



United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

Veterinary
Services

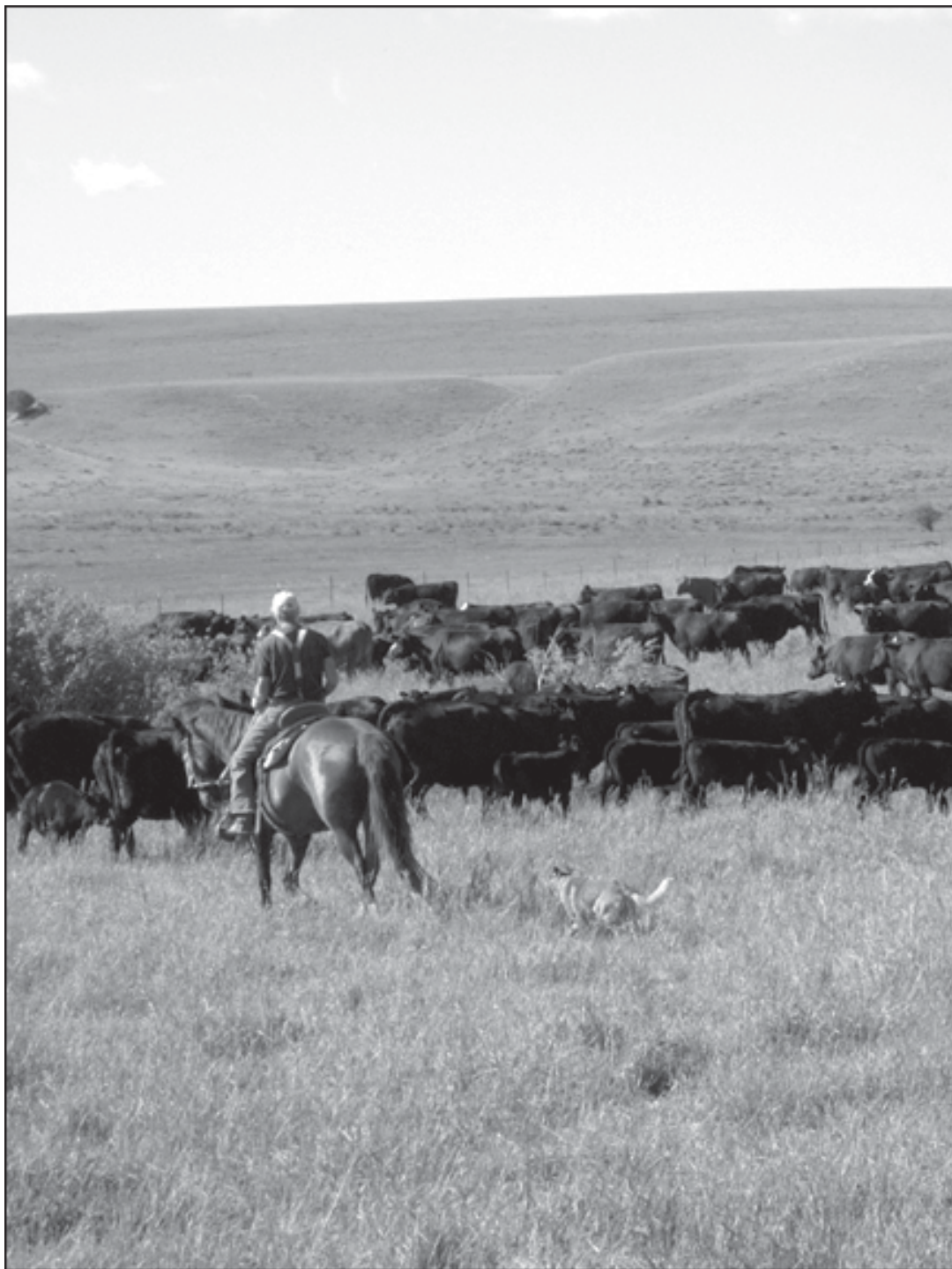
National
Animal Health
Monitoring
System

May 2009



Beef 2007-08

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



The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Mention of companies or commercial products does not imply recommendation or endorsement by the USDA over others not mentioned. USDA neither guarantees nor warrants the standard of any product mentioned. Product names are mentioned solely to report factually on available data and to provide specific information.

USDA:APHIS:VS:CEAH
NRRC Building B, M.S. 2E7
2150 Centre Avenue
Fort Collins, CO 80526-8117
970.494.7000
E-mail: NAHMS@aphis.usda.gov
<http://www.aphis.usda.gov/nahms>

#N518.0509

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.



Larry M. Granger
Director
Centers for Epidemiology and Animal Health

Suggested bibliographic citation for this report:

USDA. 2008. Beef 2007–08, Part III: Changes in the U.S. Beef Cow-Calf Industry, 1993–2008
USDA:APHIS:VS, CEAH. Fort Collins, CO
#518.0509

Contacts for further information:

Questions or comments on data analysis: Dr. David Dargatz (970) 494-7000
Information on reprints or other reports: Ms. Abby Fienhold (970) 494-7000
E-mail: NAHMS@aphis.usda.gov
All NAHMS reports are available online at: <http://www.aphis.usda.gov/nahms>

Feedback

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

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.

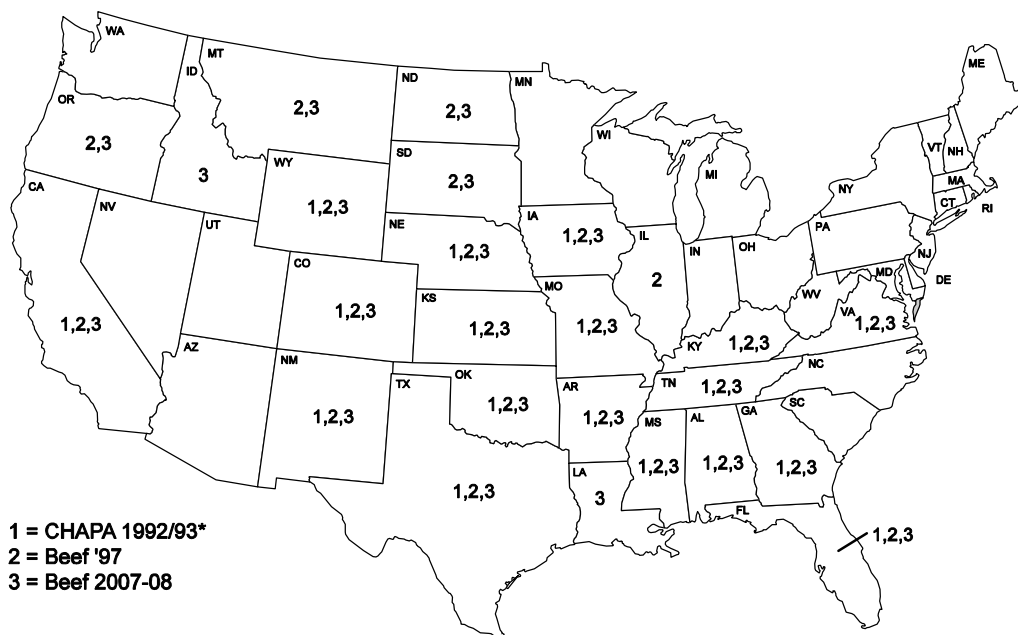
NAHMS' third national beef cow-calf study, Beef 2007–08, focused on beef cow-calf health and management practices in 24 States. These States represented 79.6 percent of U.S. operations with beef cows and 87.8 percent of U.S. beef cows. Any producer with one or more beef cows was eligible to participate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

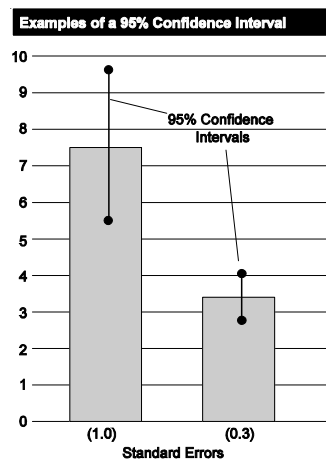
Calf crop percentage: Number of cows and heifers calving divided by number of cows and heifers exposed. The number exposed was adjusted by subtracting the number of cows or heifers exposed or artificially inseminated and that died, were sold, or moved off the operation before calving, and adding the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

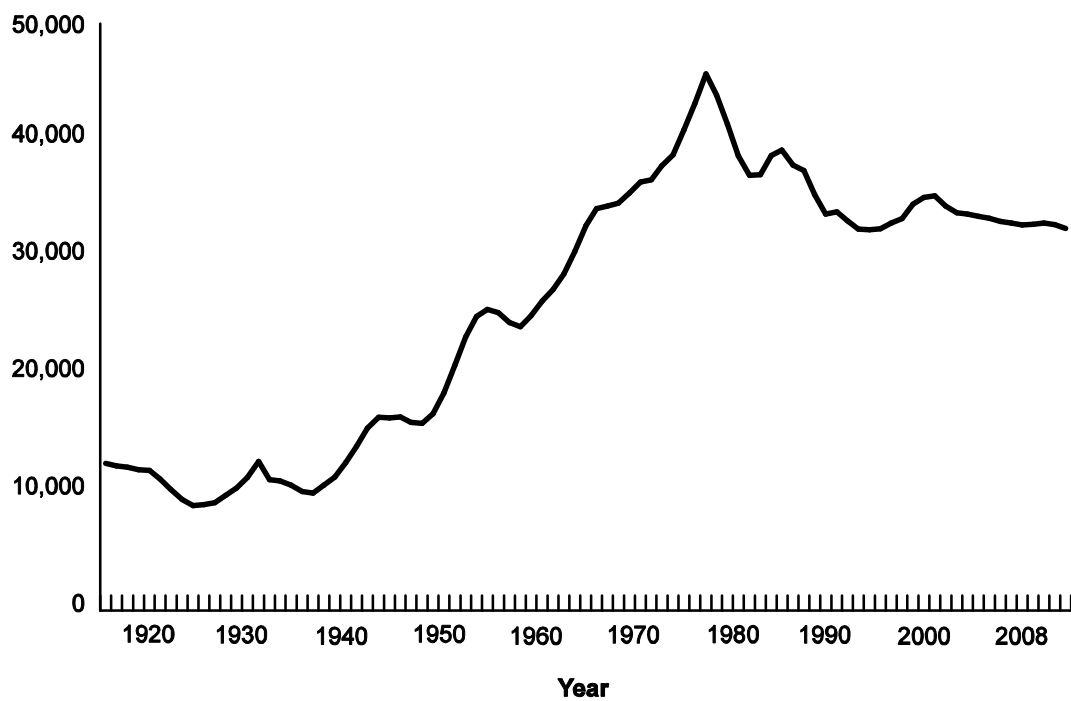
| Year | Beef Cows (1,000 Head) | All Cows* (1,000 Head) | All Cattle and Calves (1,000 Head) | Beef Cows as Percent of All Cows | Beef Cows as Percent of All Cattle and Calves |
|------|---------------------------|---------------------------|--|--|--|
| 1850 | NA | NA | NA | NA | NA |
| 1860 | NA | 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.

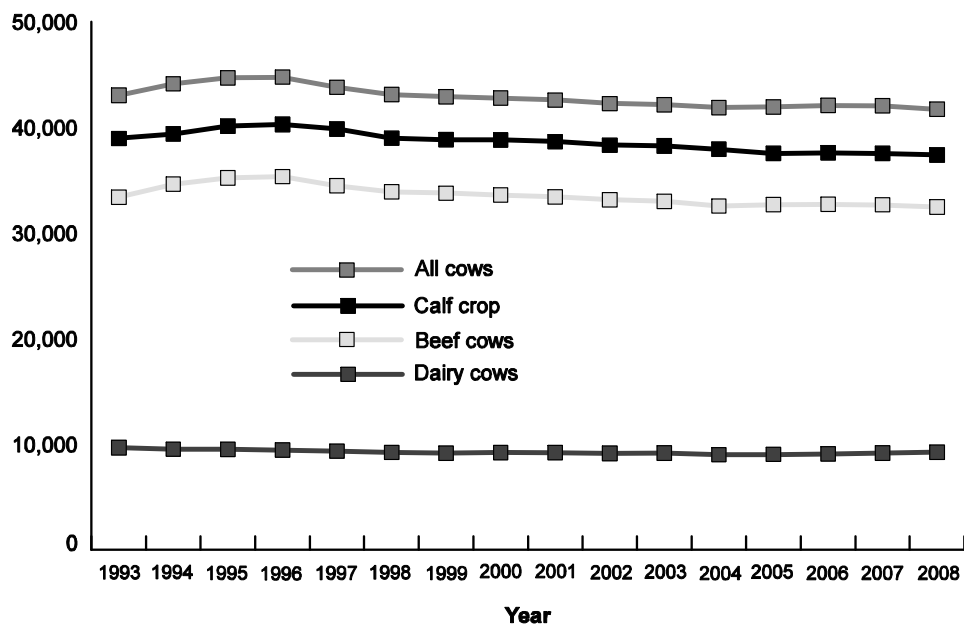
b. Changes in the U.S. beef cow inventory, January 1, 1993–2008:

| 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:

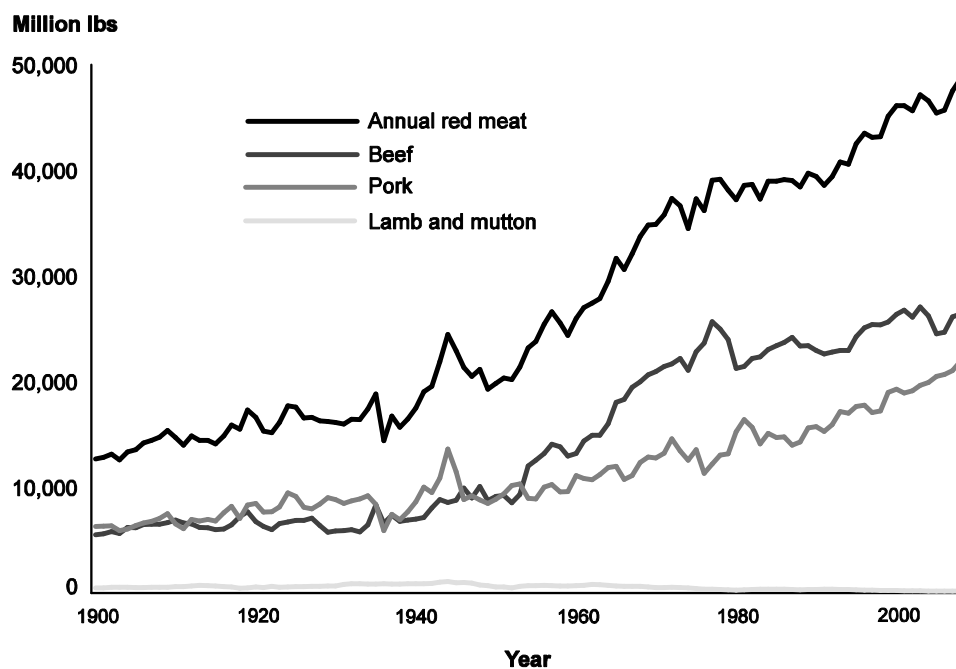
| Beef Cow Slaughter¹ | | | | | |
|---------------------------------------|---|----------------------------------|---|--|--------------------------------------|
| Year | Beef Cows² (1,000 Head) | All Cows (1,000 Head) | Beef Cow Slaughter as Percent of All Cow Slaughter | Percent of January 1 Beef Cow 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.

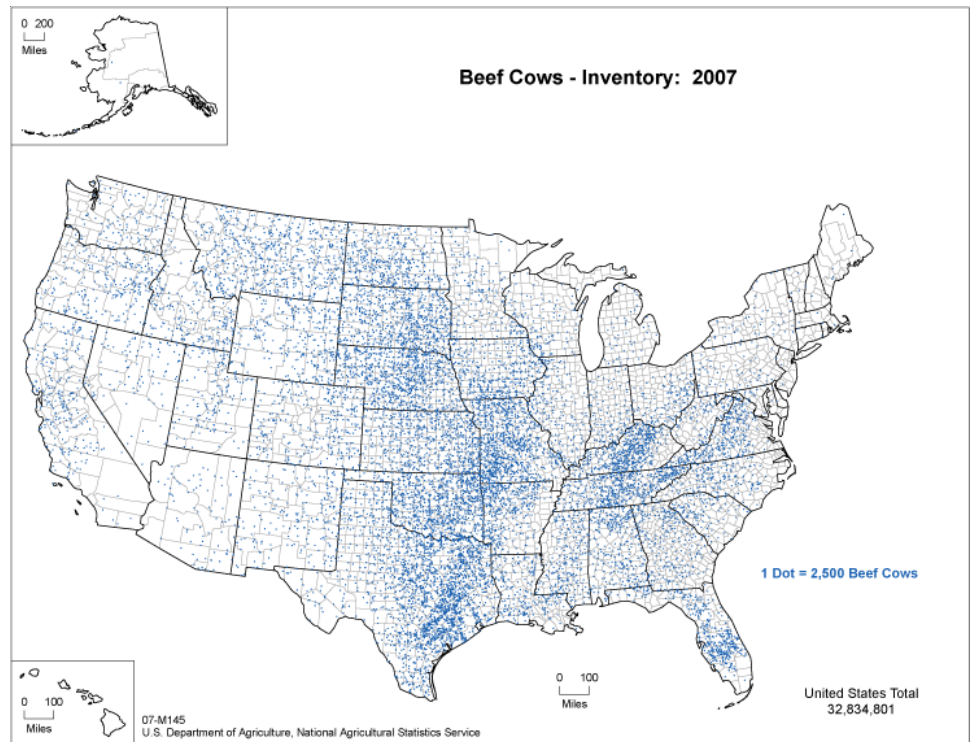
*NAHMS participating State.

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 Size¹ (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: 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.

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) |

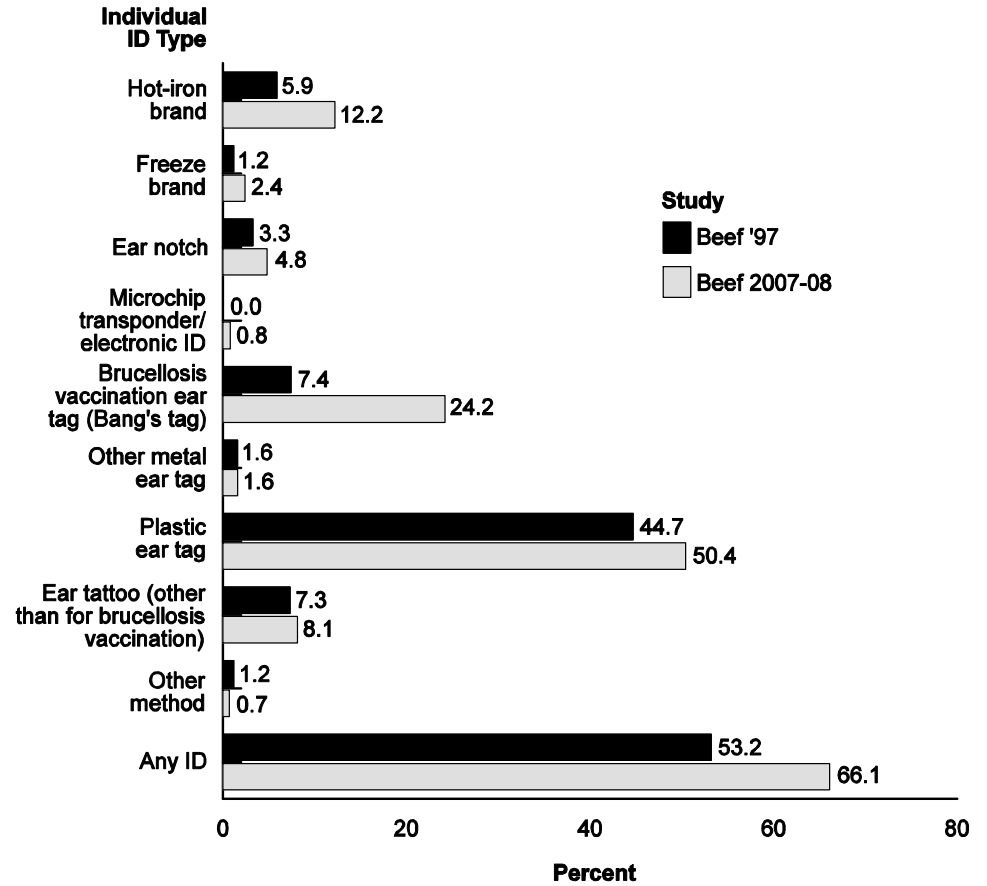
¹Cow/calf Health and Productivity Audit.

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) |

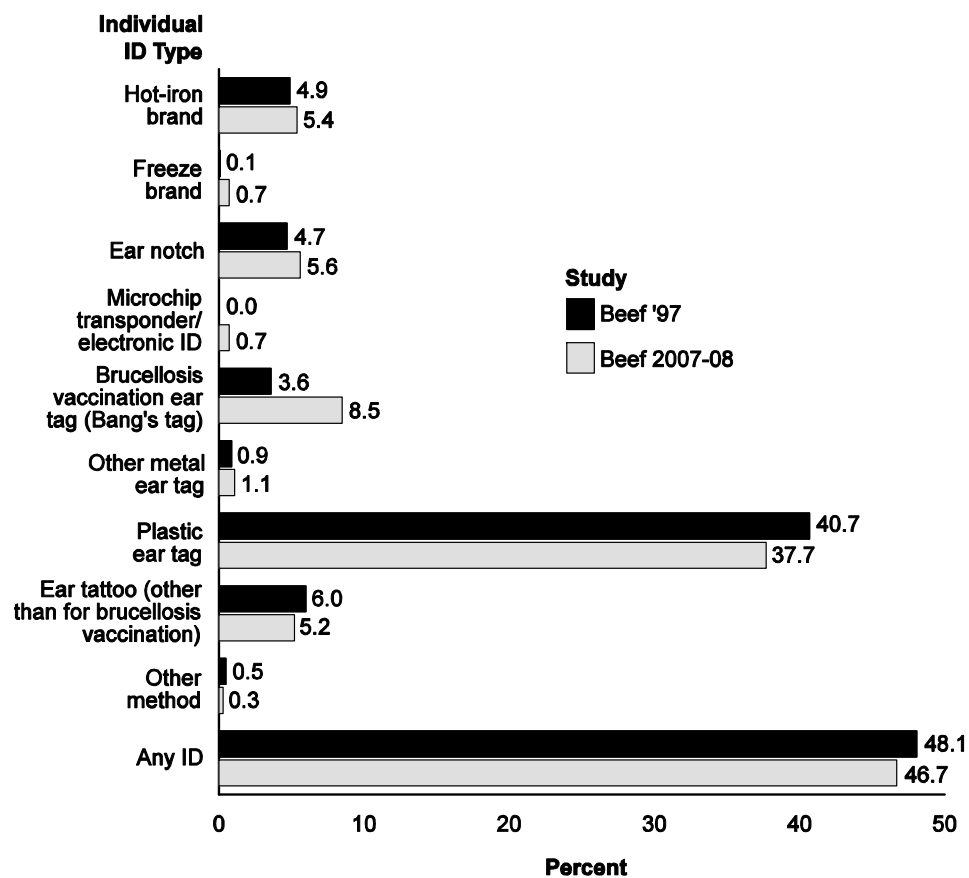
¹Cow/calf Health and Productivity Audit.

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.

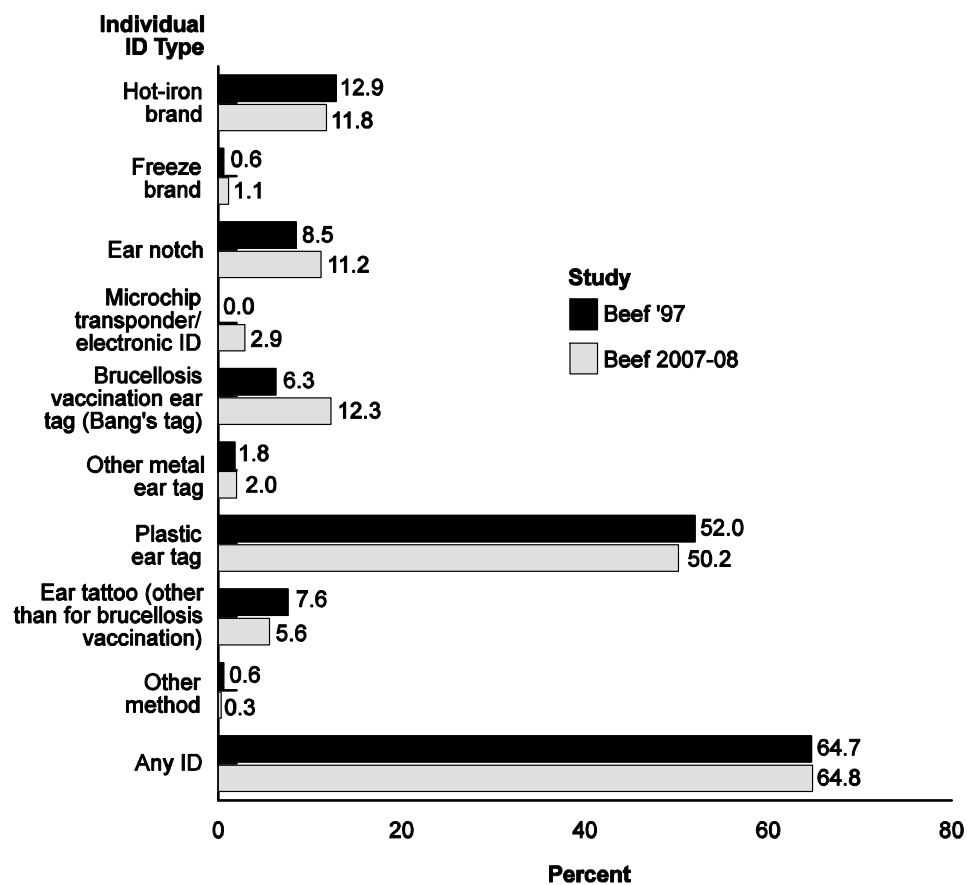
³Population: all cow-calf operations in 23 States.

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) |

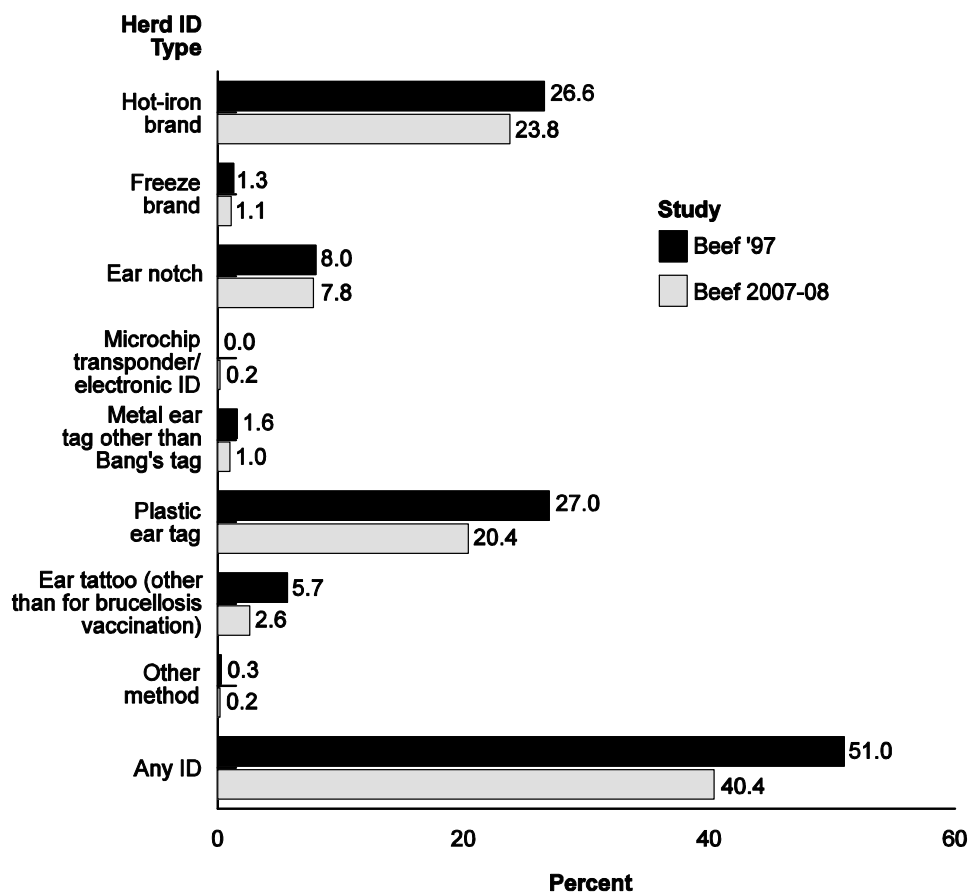
¹Cow/calf Health and Productivity Audit.

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.

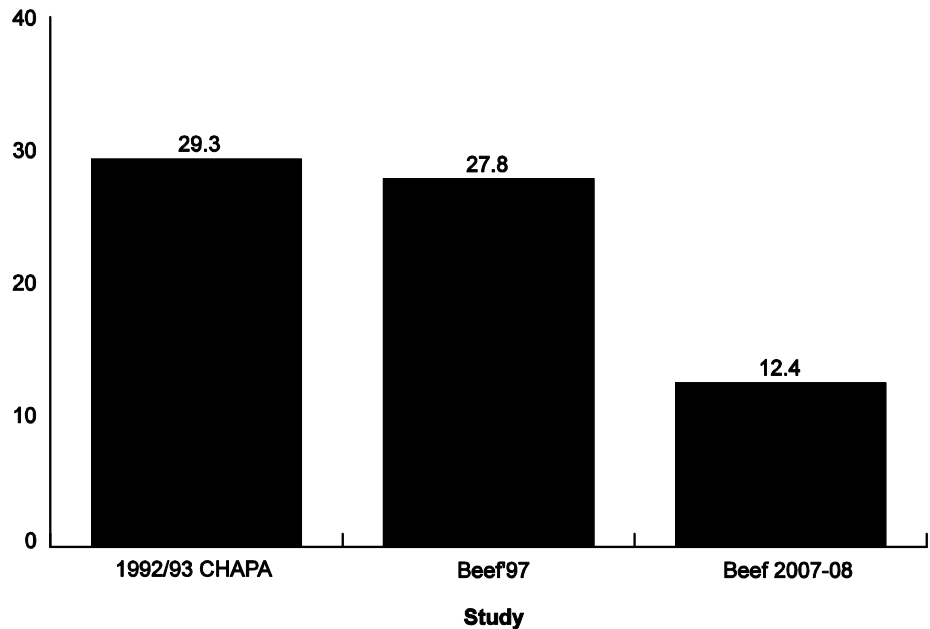
²Population: all cow-calf operations in 48 States.

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:

| Measure | Percent Calves | | | | | |
|---------------------|---------------------------------|------------|-----------------------|------------|---------------------------|------------|
| | 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:

| Proportion Castrated | Percent Operations | | | | | |
|-------------------------|------------------------------|------------|-----------------------|------------|---------------------------|------------|
| | 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.

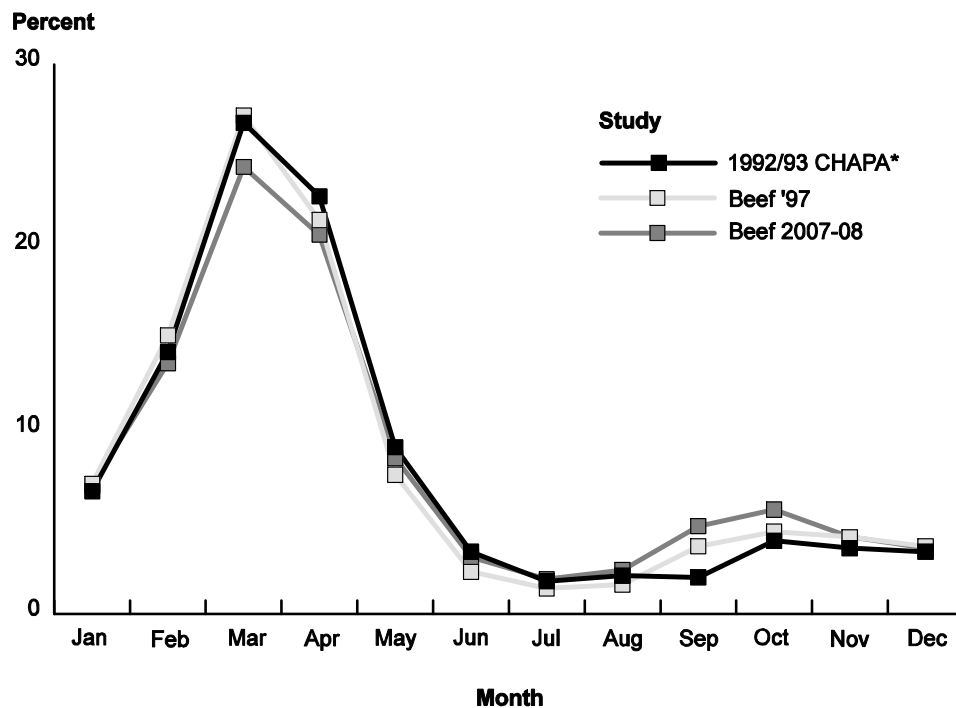
²Population: all cow-calf operations in 48 States.

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.

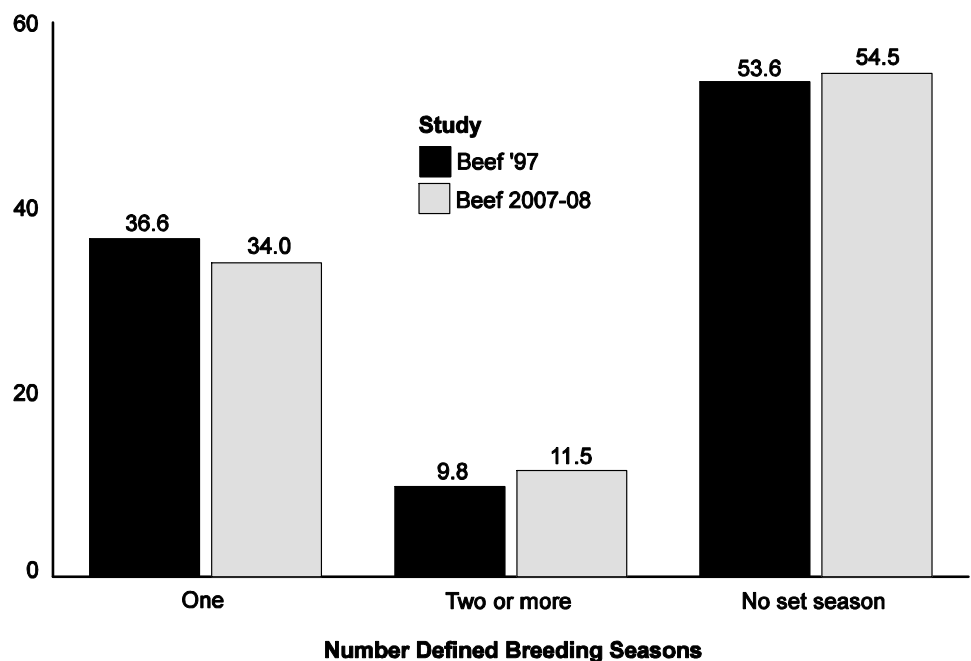
³Population: all cow-calf operations in 23 States. Beef '97 estimates comparable to CHAPA estimates not available.

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):

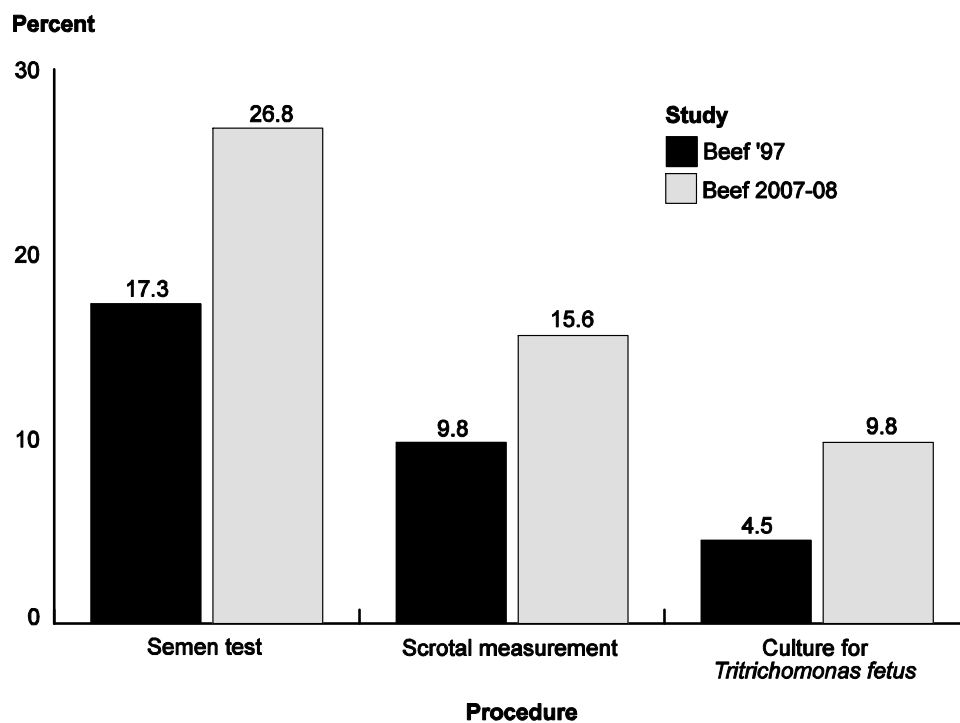
| Percent Operations | | | | | | | | | | |
|---|---------------------------|------------|--------------------------|------------|-------------------------------------|------------|-----------------------|------------|------------------------------|------------|
| 1992/93 CHAPA ^{1,2} | | | | | | | | | | |
| | 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} | | | | Beef '97 Comparable ³ | | Beef '97 ⁴ | | Beef 2007-08 ⁵ | | |
| Part III | | Part IV | | | | | | | | |
| 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) |

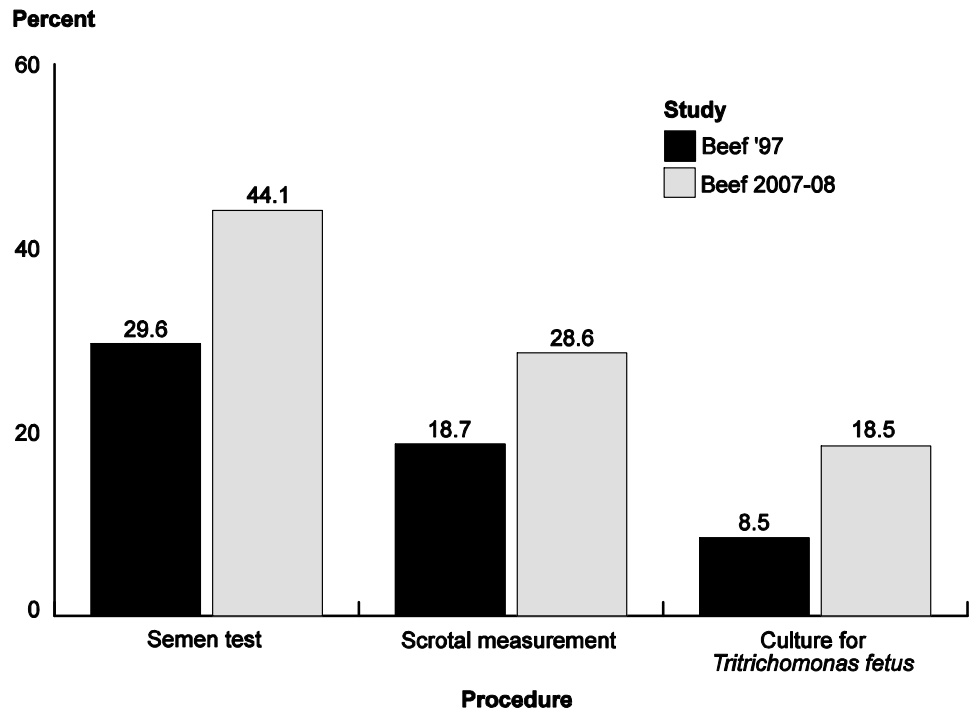
¹Bulls that had been on operation for at least the last two breeding seasons and excluding bulls purchased, leased, or borrowed.

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} | | | | Beef 2007-08 ^{6,7} | | | |
| Part III ³ | | Part IV ⁴ | | Beef '97 ^{5,7} | | | |
| 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} | | | | Beef '97 Comparable ² | | | | | |
| Part III | | Part IV | | Beef '97 ³ | | Beef '97 ³ | | Beef 2007-08 ⁴ | |
| Procedure | Pct. | Std. Error | Pct. | Std. Error | Pct. | Std. Error | Pct. | Std. Error | Pct. |
| 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 |
| Scrotal measurement | 31.3 | (4.6) | 46.9 | (7.0) | 43.5 | (4.4) | 45.9 | (3.2) | 51.1 |

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.

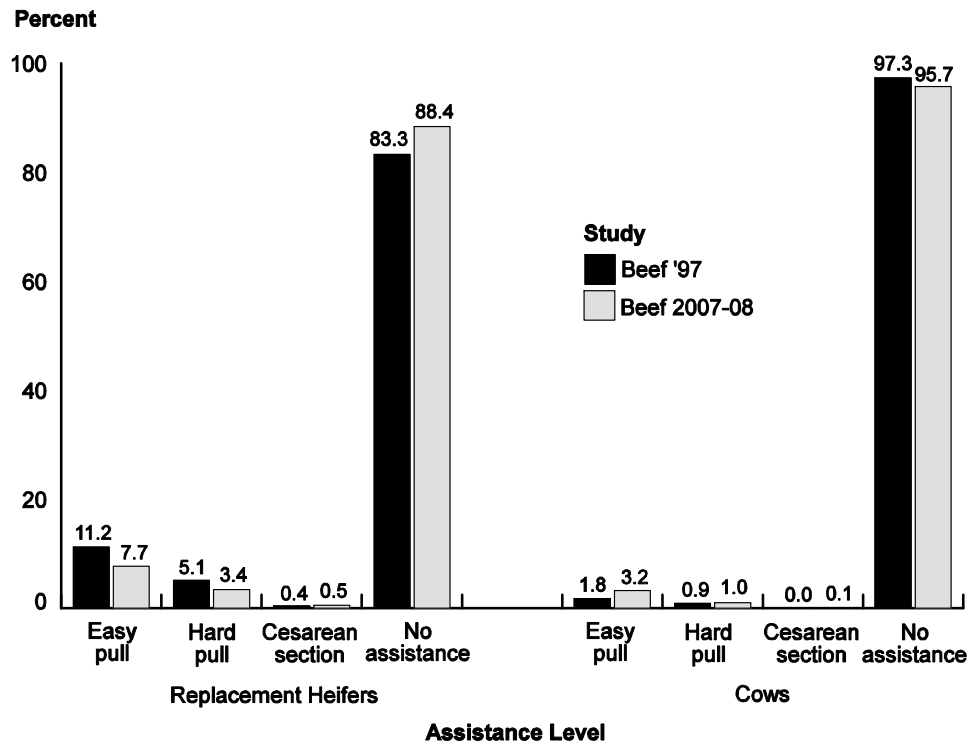
²Population: spring calving operations with 5 or more cows in 18 States.

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.

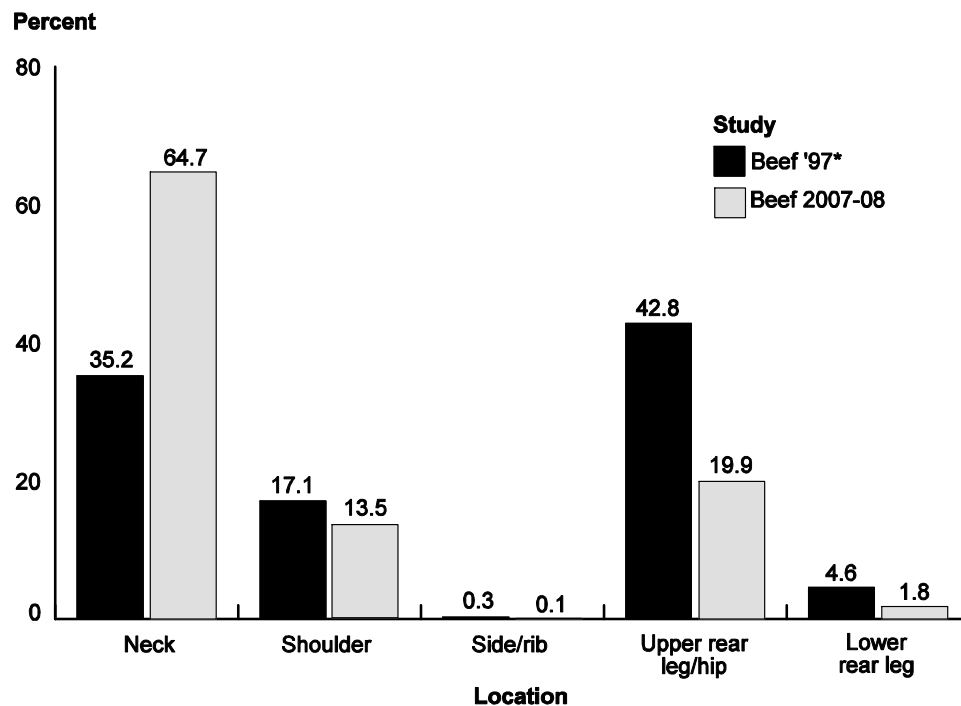
²Population: spring calving operations with 5 or more cows in 18 States.

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 Operations | | | | | | | | |
|-----------------------|---|---------------|---------------------------------------|---------------|-------------------------|---------------|--|---------------|
| Percent | 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.

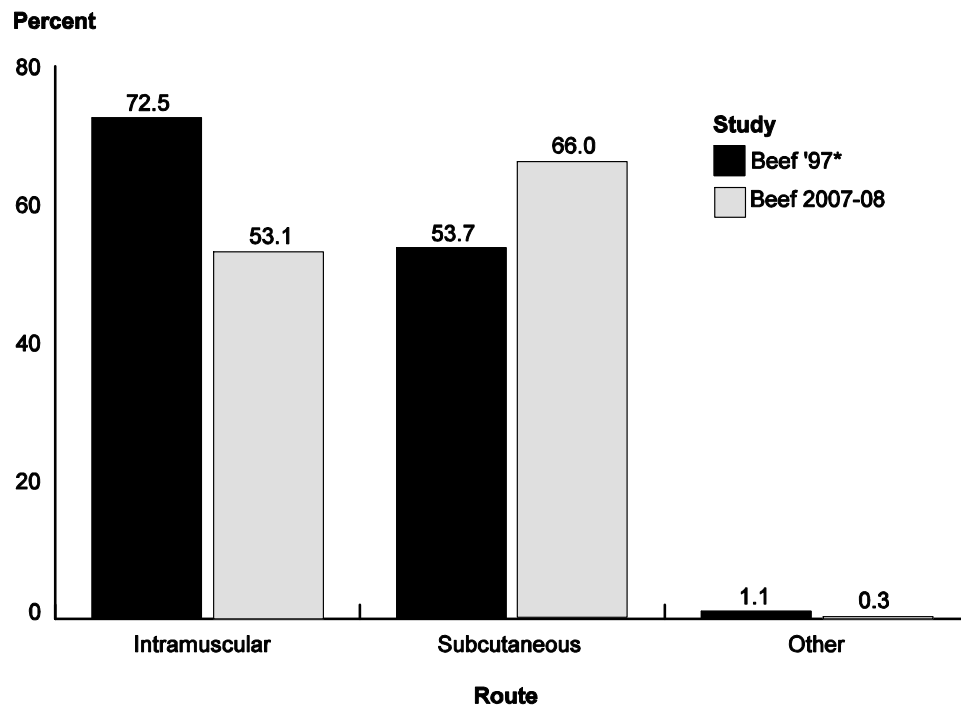
²Population: spring calving operations with 5 or more cows in 18 States.

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:

| Percent Operations | | | | | | | | |
|-----------------------|---|---------------|---------------------------------------|---------------|-------------------------|---------------|--|---------------|
| | 1992/93 CHAPA Part V ^{1,2} | | Beef '97 Comparable ^{2,5} | | Beef '97 ^{3,5} | | Beef 2007-08 ⁴ | |
| Location | 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.

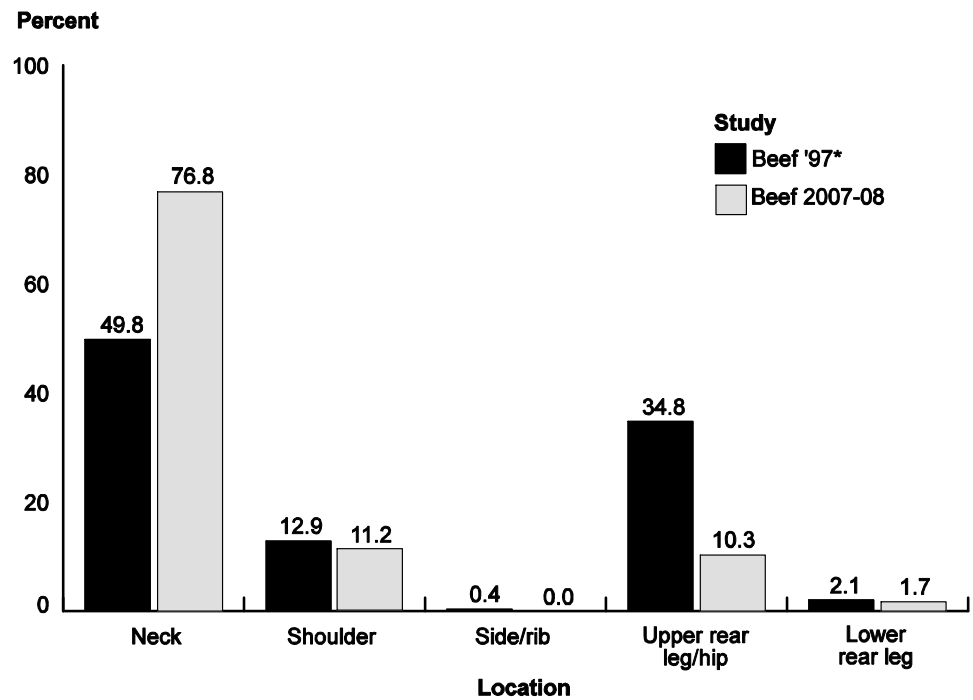
²Population: spring calving operations with 5 or more cows in 18 States.

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

