87.2	(2.2)	83.0	(2.0)
Total	100.0		100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

6. Dehorning

The percentage of calves born that had or were expected to have horns decreased from 27.8 percent in 1997 to 12.4 percent in 2007. This drop in the percentage of nonpolled calves may be due to changes in breed utilization or the implementation of Beef Quality Assurance (BQA) guidelines that recommend the reduction of horned calves.

a. Percentage of calves born that had or were expected to have horns (nonpolled):

Percent Calves Born						
	1992/93 CHAPA ^{1,2}		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Percent calf crop horned		Percent calves born alive that had or were expected to have horns			
	29.3	(1.2)	27.8	(1.0)	12.4	(0.6)

¹Cow/calf Health and Productivity Audit.

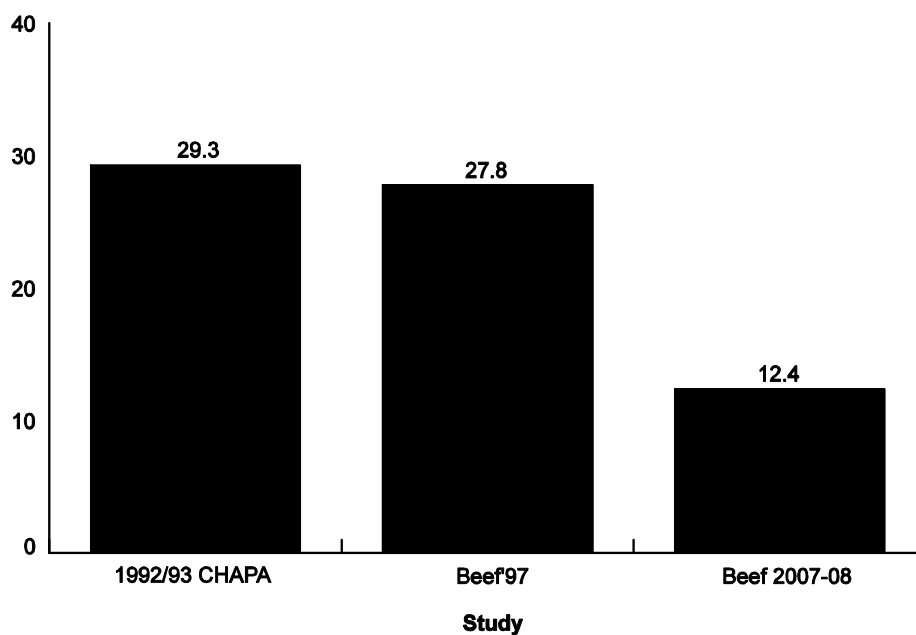
²Population: all cow-calf operations in 48 States.

³Population: all cow-calf operations in 23 States. Beef '97 estimates comparable to CHAPA estimates not available.

⁴Population: all cow-calf operations in 24 States.

Percentage of Calves Born that had or were Expected to have Horns (Nonpolled)

Percent



The percentage of operations in which one or more nonpolled calves were born decreased from 1997 to 2007 (62.1 and 36.2 percent, respectively). This decrease might suggest changes in breed utilization or the implementation of BQA guidelines that recommend the reduction of horned calves.

b. Percentage of operations in which one or more calves born alive were expected to have horns (nonpolled):

Percent Operations					
1992/93 CHAPA ^{1,2}		Beef '97 ³		Beef 2007-08 ⁴	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
45.3	(1.8)	62.1	(1.9)	36.2	(1.3)

¹Cow/calf Health and Productivity Audit.

²Population: all cow-calf operations in 48 States.

³Population: all cow-calf operations in 23 States. Beef '97 estimates comparable to CHAPA estimates not available.

⁴Population: all cow-calf operations in 24 States.

A higher percentage of operations with nonpolled calves in 1992 dehorned calves than operations in 1997 and 2007.

c. For operations with nonpolled calves, percentage of operations that dehorned calves:

Percent Operations					
1992/93 CHAPA ^{1,2}		Beef '97 ³		Beef 2007-08 ⁴	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
67.2	(2.4)	52.0	(2.3)	49.3	(2.3)

¹Cow/calf Health and Productivity Audit.

²Population: all cow-calf operations in 48 States.

³Population: all cow-calf operations in 23 States. Beef '97 estimates comparable to CHAPA estimates not available.

⁴Population: all cow-calf operations in 24 States.

The percentage of nonpolled calves that were dehorned decreased from 1997 to 2007 (61.1 and 48.8 percent, respectively). This decrease in the percentage of calves dehorned—and the decrease in the number of nonpolled calves born—suggests that some producers might have switched to polled cattle. Still, the percentage of calves marketed with horns decreased from 8.4 percent in 1992 (29.3 percent of calves born with horns multiplied by 28.8 percent of calves not dehorned) to 6.3 percent in 2007 (12.4 percent of calves born with horns multiplied by 51.2 percent of calves not dehorned).

d. Percentage of nonpolled calves born that were or would be dehorned on the operation:

Percent Calves					
1992/93 CHAPA ^{1,2}		Beef '97 ³		Beef 2007-08 ⁴	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
71.2	(3.0)	61.1	(2.2)	48.8	(2.4)

¹Cow/calf Health and Productivity Audit.

²Population: all cow-calf operations in 48 States.

³Population: all cow-calf operations in 23 States. Beef '97 estimates comparable to CHAPA estimates not available.

⁴Population: all cow-calf operations in 24 States.

The average age that calves were dehorned was similar in 1997 and 2007.

e. For operations with nonpolled calves, average age, and operation average age in days, calves were dehorned:

Average (Days)						
Measure ⁵	1992/93 CHAPA ^{1,2}		Beef '97 ³		Beef 2007-08 ⁴	
	Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error
Average age	104	(5)	130	(4)	119	(4)
Operation average age	159	(7)	162	(4)	147	(6)

¹Cow/calf Health and Productivity Audit.

²Population: all cow-calf operations in 48 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵See Terms Used in This Report, p 3, for definitions of animal average and operation average.

The percentages of operations that dehorned calves were similar in each age category across study years. In 1997, 28.1 percent of operations dehorned calves by 92 days of age, and in 2007, 43.0 percent of operations dehorned calves by 92 days of age.

f. For operations that dehorned calves, percentage of operations by average age (days) calves were dehorned:

Age (Days)	Percent Operations					
	1992/93 CHAPA ^{1,2}		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
1 to 31	10.6 ⁵	(1.5)	5.5	(0.7)	6.2	(1.2)
32 to 61	11.7 ⁵	(1.5)	12.5	(1.5)	17.2	(2.2)
62 to 92	13.2	(1.7)	10.1	(1.3)	19.6	(2.4)
93 to 122	8.9	(1.8)	13.3	(2.8)	7.8	(1.5)
123 to 153	9.1	(2.2)	6.9	(1.1)	7.6	(1.5)
154 to 183	16.2	(2.2)	21.2	(2.6)	15.8	(2.3)
184 to 214	11.8	(2.4)	11.1	(1.4)	7.8	(1.7)
215 or more	18.5	(2.6)	19.4	(2.1)	18.0	(2.5)
Total	100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit.

²Population: all cow-calf operations in 48 States.

³Population: all cow-calf operations in 23 States. Beef '97 estimates comparable to CHAPA estimates not available.

⁴Population: all cow-calf operations in 24 States.

⁵CHAPA ages: 1-30 days, 31-61 days.

7. Castration

The percentage of bull calves castrated prior to sale was similar across study years.

a. Of bull calves born, percentage of bull calves that were or would be castrated prior to sale:

Percent Calves						
Measure	1992/93 CHAPA ^{1,2}		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Percent bull calves	80.8	(1.1)	79.9	(1.2)	77.1	(0.9)

¹Cow/calf Health and Productivity Audit.

²Population: all cow-calf operations in 48 States.

³Population: all cow-calf operations in 23 States. Beef '97 estimate comparable to CHAPA estimates not available.

⁴Population: all cow-calf operations in 24 States.

The percentages of operations that castrated all bull calves prior to sale were similar across all three studies. The percentage of operations that castrated none of their bull calves prior to sale increased from 1997 to 2007. Overall, most operations castrated either all or none of their bull calves.

b. Percentage of operations by proportion of bull calves that were or would be castrated prior to sale:

Percent Operations						
Proportion Castrated	1992/93 CHAPA ^{1,2}		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
None	34.4	(1.7)	29.4	(1.9)	40.8	(1.4)
Some	11.8	NA	20.8	(1.5)	9.7	(0.8)
All	53.8	(1.7)	49.8	(1.9)	49.5	(1.3)
Total	100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit.

²Population: all cow-calf operations in 48 States.

³Population: all cow-calf operations in 23 States. Beef '97 estimates comparable to CHAPA estimates not available.

⁴Population: all cow-calf operations in 24 States.

8. Weaning weight

Weaning weight for each calf group increased from 1997 to 2007. Weaning weights were higher in 2007 than in 1992 and 1997.

Average weaning weight (lb) of calves weaned, by calf group:

Average Weight (Lb)								
	1992/93 CHAPA Part III ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
Calf Group	Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error
Bulls and steers	NA		NA		529	(4)	559	(2)
Other heifers	NA		NA		494	(3)	515	(2)
Replacement heifers	NA		NA		513	(4)	532	(3)
All calves	502	(4)	513	(3)	515	(3)	530	(2)

¹Cow/calf Health and Productivity Audit. Part III refers to a specific CHAPA report.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

9. Weaning age

Despite heavier weaning weights in 2007, average age of calves at weaning decreased from 221 days in 1997 to 207 days in 2007.

Average age (days) of calves at weaning:

Average Age (Days)					
1992/93 CHAPA ^{1,2}		Beef '97 ³		Beef 2007-08 ⁴	
Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error
214	(1)	221	(1)	207	(1)

¹Cow/calf Health and Productivity Audit.

²Population: all cow-calf operations in 48 States.

³Population: all cow-calf operations in 23 States. Beef '97 estimates comparable to CHAPA estimates not available.

⁴Population: all cow-calf operations in 24 States.

10. Monthly calving distribution

The percentages of calves born in each month were similar in all three studies. In 1992 and 1997, 63.9 percent of calves were born in February, March, and April, compared with 58.8 percent in 2007.

a. Percentage of calves born alive, by month:

Month	Percent Calves					
	1992/93 CHAPA ^{1,2}		Beef '97 ³		Beef 2007-08 ^{4,5}	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Calves born		Calves born alive			
January	6.7	(0.5)	7.1	(0.5)	7.0	(0.3)
February	14.3	(0.8)	15.2	(0.8)	13.7	(0.5)
March	26.8	(0.8)	27.2	(0.8)	24.4	(0.6)
April	22.8	(0.8)	21.5	(0.7)	20.7	(0.6)
May	9.1	(0.5)	7.6	(0.3)	8.5	(0.4)
June	3.4	(0.3)	2.3	(0.2)	3.1	(0.2)
July	1.8	(0.2)	1.4	(0.1)	1.9	(0.1)
August	2.1	(0.4)	1.6	(0.2)	2.4	(0.2)
September	2.0	(0.3)	3.7	(0.3)	4.8	(0.3)
October	4.0	(0.3)	4.5	(0.3)	5.7	(0.3)
November	3.6	(0.2)	4.2	(0.4)	4.2	(0.2)
December	3.4	(0.3)	3.7	(0.4)	3.6	(0.2)
Total	100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit.

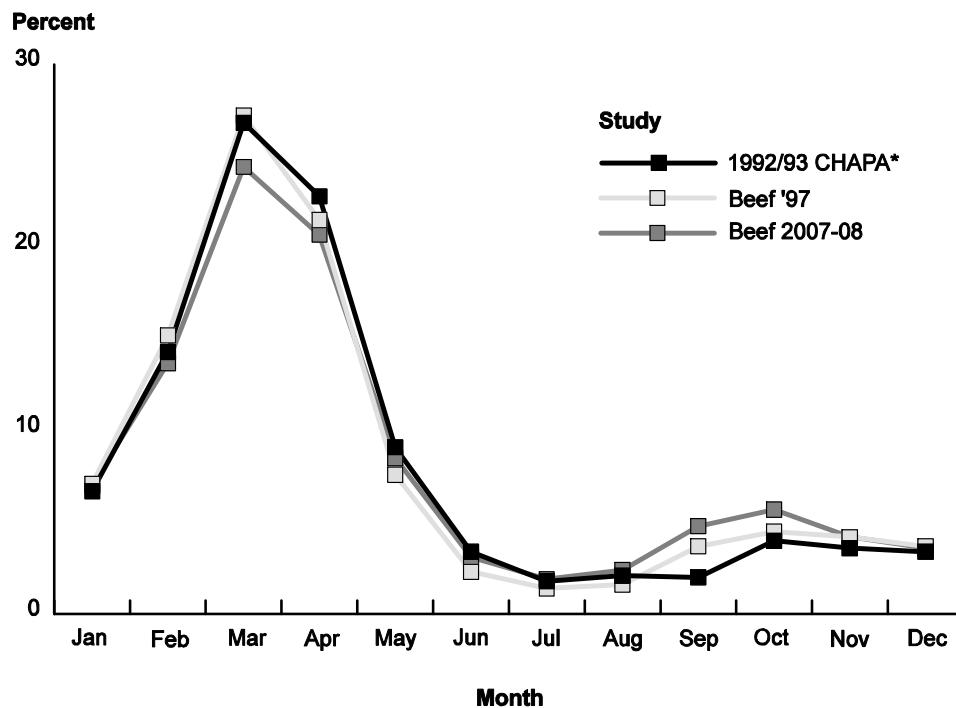
²Population: all cow-calf operations in 48 States.

³Population: all cow-calf operations in 23 States. Beef '97 estimates comparable to CHAPA estimates not available.

⁴Population: all cow-calf operations in 24 States.

⁵Calves born alive January to September and expected to be born alive October to December 2007.

Percentage of Calves Born Alive, by Month



*1992/93 CHAPA refers to calves born.

The percentage of operations that had calves born alive in each month was similar in 1997 and 2007, with the exception of July, August, and September. The percentage of operations that had calves born in these months increased from 1997 to 2007, which may indicate a small shift toward more fall calving.

b. Percentage of operations that had one or more calves born alive in the following months:

Percent Operations						
Month	1992/93 CHAPA ^{1,2}		Beef '97 ³		Beef 2007-08 ^{4,5}	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Calves born		Calves born alive			
January	23.8	(1.5)	29.6	(1.8)	34.7	(1.4)
February	37.7	(1.8)	49.7	(2.0)	49.7	(1.4)
March	51.3	(1.9)	68.4	(2.0)	66.1	(1.4)
April	49.9	(1.9)	60.8	(2.0)	59.0	(1.4)
May	36.3	(1.8)	38.2	(1.9)	42.1	(1.4)
June	21.2	(1.5)	23.8	(1.7)	27.8	(1.3)
July	14.3	(1.3)	15.4	(1.4)	21.6	(1.2)
August	12.3	(1.3)	14.1	(1.3)	20.8	(1.2)
September	9.8	(1.0)	20.2	(1.4)	28.0	(1.3)
October	20.3	(0.5)	24.7	(1.7)	28.4	(1.3)
November	16.6	(1.3)	23.9	(1.7)	26.0	(1.2)
December	15.8	(1.3)	18.6	(1.5)	22.0	(1.2)

¹Cow/calf Health and Productivity Audit.

²Population: all cow-calf operations in 48 States.

³Population: all cow-calf operations in 23 States. Beef '97 estimates comparable to CHAPA estimates not available.

⁴Population: all cow-calf operations in 24 States.

⁵Calves born alive January to September and expected to be born alive October to December 2007.

11. Calving percentage

The percentage of females that calved was similar across study years.

Of females exposed to bulls or artificially inseminated, percentage that calved (calf born alive or dead):

Question variation	Percent					
	1992/93 CHAPA ^{1,2}		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
	Females exposed or artificially inseminated		Females exposed or artificially inseminated, plus females brought on minus those leaving the operation			
	92.4	(0.3)	92.6	(0.6)	91.5	(0.6)

¹Cow/calf Health and Productivity Audit.

²Population: all cow-calf operations in 48 States.

³Population: all cow-calf operations in 23 States. Beef '97 estimates comparable to CHAPA estimates not available.

⁴Population: all cow-calf operations in 24 States.



Photo by Anson Eaglin

12. Factors in determining when to wean calves

Factors considered most important in determining when to wean calves have changed little over the years. Calf age/weight remains the most important factor in determining when to wean calves.

Percentage of operations by most important factor in determining when to wean calves:

Reason	Percent Operations							
	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Calf age/weight	52.9	(3.1)	51.7	(2.4)	49.9	(2.0)	53.8	(1.4)
End of grazing lease or permit	2.3	(0.9)	1.8	(0.3)	2.8	(0.3)	2.1	(0.3)
Forage availability	7.0	(1.4)	7.2	(1.0)	7.9	(0.8)	8.1	(0.7)
Physical condition of cow	6.8	(1.7)	13.7	(1.8)	13.7	(1.4)	9.3	(0.9)
Market price or contract	9.0	(2.2)	6.3	(1.1)	6.4	(1.0)	5.6	(0.6)
Cash flow	7.2	(1.9)	3.7	(1.1)	3.2	(0.8)	3.0	(0.5)
Tradition	14.8	(2.0)	11.2	(1.5)	11.5	(1.2)	11.9	(0.8)
Other	NA		4.4	(0.8)	4.6	(0.7)	6.2	(0.7)
Total	100.0		100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

13. Marketing

The relative use of various marketing channels for selling most animals was similar across all studies.

Percentage of operations by method used to sell most animals:

Method	Percent Operations							
	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Weaned steers or bulls sold		Beef cattle or weaned calves sold					
Auction	85.2	(1.9)	88.0	(1.4)	85.0	(1.4)	82.4	(2.4)
Direct–video	0.3	(0.1)	0.7	(0.3)	0.7	(0.2)	1.1	(0.2)
Direct–private treaty	8.0	(1.5)	7.4	(1.2)	10.4	(1.3)	11.6	(2.0)
Consignment	1.6	(0.6)	1.4	(0.5)	1.2	(0.4)	1.1	(0.7)
Forward contract	0.5	(0.3)	0.3	(0.1)	0.5	(0.1)	0.3	(0.1)
Carcass basis	0.7	(0.5)	1.2	(0.4)	1.3	(0.3)	1.0	(0.6)
Other	1.5	(0.5)	1.0	(0.3)	0.9	(0.3)	2.5	(1.1)
None marketed	2.2	(0.8)	NA		NA		NA	
Total	100.0		100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

14. Forward pricing

The percentage of operations that marketed any calves using forward pricing, and the percentage of the calf crop born on operations that forward priced any calves, increased from 1997 to 2007. The higher percentage of the calf crop born on operations using forward pricing for any calves (compared with the percentage of operations) indicates a higher percentage of larger herds forward priced calves.

a. Percentage of operations, and percentage of calves born on these operations, using forward pricing for any calves:

Measure	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Operations	2.0	(1.0)	1.0	(0.2)	1.5	(0.2)	3.5	(0.4)
Calf crop ⁵	5.0	(1.3)	2.5	(0.5)	3.5	(0.5)	9.7	(0.9)

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵Beef '97 and Beef 2007-08 used percent calves born alive.

When considering the relatively large standard errors of the estimates, there was no difference across study years in the percentage of the calf crop forward priced on operations that forward priced calves.

b. For operations that forward priced calves, percentage of calf crop forward priced:

Percent Calf Crop							
1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
82.5	(9.9)	45.7	(12.9)	53.8	(8.8)	68.4	(2.6)

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

B. Breeding and Calving Management

1. Timing of calving season

The majority of operations had no set breeding season in 1992, 1997, and 2007. The percentage of operations with one breeding season was similar in 1997 and 2007. Few operations managed two or more breeding seasons in a year.

a. Percentage of operations by number of defined breeding seasons in a year:

Number Defined Breeding Seasons ⁵	Percent Operations					
	1992/93 CHAPA ^{1,2}		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
One	NA		36.6	(1.7)	34.0	(1.2)
Two or more	NA		9.8	(1.0)	11.5	(0.8)
No set season	52.7	(2.9)	53.6	(1.7)	54.5	(1.3)
Total	NA		100.0		100.0	

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

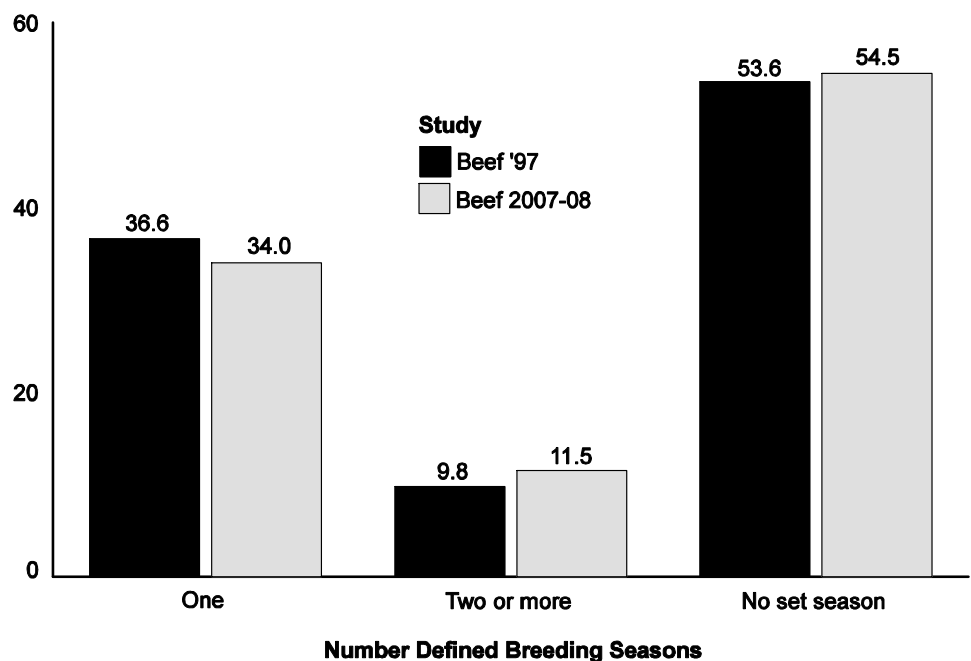
³Population: all cow-calf operations in 23 States. Beef '97 estimates comparable to CHAPA estimates not available.

⁴Population: all cow-calf operations in 24 States.

⁵Defined breeding season was determined by removal of the bull from cows and/or heifers for at least 30 days.

Percentage of Operations by Number of Defined Breeding Seasons in a Year

Percent



The percentage of operations by number of months in which beef calves were born was similar in 1997 and 2007; in 1997, 22.3 percent of operations had calves born in any 3 months (not necessarily sequential) compared with 22.5 percent in 2007. Over one-half of operations had calves born in 3 or fewer months in all three studies.

b. Percentage of operations by number of months in which calves were born alive:

Number Month(s)	Percent Operations					
	1992/93 CHAPA ^{1,2}		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Calves born		Calves born alive			
1	14.4	(1.6)	8.2	(1.3)	7.0	(0.8)
2	20.1	(1.7)	22.9	(1.8)	20.9	(1.2)
3	23.9	(1.7)	22.3	(1.6)	22.5	(1.2)
4	16.1	(1.5)	17.8	(1.6)	15.7	(1.0)
5	7.9	(1.0)	11.5	(1.4)	9.8	(0.9)
6	7.5	(0.9)	5.7	(0.8)	7.0	(0.7)
7	4.6	(0.9)	3.1	(0.5)	4.8	(0.6)
8	1.9	(0.5)	2.6	(0.5)	3.5	(0.5)
9	1.1	(0.3)	1.7	(0.5)	2.1	(0.4)
10	0.9	(0.3)	1.7	(0.4)	1.9	(0.4)
11	0.7	(0.3)	0.8	(0.4)	1.4	(0.3)
12	0.9	(0.3)	1.7	(0.3)	3.4	(0.5)
Total	100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit.

²Population: all cow-calf operations in 48 States.

³Population: all cow-calf operations in 23 States. Beef '97 estimates comparable to CHAPA estimates not available.

⁴Population: all cow-calf operations in 24 States.

The percentage of operations in which tradition or weather was the most important factor in determining the timing of the previous calving season was similar in 1992 and 1997. From 1997 to 2007, the percentage of operations in which tradition was the most important factor increased, and the percentage of operations in which weather was the most important factor decreased. There was little or no change in the percentage of operations by the importance of forage availability, market cycle, or labor availability in determining the timing of the last calving season.

c. Percentage of operations by factor most important in determining the timing of the last calving season:

Percent Operations								
Factor	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	For operations with set breeding season or seasons		For operations with only one set breeding season					
Tradition	25.1	(3.3)	28.9	(3.2)	29.7	(2.4)	43.4	(2.2)
Weather	30.0	(3.7)	40.9	(3.8)	39.4	(2.8)	27.9	(2.0)
Forage availability	11.8	(2.3)	10.3	(1.9)	9.3	(1.4)	8.6	(1.3)
Increasing weaning weights	11.0	(2.6)	5.8	(1.1)	5.3	(0.8)	4.5	(0.9)
Market cycle	10.4	(2.8)	6.6	(1.7)	5.7	(1.3)	5.9	(1.1)
Labor availability	6.1	(2.0)	4.1	(0.7)	3.8	(0.5)	4.3	(0.9)
Timing of herd movement	1.8	(0.9)	2.4	(0.8)	4.5	(1.8)	2.1	(0.6)
Other	3.8	(1.4)	1.0	(0.4)	2.3	(0.9)	3.3	(0.8)
Total	100.0		100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

2. Breeding methods

The percentage of operations that used artificial insemination was similar in each study.

Percentage of operations that used artificial insemination:

Percent Operations							
1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
5.4	(1.2)	6.3	(0.8)	7.1	(0.7)	7.2	(0.6)

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

3. Bull management

The number of females expected to be mated per bull was similar in 1997 and 2007. However, fewer females in 2007 than in 1992 were expected to be mated or served per bull. This was true for both yearling and mature bulls.

a. Average number of females expected to be mated or serviced per bull, by bull type:

Average Number of Females per Bull						
Bull Type	1992/93 CHAPA ^{1,2}		Beef '97 ³		Beef 2007-08 ⁴	
	Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error
Yearling (less than 2 years old)	19.0	(0.3)	17.5	(0.4)	17.4	(0.2)
Mature (2 years or older)	29.2	(0.3)	25.3	(0.3)	25.1	(0.2)

¹Cow/calf Health and Productivity Audit.

²Population: all cow-calf operations in 48 States.

³Population: all cow-calf operations in 23 States. Beef '97 estimates comparable to CHAPA estimates not available.

⁴Population: all cow-calf operations in 24 States.

A similar percentage of operations in 1992 and 1997 performed reproductive examinations on any breeding bulls. However, the percentage of operations that performed a semen test, scrotal measurement, or *Tritrichomonas* culture increased from 1997 to 2007. The largest relative increase was in culture for *Tritrichomonas fetus*, which more than doubled from 1997 to 2007 (4.5 to 9.8 percent, respectively).

b. Percentage of operations that performed the following reproductive examination procedures on bulls in preparation for the last breeding season (excluding purchased, leased, and borrowed bulls):

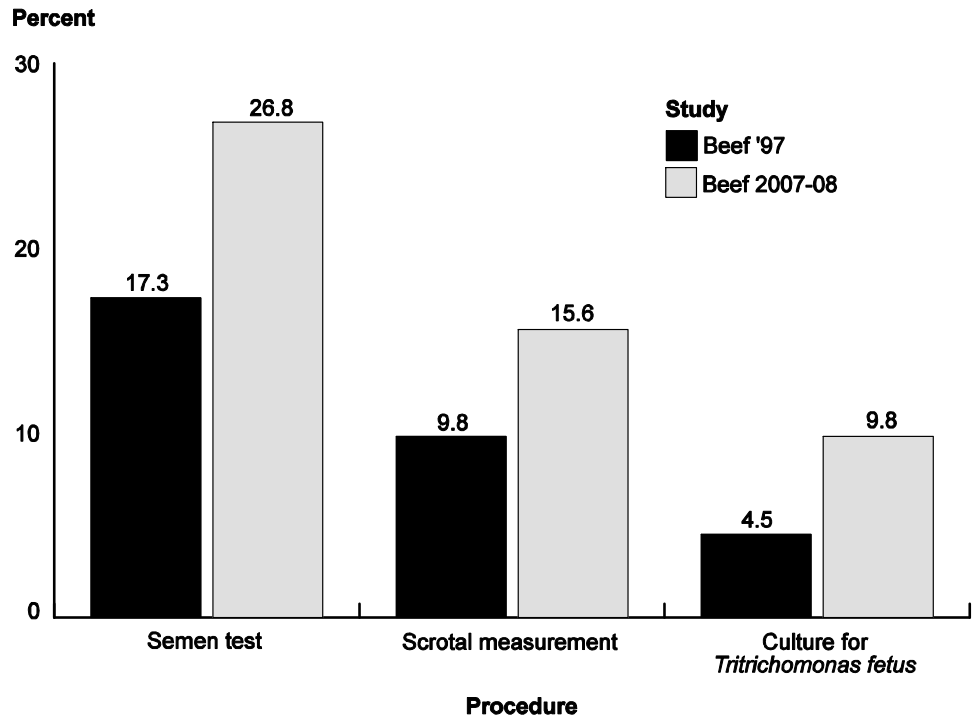
Percent Operations										
1992/93 CHAPA ^{1,2}										
	Part III		Part IV		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
Procedure	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	During previous 12 months		During previous 6 months		During the last breeding season					
Semen test	18.3	(2.7)	19.6	(2.9)	17.0	(1.4)	17.3	(1.1)	26.8	(1.2)
Scrotal measurement	10.8	(1.9)	12.0	(2.4)	8.9	(1.0)	9.8	(0.8)	15.6	(0.9)
Culture for <i>Tritrichomonas fetus</i>	2.0	(1.1)	3.0	(1.3)	4.4	(0.8)	4.5	(0.6)	9.8	(0.8)

¹Cow/calf Health and Productivity Audit. Parts III and IV refer to specific CHAPA reports.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

Percentage of Operations that Performed the Following Reproductive Examination Procedures on Bulls in Preparation for the Last Breeding Season*

*Excluding purchased, leased, and borrowed bulls.

The percentage of bulls residing on operations that performed a semen test or *Tritrichomonas* culture was similar in 1992 and 1997. The percentage of bulls residing on operations that performed a scrotal measurement decreased from 1992 to 1997. The percentage of bulls on operations that performed a semen test, scrotal measurement, or *Tritrichomonas* culture increased from 1997 to 2007.

c. Percentage of bulls residing on operations that performed the following reproductive examination procedures in preparation for the last breeding season:

Percent Bulls ¹										
1992/93 CHAPA ^{2,3}										
Part III			Part IV		Beef '97 Comparable ³		Beef '97 ⁴		Beef 2007-08 ⁵	
Procedure	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	During previous 12 months		During previous 6 months		During the last breeding season					
Semen test	37.3	(4.4)	38.4	(4.4)	30.1	(2.3)	29.6	(1.8)	44.1	(1.3)
Scrotal measurement	28.1	(4.2)	29.6	(4.4)	17.7	(1.9)	18.7	(1.4)	28.6	(1.2)
Culture for <i>Tritrichomonas fetus</i>	7.9	(3.0)	6.7	(2.8)	7.8	(1.0)	8.5	(0.9)	18.5	(1.1)

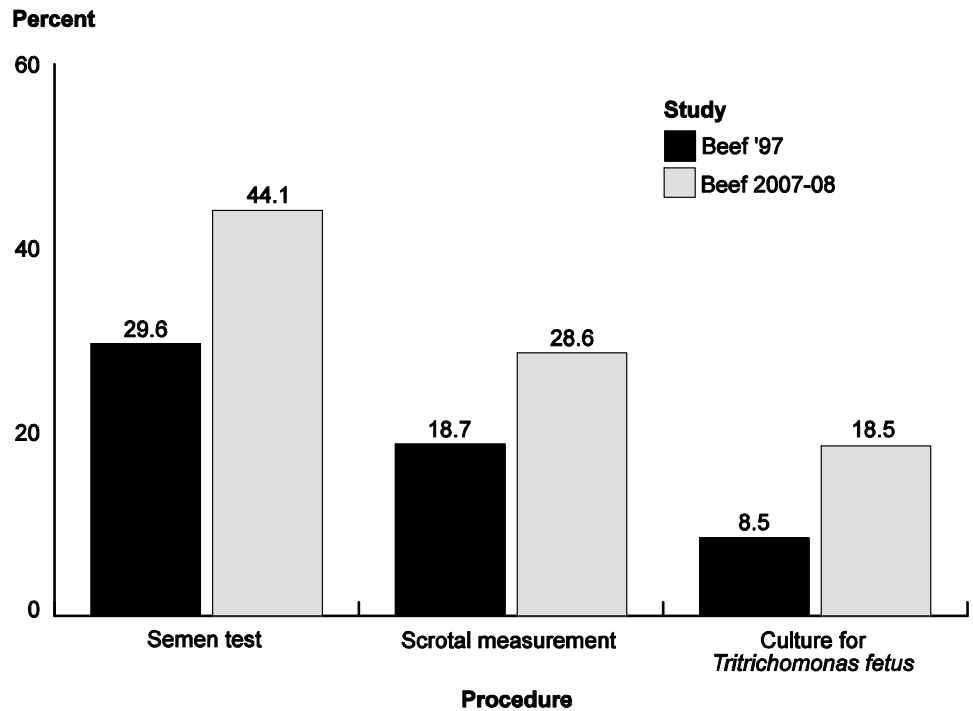
¹Bulls that had been on operation for at least the last two breeding seasons and excluding bulls purchased, leased, or borrowed.

²Cow/calf Health and Productivity Audit. Parts III and IV refer to specific CHAPA reports.

³Population: spring calving operations with 5 or more cows in 18 States.

⁴Population: all cow-calf operations in 23 States.

⁵Population: all cow-calf operations in 24 States.

Percentage of Bulls* Residing on Operations that Performed the Following Reproductive Examination Procedures in Preparation for the Last Breeding Season

*Bulls that had been on the operation for at least the last two breeding seasons, and excluding purchased, leased, and borrowed bulls.



Photo by Anson Eaglin

The percentage of operations that purchased, leased, or borrowed a bull for the last breeding season was similar across all study years.

d. Percentage of operations that purchased, leased, or borrowed bulls for the last breeding season:

Percent Operations							
1992/93 CHAPA ^{1,2}							
Part III ³		Part IV ⁴		Beef '97 ^{5,7}		Beef 2007-08 ^{6,7}	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
48.5	(3.6)	27.0	(3.3)	26.8	(1.6)	30.7	(1.3)

¹Cow/calf Health and Productivity Audit. Parts III and IV refer to specific CHAPA reports.

²Population: spring calving operations with 5 or more cows in 18 States.

³During the previous 12 months.

⁴During the previous 6 months.

⁵Population: all cow-calf operations in 23 States.

⁶Population: all cow-calf operations in 24 States.

⁷For the last breeding season.

The percentage of operations that semen-tested purchased, leased, or borrowed bulls increased from 1997 to 2007.

e. For operations that purchased, leased, or borrowed bulls for the last breeding season, percentage of operations that semen-tested or measured the scrotum of any purchased, leased, or borrowed bulls:

Percent Operations										
1992/93 CHAPA ^{1,2}										
Part III			Part IV		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
Procedure	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	For the previous 12 months		For the previous 6 months		For the last breeding season					
Semen test	47.0	(5.0)	60.1	(7.1)	54.7	(4.4)	57.3	(3.3)	71.3	(2.4)
Scrotal measurement	31.3	(4.6)	46.9	(7.0)	43.5	(4.4)	45.9	(3.2)	51.1	(2.4)

¹Cow/calf Health and Productivity Audit. Parts III and IV refer to specific CHAPA reports.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

Of operations that purchased, leased, or borrowed bulls for the last breeding season, the percentage that added bulls older than 18 months or no longer considered virgin was similar in 1997 and 2007.

f. For operations that purchased, leased, or borrowed bulls for the last breeding season, percentage of operations that added bulls older than 18 months or no longer considered virgin:

Percent Operations									
1992/93 CHAPA ^{1,2}				Beef '97 Comparable ^{2,7}		Beef '97 ^{5,7}		Beef 2007-08 ^{6,7}	
Part III ³		Part IV ⁴							
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
60.6	(5.0)	44.8	(7.0)	66.3	(3.4)	61.3	(2.8)	53.3	(2.4)

¹Cow/calf Health and Productivity Audit. Parts III and IV refer to specific CHAPA reports.

²Population: spring calving operations with 5 or more cows in 18 States.

³During the previous 12 months.

⁴During the previous 6 months.

⁵Population: all cow-calf operations in 23 States.

⁶Population: all cow-calf operations in 24 States.

⁷For the last breeding season.

Of operations that added bulls over 18 months of age or no longer considered virgin during the last breeding season, the percentage that cultured all these bulls for *Tritrichomonas fetus* increased from 1997 to 2007.

g. For operations that introduced bulls older than 18 months or no longer considered virgin during the last breeding season, percentage of operations that cultured all these bulls for *Tritrichomonas fetus*:

Percent Operations									
1992/93 CHAPA ^{1,2}				Beef '97 Comparable ^{2,7}		Beef '97 ^{5,7}		Beef 2007-08 ^{6,7}	
Part III ³		Part IV ⁴							
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
4.4	(2.3)	13.4	(6.7)	27.1	(6.1)	24.5	(4.5)	34.4	(3.2)

¹Cow/calf Health and Productivity Audit. Parts III and IV refer to specific CHAPA reports.

²Population: spring calving operations with 5 or more cows in 18 States.

³During the previous 12 months.

⁴During the previous 6 months.

⁵Population: all cow-calf operations in 23 States.

⁶Population: all cow-calf operations in 24 States.

⁷During the last breeding season.

4. Calving observation

The percentage of operations that observed heifers and cows on a regular basis during calving was similar across all study years.

a. Percentage of operations that observed replacement heifers and cows on a regular basis during calving:

Animal Type	Percent Operations							
	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Observed one or more times per 24-hr period		Observed on a regular basis					
Replacement heifers	95.3	(1.7)	91.9	(2.8)	93.3	(2.0)	92.7	(1.2)
Cows	92.2	(1.5)	91.4	(1.4)	91.6	(1.2)	89.0	(1.0)

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

The number of times replacement heifers were observed in a 24-hour period was similar in each study year. The majority of operations observed heifers two or fewer times in 24 hours. The general veterinary recommendations for observing heifers during calving is every 2 to 4 hours.

b. For operations in which at least one **replacement heifer** calved, percentage of operations by number of times replacement heifers were observed during an average 24-hour period when calving:

Number Times	Percent Operations							
	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Less than once per day ⁵	4.7	(1.7)	8.4	(2.8)	7.0	(2.0)	7.4	(1.2)
1	26.5	(3.3)	22.7	(3.6)	20.1	(2.7)	17.8	(1.8)
2	30.8	(3.8)	31.8	(3.7)	28.6	(2.9)	32.1	(2.1)
3 to 4	21.6	(2.8)	19.5	(2.7)	21.6	(2.3)	24.1	(1.9)
5 or more	16.4	(2.3)	17.6	(2.1)	22.7	(1.8)	18.6	(1.4)
Total	100.0		100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵For CHAPA this was recorded as zero. Beef '97 and Beef 2007-08 "not observed on a regular basis."

The percentage of operations that observed cows only once per day decreased from 1992 to 1997.

c. For operations in which at least one **cow** calved, percentage of operations by number of times cows were observed during an average 24-hour period when calving:

Number Times	Percent Operations							
	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Less than once per day ⁵	6.0	(1.3)	9.1	(1.4)	9.0	(1.2)	11.0	(1.0)
1	49.0	(3.1)	35.6	(2.4)	31.8	(1.9)	34.7	(1.4)
2	24.6	(2.7)	33.5	(2.4)	32.1	(1.9)	29.1	(1.3)
3 to 4	14.2	(1.9)	15.7	(1.5)	19.1	(1.3)	17.3	(1.0)
5 or more	6.2	(1.1)	6.1	(0.7)	8.0	(0.6)	7.9	(0.6)
Total	100.0		100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵For CHAPA this was recorded as zero. Beef '97 and Beef 2007-08 not observed on a regular basis.

5. Calving assistance

The percentage of replacement heifers requiring no assistance increased slightly from 1997 to 2007. Conversely, the percentage of cows requiring no assistance decreased slightly from 1997 to 2007. The percentages of heifers and cows requiring no assistance were similar in 1992 and 1997.

a. Percentage of females requiring various levels of assistance during calving:

Assistance Level	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ^{4,5}	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Percent Replacement Heifers⁶								
Easy pull	9.4	(1.4)	10.6	(1.1)	11.2	(0.8)	7.7	(0.7)
Hard pull	7.4	(0.8)	4.7	(0.4)	5.1	(0.4)	3.4	(0.3)
Cesarean section	0.4	(0.1)	0.3	(0.1)	0.4	(0.1)	0.5	(0.2)
No assistance	82.8	(1.6)	84.4	(1.2)	83.3	(0.9)	88.4	(0.8)
Total`	100.0		100.0		100.0		100.0	
Percent Cows⁶								
Easy pull	1.4	(0.2)	1.7	(0.2)	1.8	(0.1)	3.2	(0.5)
Hard pull	0.8	(0.1)	0.8	(0.1)	0.9	(0.1)	1.0	(0.3)
Cesarean section	0.0	(0.0)	0.1	(0.0)	0.0	(0.0)	0.1	(0.1)
No assistance	97.8	(0.2)	97.4	(0.2)	97.3	(0.2)	95.7	(0.1)
Total`	100.0		100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit.

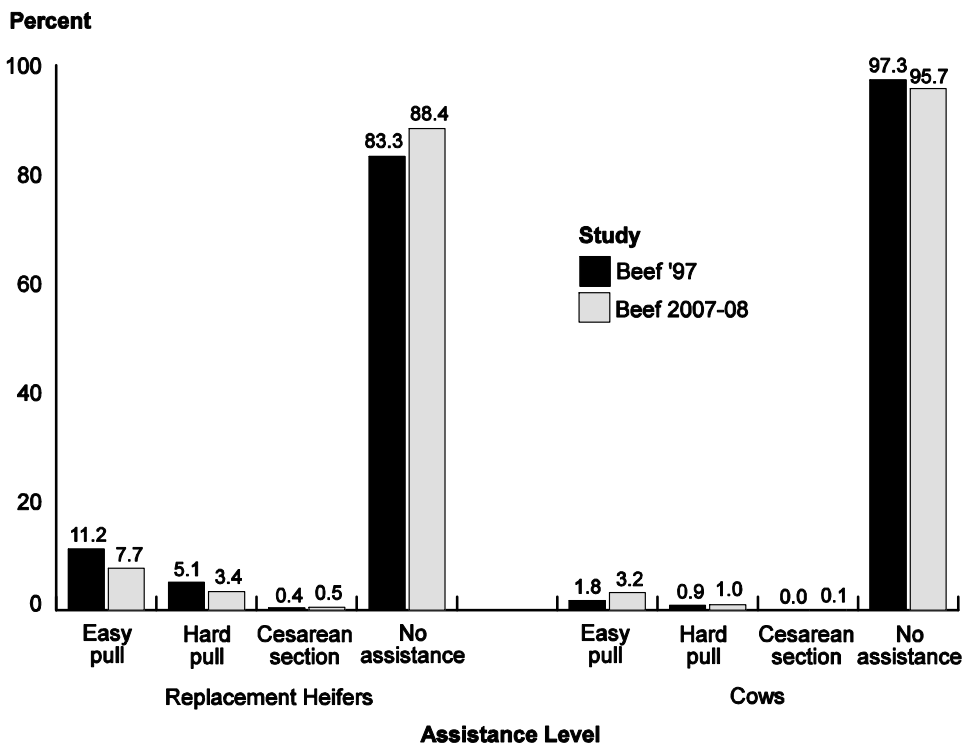
²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵Population: operations providing assistance to calves born alive or dead January to September 2007.

⁶Beef 2007-08 percentage of calves born (alive or dead).

Percentage of Females* Requiring Various Levels of Assistance During Calving

*Beef 2007-08 percentage of calves born (alive or dead).

The average number of hours replacement heifers were allowed to labor before receiving assistance was similar in all study years. The average number of hours cows were allowed to labor before receiving assistance increased in 1997 compared with 1992 but was similar in 1997 and 2007.

b. Operation average number of hours females were normally allowed to labor before receiving assistance:

Animal Type	Operation Average (Hours)							
	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error	Avg.	Std. Error
Replacement heifers	2.9	(0.1)	2.9	(0.2)	2.8	(0.1)	3.1	(0.1)
Cows	2.6	(0.1)	3.4	(0.1)	3.5	(0.1)	3.4	(0.1)

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

The number of hours replacement heifers were allowed to labor before receiving assistance was similar in each study year.

c. Percentage of operations by average number of hours **replacement heifers** were normally allowed to labor before receiving assistance:

Percent Operations								
Number Hours	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
1	25.8	(3.3)	26.6	(3.3)	27.9	(2.5)	27.0	(1.6)
2	30.2	(3.4)	30.8	(3.1)	32.8	(2.5)	34.3	(1.8)
3	19.2	(3.1)	14.4	(2.6)	14.7	(2.1)	13.1	(1.3)
4	11.4	(3.0)	14.7	(3.5)	12.4	(2.5)	11.6	(1.2)
5 to 6	8.4	(2.3)	8.0	(1.5)	7.3	(1.2)	7.8	(1.1)
7 or more	5.0	(1.6)	5.5	(1.7)	4.9	(1.3)	6.2	(0.9)
Total	100.0		100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

The number of hours cows were allowed to labor before receiving assistance was similar in each study year.

d. Percent of operations by average number of hours **cows** were normally allowed to labor before receiving assistance:

Percent Operations								
Number Hours	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
1	16.3	(2.3)	18.4	(1.7)	18.2	(1.3)	21.2	(1.2)
2	29.6	(2.8)	27.4	(2.0)	27.3	(1.6)	32.0	(1.4)
3	24.9	(2.9)	18.2	(1.9)	16.9	(1.4)	15.9	(1.1)
4	16.6	(2.5)	15.7	(2.0)	16.0	(1.6)	13.1	(1.1)
5 to 6	8.4	(1.8)	11.6	(2.0)	12.8	(1.7)	9.3	(0.9)
7 or more	4.2	(1.3)	8.7	(1.7)	8.8	(1.3)	8.5	(0.9)
Total	100.0		100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

C. Health and Health Management

1. Injections given by operator or workers

The percentage of operations in which the operator or any unpaid or hired worker gave injections, and the percentage of cows on these operations, were similar in 1992 and 1997 but increased from 1997 to 2007.

a. Percentage of operations in which the operator or any unpaid or hired worker gave injections to any beef cattle during the previous 12 months, and percentage of cows on these operations:

	1992/93 CHAPA Part V ^{1,2}		Beef '97 Comparable ^{2,5}		Beef '97 ^{3,5}		Beef 2007-08 ⁴	
Percent	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Injections to any beef cattle						Injections to any beef cows or unweaned calves	
Operations	72.9	(3.3)	67.4	(2.4)	66.9	(2.0)	81.5	(1.3)
Cows	88.5	(1.8)	83.0	(1.2)	84.3	(1.0)	89.3	(0.8)

¹Cow/calf Health and Productivity Audit. Part V refers to a specific CHAPA report.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵Data collected in Beef '97 were for injections given in 1996.

The percentages of operations in which the operator or any unpaid or hired worker gave injections by intramuscular or subcutaneous routes were similar in 1992 and 1997. From 1997 to 2007, the percentage of operations in which the operator or any unpaid or hired worker gave injections by the intramuscular route decreased and the percentage that gave injections by the subcutaneous route increased. These changes may be due to BQA educational efforts and/or the increased availability of products for subcutaneous use.

b. For operations in which the operator or any unpaid or hired worker gave injections to any beef cattle during the previous 12 months, percentage of operations that gave one or more injections, by route of injection:

Percent Operations								
	1992/93 CHAPA Part V ^{1,2}		Beef '97 Comparable ^{2,5}		Beef '97 ^{3,5}		Beef 2007-08 ⁴	
Route	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Injections to any beef cattle						Injections to any beef cows or unweaned calves	
Intramuscular	78.7	(3.3)	70.3	(2.8)	71.3	(2.3)	50.9	(1.8)
Subcutaneous	67.6	(4.5)	68.6	(2.5)	67.8	(2.0)	76.3	(1.5)
Other	0.9	(0.4)	0.3	(0.1)	0.3	(0.1)	0.4	(0.2)

¹Cow/calf Health and Productivity Audit. Part V refers to a specific CHAPA report.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵Data collected in Beef '97 were for injections given in 1996.

The percentage of operations in which the operator or any unpaid or hired worker gave intramuscular injections in the neck region nearly doubled from 1997 to 2007. In 2007, the percentage of operations that gave intramuscular injections in the upper rear leg was about one-half what it was in 1997. In 2007, the neck was the usual location for intramuscular injections on about two of three operations, while the upper rear leg was the usual location on about one of five operations. These changes suggest that BQA educational efforts have been effective in changing the predominant intramuscular injection site to the less valuable neck region.

c. For operations in which the operator or any unpaid or hired worker gave *intramuscular* injections to any beef cattle during the previous 12 months, percentage of operations by usual location of injections:

Percent Operations								
Location	1992/93 CHAPA Part V ^{1,2}		Beef '97 Comparable ^{2,5}		Beef '97 ^{3,5}		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Injections to any beef cattle						Injections to any beef cows or unweaned calves	
Head	0.5	(0.5)	NA		NA		NA	
Neck	19.8	(3.8)	33.1	(2.6)	35.2	(2.1)	64.7	(2.4)
Shoulder	3.4	(1.1)	19.2	(3.1)	17.1	(2.4)	13.5	(1.8)
Side/rib	0.0	(0.0)	0.3	(0.2)	0.3	(0.1)	0.1	(0.0)
Upper rear leg/hip	52.0	(5.4)	42.8	(3.2)	42.8	(2.5)	19.9	(2.0)
Lower rear leg	9.6	(3.2)	4.6	(1.3)	4.6	(1.0)	1.8	(0.6)
Rump (along tail)	14.7	(3.9)	NA		NA		NA	
Total	100.0		100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit. Part V refers to a specific CHAPA report.

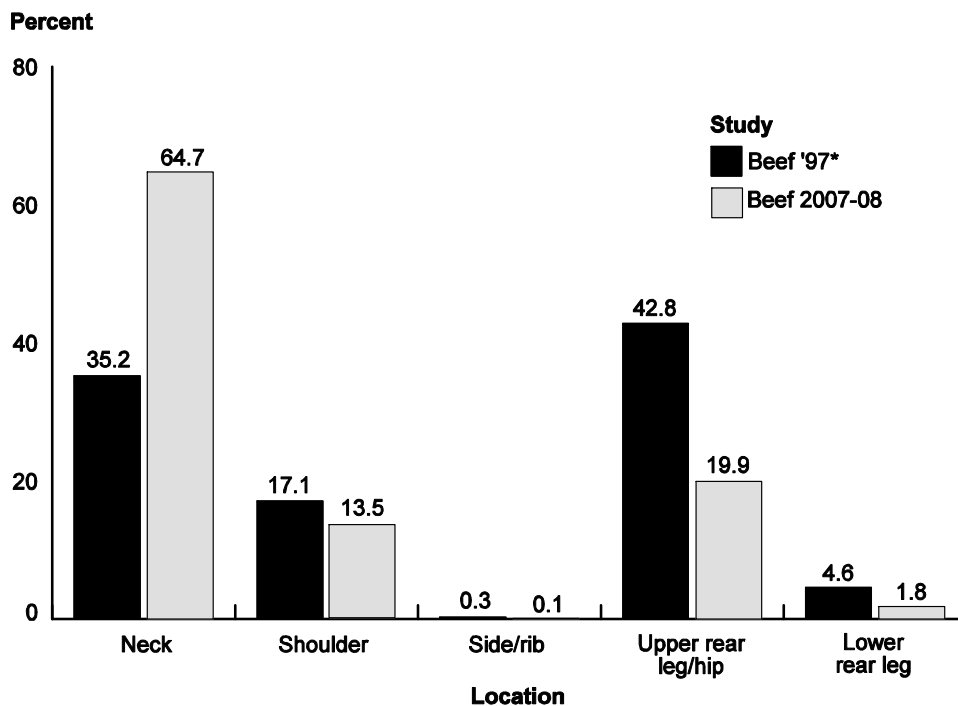
²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵Data collected in Beef '97 were for injections given in 1996.

For Operations in Which the Operator or Any Unpaid or Hired Worker Gave Intramuscular Injections to Any Beef Cattle During the Previous 12 Months, Percentage of Operations by Usual Location of Injections



*Data collected in Beef '97 were for injections given to any beef cows or unweaned calves in 1996.

For each injection location category, the percentages of operations by usual location for subcutaneous injections given by the operator or any unpaid or hired worker were similar in each study year.

d. For operations in which the operator or any unpaid or hired worker gave **subcutaneous** injections to any beef cattle during the previous 12 months, percentage of operations by usual location of injections:

Percent Operations								
Location	1992/93 CHAPA Part V ^{1,2}		Beef '97 Comparable ^{2,5}		Beef '97 ^{3,5}		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Injections to any beef cattle						Injections to any beef cows or unweaned calves	
Head	5.4	(3.3)	NA		NA		NA	
Neck	76.5	(4.9)	78.0	(3.1)	78.1	(2.3)	84.4	(1.6)
Shoulder	13.0	(4.0)	14.9	(2.7)	13.3	(2.1)	11.4	(1.4)
Side/rib	2.6	(1.3)	1.3	(0.4)	2.3	(0.5)	0.9	(0.4)
Upper rear leg/hip	1.8	(0.8)	4.3	(1.3)	4.6	(1.0)	3.1	(0.8)
Lower rear leg	0.5	(0.4)	1.5	(1.0)	1.7	(0.9)	0.2	(0.1)
Rump (along tail)	0.2	(0.1)	NA		NA		NA	
Total	100.0		100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit. Part V refers to a specific CHAPA report.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵Data collected in Beef '97 were for injections given in 1996.

2. Injections given by a veterinarian

The percentage of operations that used a veterinarian to give injections, and the percentage of cows given injections by a veterinarian, decreased from 1992 to 1997. The percentage of cows given injections by a veterinarian decreased from 1997 to 2007.

a. For operations that gave injections, percentage of operations (and percentage of cows on these operations) in which a veterinarian gave injections to any beef cattle during the previous 12 months:

Percent	Percent Operations							
	1992/93 CHAPA Part V ^{1,2}		Beef '97 Comparable ^{2,5}		Beef '97 ^{3,5}		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Injections to any beef cattle						Injections to any beef cows or unweaned calves	
Operations	49.9	(3.7)	37.2	(2.3)	36.2	(1.8)	35.0	(1.5)
Cows	62.9	(3.8)	47.4	(2.0)	48.4	(1.6)	38.5	(1.4)

¹Cow/calf Health and Productivity Audit. Part V refers to a specific CHAPA report.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵Data collected in Beef '97 were for injections given in 1996.

For operations in which a veterinarian gave injections to any beef cattle, the percentage of operations in which a veterinarian gave injections intramuscularly decreased from 1997 to 2007. Conversely, the percentage of operations in which a veterinarian gave injections subcutaneously increased from 1997 to 2007. These changes may be due to BQA educational efforts and/or the increased availability of products (biologics or pharmaceuticals) for subcutaneous use.

b. For operations in which a veterinarian gave injections to any beef cattle during the previous 12 months, percentage of operations by route of injection:

Percent Operations								
Route	1992/93 CHAPA Part V ^{1,2}		Beef '97 Comparable ^{2,5}		Beef '97 ^{3,5}		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Injections to any beef cattle						Injections to any beef cows or unweaned calves	
Intramuscular	63.2	(4.9)	75.5	(2.7)	72.5	(2.6)	53.1	(2.7)
Subcutaneous	76.4	(4.5)	50.7	(3.8)	53.7	(3.1)	66.0	(2.6)
Other	2.2	(1.5)	0.9	(0.6)	1.1	(0.5)	0.3	(0.2)

¹Cow/calf Health and Productivity Audit. Part V refers to a specific CHAPA report.

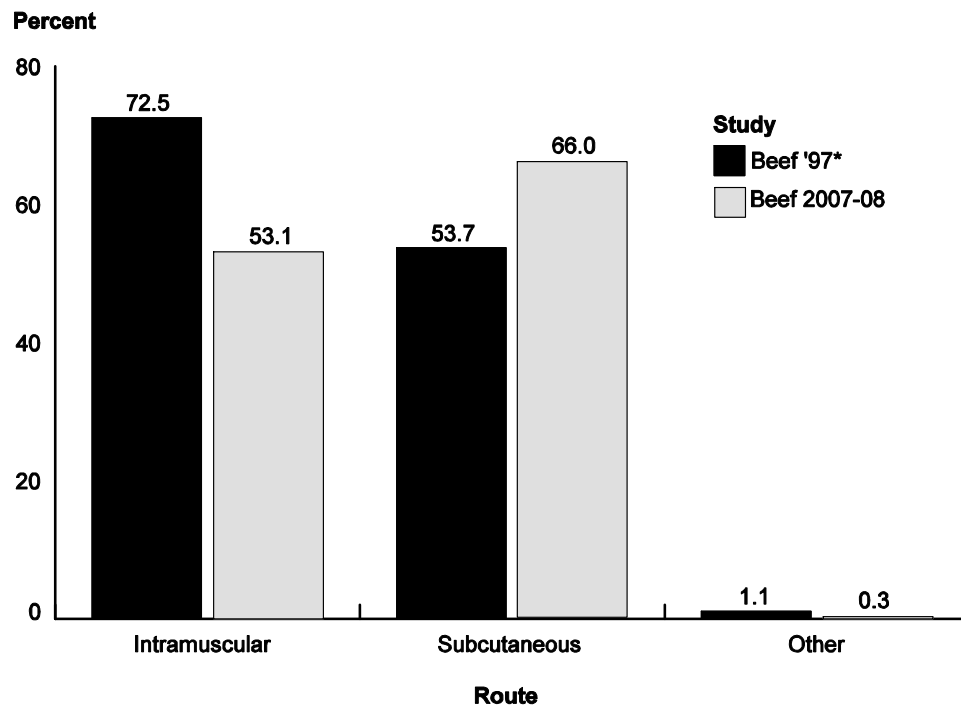
²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵Data collected in Beef '97 were for injections given in 1996.

For Operations in Which a Veterinarian Gave Injections to Any Beef Cattle During the Previous 12 Months, Percentage of Operations by Route of Injection



*Data collected in Beef '97 were for injections given to any beef cows or unweaned calves in 1996.

The percentage of operations in which a veterinarian usually gave intramuscular injections in the neck increased across study years, while the percentage of operations in which intramuscular injections were given in the upper rear leg decreased across study years.

c. For operations in which a veterinarian gave *intramuscular* injections to any beef cattle during the previous 12 months, percentage of operations by usual location of injections given by a veterinarian:

Location	Percent Operations							
	1992/93 CHAPA Part V ^{1,2}		Beef '97 Comparable ^{2,5}		Beef '97 ^{3,5}		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Injections to any beef cattle						Injections to any beef cows or unweaned calves	
Head	0.0	(0.0)	NA		NA		NA	
Neck	27.0	(5.7)	50.4	(4.6)	49.8	(3.7)	76.8	(3.3)
Shoulder	6.5	(1.9)	12.2	(3.4)	12.9	(2.7)	11.2	(2.4)
Side/rib	1.2	(0.8)	0.3	(0.2)	0.4	(0.2)	0.0	(--)
Upper rear leg/hip	47.7	(6.4)	35.0	(4.6)	34.8	(3.6)	10.3	(2.3)
Lower rear leg	8.7	(3.2)	2.1	(0.7)	2.1	(0.6)	1.7	(1.1)
Rump (along tail)	8.9	(4.8)	NA		NA		NA	
Total	100.0		100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit. Part V refers to a specific CHAPA report.

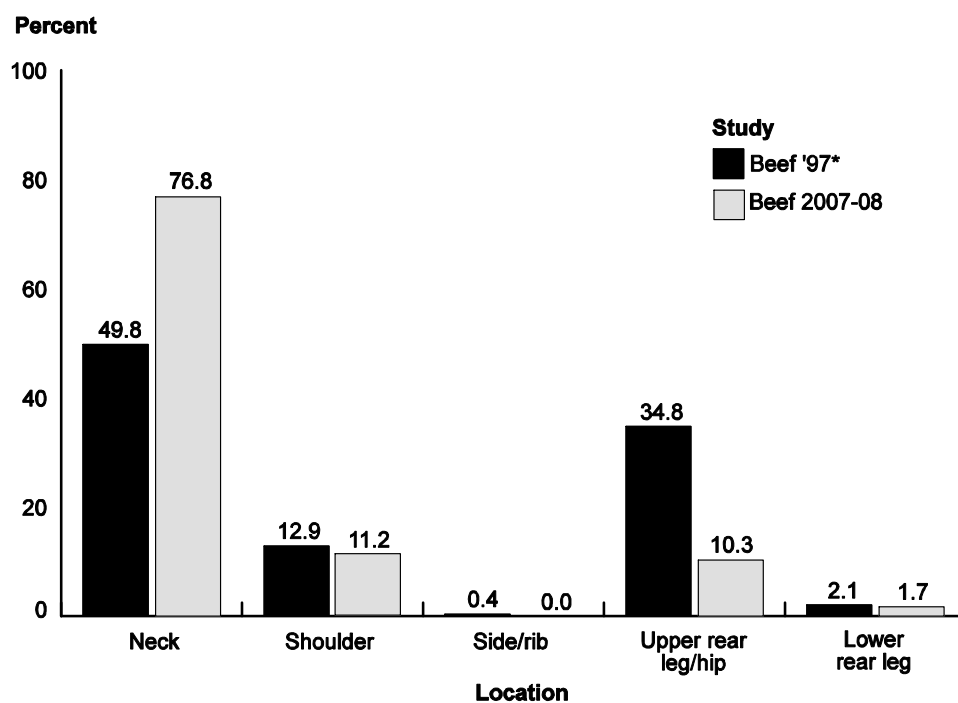
²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵Data collected in Beef '97 were for injections given in 1996.

For Operations in Which a Veterinarian Gave Intramuscular Injections to Any Beef Cattle During the Previous 12 Months, Percentage of Operations by Usual Location of Injections Given by a Veterinarian



*Data collected in Beef '97 were for injections given to any beef cows or unweaned calves in 1996.

For each injection location category, the percentages of operations by usual location for subcutaneous injections given by a veterinarian were similar for all study years. More than 8 of 10 veterinarians gave subcutaneous injections in the neck region in all study years.

d. For operations in which a veterinarian gave **subcutaneous** injections to any beef cattle during the previous 12 months, percentage of operations by usual location of injections:

Percent Operations								
Location	1992/93 CHAPA Part V ^{1,2}		Beef '97 Comparable ^{2,5}		Beef '97 ^{3,5}		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Question variation	Injections to any beef cattle						Injections to any beef cows or unweaned calves	
Head	1.9	(1.1)	NA		NA		NA	
Neck	85.1	(3.4)	81.5	(4.9)	82.2	(3.7)	87.0	(2.4)
Shoulder	6.0	(1.9)	10.8	(4.7)	10.5	(3.4)	10.1	(2.2)
Side/rib	2.6	(1.3)	0.8	(0.4)	0.8	(0.3)	0.9	(0.5)
Upper rear leg/hip	4.0	(2.3)	5.7	(2.3)	5.7	(2.0)	2.1	(1.0)
Lower rear leg	0.3	(0.3)	1.2	(0.6)	0.8	(0.4)	.	
Rump (along tail)	0.1	(0.1)	NA		NA		NA	
Total	100.0		100.0		100.0		100.0	

¹Cow/calf Health and Productivity Audit. Part V refers to a specific CHAPA report.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

⁵Data collected in Beef '97 were for injections given in 1996.

D. Nutrition Management 1. Growth promotant implant practices

In general, the use of growth promotant implants in calves both prior to and at weaning decreased over the study years. More than one of four operations implanted some calves with growth promotant prior to or at weaning in 1992, but fewer than one of eight operations did so in 2007. Implanting calves intended for slaughter is widely considered to be a profitable management practice. The reason for the decreased use of this practice is unclear. The decline could be related to publicity surrounding hormonal implants and/or movement toward marketing cattle in natural or organic programs.

Percentage of operations that implanted any calves with growth promotant prior to or at weaning during the previous 12 months, by calf type:

Calf Type	Percent Operations							
	1992/93 CHAPA ^{1,2}		Beef '97 Comparable ²		Beef '97 ³		Beef 2007-08 ⁴	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
	Prior to Weaning							
Any calves	18.3	(2.1)	13.8	(1.0)	14.3	(0.8)	9.8	(0.7)
Heifers intended for replacement prior to weaning	NA		NA		4.4	(0.4)	3.3	(0.4)
Other calves prior to weaning	NA		NA		14.2	(0.8)	9.4	(0.7)
	At Weaning							
Any calves	17.6	(1.9)	11.0	(1.0)	10.8	(1.0)	6.8	(0.6)
Heifers intended for replacement at weaning	NA		NA		2.2	(0.7)	1.7	(0.3)
Other calves at weaning	NA		NA		9.8	(0.8)	6.3	(0.6)
	Prior to or at Weaning							
Any calves	27.1	(2.4)	18.4	(1.3)	18.8	(1.1)	11.9	(0.8)
Heifers intended for replacement prior to or at weaning	NA		NA		5.8	(0.8)	3.8	(0.4)
Other calves prior to or at weaning	NA		NA		18.0	(1.0)	11.4	(0.8)

¹Cow/calf Health and Productivity Audit.

²Population: spring calving operations with 5 or more cows in 18 States.

³Population: all cow-calf operations in 23 States.

⁴Population: all cow-calf operations in 24 States.

Appendix: Study Objectives and Related Outputs

1. Describe trends in beef cow-calf health and management practices
 - Part I: Reference of Beef Cow-calf Management Practices, October 2008
 - Part II: Reference of Beef Cow-calf Management Practices, February 2009
 - **Part III: Changes in the U.S. Beef Cow-calf Industry, 1993-2008, May 2009**
 - Part V: Reference of Beef Cow-calf Management Practices, expected summer 2009
 - Info sheets, expected summer 2009
2. Evaluate management factors related to beef quality assurance
 - Part I: Reference of Beef Cow-calf Management Practices, October 2008
 - Info sheets, expected summer 2009
3. Describe record-keeping practices on cow-calf operations
 - Part I: Reference of Beef Cow-calf Management Practices, October 2008
 - **Part III: Changes in the U.S. Beef Cow-calf Industry, 1993-2008, May 2009**
4. Determine producer awareness of bovine viral diarrhea (BVD) and management practices used for BVD control
 - Part IV: Reference of Beef Cow-calf Health and Health Management, expected summer 2009
 - BVD Control on U.S. Beef Cow-calf Operations, Interpretive Report, expected summer 2009
 - Info sheets, May 2009
5. Describe current biosecurity practices on cow-calf operations
 - Part IV: Reference of Beef Cow-calf Health and Health Management, expected summer 2009
6. Determine the prevalence and antimicrobial resistance patterns of potential food-safety pathogens
 - Info sheets, May 2009

