



United States  
Department  
of Agriculture

Animal and  
Plant  
Health  
Inspection  
Service

**Veterinary  
Services**

# **Part IV: Changes in the U.S. Beef Cow-Calf Industry, 1993 - 1997**

1992/93  
Beef  
**CHAPA**  
Cow/Calf Health & Productivity Audit

**BEEF '97**

NAHMS

# Acknowledgments

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

The 1992-93 Beef Cow/Calf Health and Productivity Audit (CHAPA) and Beef '97 Study were cooperative efforts between State and Federal agricultural statisticians, animal health officials, university researchers, and extension personnel. We want to thank the National Agricultural Statistics Service (NASS) enumerators and State and Federal Veterinary Medical Officers (VMO's) and Animal Health Technician's (AHT's) who visited the operations and collected the data for their hard work and dedication to the National Animal Health Monitoring System (NAHMS).

The roles of the producer, Area Veterinarian in Charge (AVIC), NAHMS Coordinator, VMO, AHT, and NASS enumerator were critical in providing quality data for this report. Thanks also to the staff at the Centers for Epidemiology and Animal Health (CEAH) for their efforts in generating timely reports from CHAPA and Beef '97 data. All participants are to be commended for their efforts, particularly the producers whose voluntary efforts made the study possible.

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Dr. Nora Wineland, NAHMS Program Leader

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# 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. They hoped to provide periodic snapshots of U.S. food animal industries. With these industry overviews, members could identify opportunities for improvement, provide changing foundations for research and special studies, and detect emerging problems.

Section I of this report shows demographic changes of the United States beef cow-calf industry from a historical perspective from data provided by the National Agricultural Statistics Service (NASS) and Census of Agriculture.

Results of two NAHMS national studies in Section II complete the overview of change in the U.S. beef cow-calf industry during the 5-year period from 1993 to 1997.

NAHMS' first national study of the U.S. beef cow-calf industry, 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 in animal health and management. The NAHMS' Beef '97 Study has begun to fulfill the vision of the program's early years for the beef cow-calf industry.

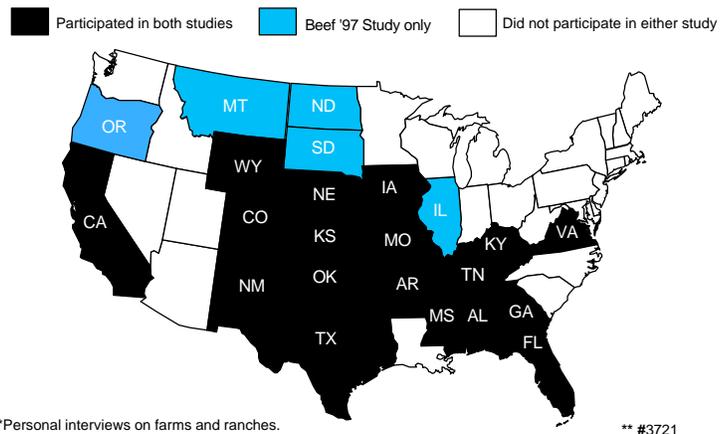
CHAPA Phase I included data collected from 2,539 cow-calf operations in the 48 continental states via telephone during the fall of 1992. Subsequent data collection was done on operations in 18 states and from producers with five or more beef cows and 50 percent or more of their calf crop born between January 1 and June 30 (spring calving). The 18 states represented 70 percent of the U.S. beef inventory. The CHAPA study design is documented in several reports available through NAHMS.

Beef '97's 2,713 producers from a 23-state target population (see map at right) represented 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.

This report provides national estimates of animal health and management practices for comparable populations from both studies.

Interpretation of changes in national estimates between the two studies are difficult and may be speculative in nature. Major influences behind differences in estimates may be due to differences in composition of the target population as described above, and we have taken great effort to document the differences in each summary table. Differences may also occur in the factor being measured, e.g., changes in question wording and random variation. We have documented these differences to aid in interpretation.

**States Participating in NAHMS Beef Cow-Calf Studies\*, 1992/93 and 1997**



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

All NAHMS beef cow-calf study results are accessible on the World Wide Web at <http://www.aphis.usda.gov/vs/ceah/cahm> (menu choices: NAHMS and Beef Cow/calf). Discussions on selected topics are accessible through [gopher.aphis.usda.gov](http://gopher.aphis.usda.gov) (menu choices: APHIS Information, Animal Health Information; Animal Health Monitoring, Risk Assessments, and Emerging Issues).

For questions about this report, please contact:

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## Terms Used in This Report

**Calf crop percent:** Cows calving divided by cows exposed (adjusted for inventory changes).

**Beef '97 comparable:** A subset of Beef '97 herds that reflected a similar population as the CHAPA (spring calving operations with five or more cows in 18 states).

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

**Beef heifer:** Female not yet calved.

**Herd size:** Size groupings based on number of beef cows on hand.

**N/A:** Not available.

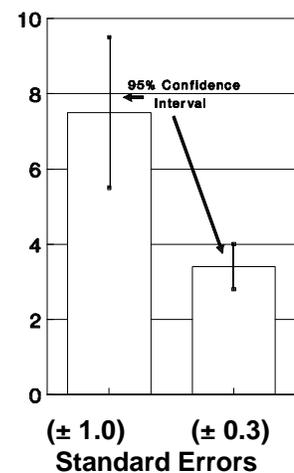
**Operation average:** A single value for each operation is summed over all operations reporting divided by the number of operations reporting.

**Population estimates:** Averages and proportions weighted to represent the population. Most of the estimates in this report are provided with a measure of variability called the *standard error* and denoted by ( $\pm$ ). Chances are 95 out of 100 that the interval created by the estimate plus or minus two standard errors will contain the true population value. In the example above, an estimate of 7.5 with a standard error of  $\pm 1.0$  results in a range of 5.5 to 9.5 (two times the standard error above and below the estimate). The second estimate of 3.4 shows a standard error of  $\pm 0.3$  and results in a range of 2.8 and 4.0. Most estimates in this report are rounded to the nearest tenth.

**Sample profile:** Information that describes characteristics of the operations from which Beef '97 data were collected.

**Suggested citation:** USDA:APHIS:VS. Part IV: Changes in the U.S. Beef Cow-calf Industry, 1993-1997. Centers for Epidemiology and Animal Health. Fort Collins, Colorado. #N238.398. May 1998.

**Examples of a  
95% Confidence Interval**



#999

## Section I: Demographics

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

#### 1. Beef cow inventory

The Census of Agriculture has collected and reported all cattle and calves inventory numbers at 5-year intervals since 1850 and beef cow inventory numbers since 1900. The table below shows inventory numbers at approximately 10-year intervals (every other Census).

Beef cow numbers experienced some large fluctuations in the first half of this century. The last 23 years have been relatively stable with numbers consistently above 30 million head. Note, the shift in beef cows as a percent of total cattle. The increasing beef cow numbers in the late 1950's were coupled with decreasing milk cow numbers. Prior to 1959, the number of beef cows was always less than the number of milk cows. In 1992, there were 3.4 times as many beef cows as milk cows. Beef cows have remained constant at about one-third of the total cattle and calves inventory over the 23 years from 1969 to 1992.

a. Changes in U.S. beef cow inventory, 1850-1992.			
Year*	Beef Cows (1,000 Head)	All Cattle & Calves (1,000 Head)	Beef Cows as Percent of All Cattle & Calves
1850	N/A	18,379	N/A
1860	N/A	25,620	N/A
1870	N/A	23,821	N/A
1880	N/A	39,676	N/A
1890	N/A	57,649	N/A
1900	11,559	67,719	17.1
1910	N/A	61,804	N/A
1920	12,625	66,640	18.9
1930	7,837	63,896	12.3
1940	9,449	60,675	15.6
1950	16,006	76,762	20.9
1959	24,751	92,534	26.7
1969	34,337	106,346	32.3
1978	34,326	103,886	33.0
1987	31,653	95,847	33.0
1992	32,546	96,136	33.9

\* Census of Agriculture data. 1850-1950 includes all states except Alaska and Hawaii.  
N/A = not available.

Each year, the USDA's National Agricultural Statistics Service (NASS) surveys a random sample of producers to provide national estimates of animal populations and food

production. This section reports NASS' demographics of the U.S. beef cow industry as estimated from their January surveys.

The following table shows changes over the past 5 years in number of beef cows and replacement heifers. The first 3 years were characterized by increasing inventories. The fourth year showed a slowdown and both cows and replacement heifers declined by January 1, 1997.

b. Changes in the U.S. beef cow inventory, January 1, 1993-1997.*						
Year	Beef Cows that Have Calved			Beef Replacement Heifers		
	1,000 Head	Percent Previous Year	Percent 1993	1,000 Head	Percent Previous Year	Percent 1993
1993	33,364.9	101.1	100.0	6,091.9	108.0	100.0
1994	33,649.9	100.9	100.9	6,365.3	104.5	104.5
1995	35,156.3	104.5	105.4	6,474.5	101.7	106.3
1996	35,227.6	100.2	105.6	6,178.7	95.4	101.4
1997	34,279.8	97.3	102.7	6,050.5	97.9	99.3

\* National Agriculture Statistics Service (NASS) data.

## 2. Number of beef cow operations and herd size

The number of operations with beef cows remained rather stable over the 5-year period from 1992 to 1996 with slight, but steady increases. Numbers declined in 1996 to a level slightly below 1992.

a. Changes in the number of U.S. beef operations, 1992-1996.*			
Year	Number	Percent Previous Year	Percent of 1992
1992	901,870	99.0	100.0
1993	903,680	100.2	100.2
1994	906,810	100.3	100.5
1995	910,130	100.4	100.9
1996	900,680	99.0	99.9

\* National Agriculture Statistics Service (NASS) data.

Distribution of operations across different herd sizes remained relatively constant from 1992 to 1996.

b. Percent of U.S. beef operations by herd size, 1992-1996.*					
Year	1-49 Head	50-99 Head	100-499 Head	500 or More Head	Total
1992	80.9	11.2	7.9	**	100.0
1993	80.8	11.2	7.3	0.7	100.0
1994	80.5	11.4	7.5	0.6	100.0
1995	80.1	11.7	7.6	0.6	100.0
1996	79.8	11.9	7.7	0.6	100.0

\* National Agriculture Statistics Service (NASS) data.  
\*\* The 100-499 size group includes 500 or more head.

The smallest size group, 1 to 49 head, accounted for a smaller or equal proportion of the U.S. beef cow inventory each year. Distribution of cows across herd sizes also remained fairly constant.

c. Percent of U.S. beef cow inventory by herd size, 1992-1996.*					
Year	1-49 Head	50-99 Head	100-499 Head	500 or More Head	Total
1992	32.6	19.6	47.8	**	100.0
1993	32.6	19.5	35.0	12.9	100.0
1994	31.6	19.4	34.7	14.3	100.0
1995	31.0	19.2	35.6	14.2	100.0
1996	30.8	19.5	35.7	14.0	100.0

\* National Agriculture Statistics Service (NASS) data.  
\*\* The 100-499 size group includes 500 or more head.

## **B. Beef Industry Changes by State**

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### **1. Number of beef cows and operations**

The following tables describe U.S. beef cow-calf industry changes by state between 1993 and 1997 based on USDA:National Agricultural Statistics Service data. The tables also identify which states collected data via personal interview on operations in the two NAHMS national beef cow-calf studies, the 1992/93 Beef Cow/Calf Health and Productivity Audit (CHAPA) and the Beef '97 Study.

No general regional shifts in number of beef cows over the 5-year period is shown. States with the largest percent of increases were Alaska, Arkansas, Kansas, New Jersey, North Carolina, Tennessee, and Wyoming. Some states recorded rather large declines in inventory (Arizona, Delaware, Maryland, Massachusetts, Pennsylvania, and Washington.)

a. Changes in beef cow inventories and operations by state (NASS data).								
State	On-farm Participation		# Beef Cows that Calved (Thousand Head)			Number Operations		
	CHAPA '92/'93 (Y=Yes)	Beef '97 (Y=Yes)	Jan. 1, 1993	Jan. 1, 1997	1997 as Percent of 1993	1992	1996	1996 as Percent of 1992
Alabama	Y	Y	810	829	102.3	32,000	32,000	100.0
Alaska			2.5	3.3	132.0	100	80	80.0
Arizona			284	200	70.4	2,700	2,400	88.9
Arkansas	Y	Y	824	954	115.8	28,000	26,000	92.9
California	Y	Y	840	820	97.6	15,000	15,000	100.0
Colorado	Y	Y	800	826	103.3	10,500	9,500	90.5
Connecticut			7	7	100.0	900	650	72.2
Delaware			4	3	75.0	240	220	91.7
Florida	Y	Y	1,060	1,072	101.1	18,000	18,000	100.0
Georgia	Y	Y	658	692	105.2	26,000	25,000	96.2
Hawaii			78	81	103.8	850	750	88.2
Idaho			505	492	97.4	8,000	7,500	93.7
Illinois		Y	512	460	89.8	22,000	17,800	80.9
Indiana			305	320	104.9	17,500	16,000	91.4
Iowa	Y	Y	1,095	1,030	94.1	29,000	28,000	96.6
Kansas	Y	Y	1,355	1,489	109.9	29,000	30,000	103.4
Kentucky	Y	Y	1,120	1,160	103.6	44,000	45,000	102.3
Louisiana			520	547	105.2	18,000	16,600	92.2
Maine			16	17	106.3	1,500	1,300	86.7
Maryland			64	53	82.8	3,600	3,200	88.9
Massachusetts			10	8	80.0	1,200	800	66.7
Michigan			116	125	107.8	8,000	8,500	106.3
Minnesota			405	405	100.0	16,000	16,000	100.0
Mississippi	Y	Y	700	682	97.4	26,000	29,000	111.5
Missouri	Y	Y	2,060	2,075	100.7	61,000	64,000	104.9
Montana		Y	1,497	1,570	104.9	12,100	11,700	96.7
Nebraska	Y	Y	1,795	1,932	107.6	23,000	22,000	95.7
Nevada			250	244	97.6	1,400	1,300	92.9
New Hampshire			4	4	100.0	600	550	91.7
New Jersey			11	14	127.3	1,100	1,200	109.1
New Mexico	Y	Y	567	533	94.0	7,000	6,500	92.9
New York			70	75	107.1	7,600	6,200	81.6
North Carolina			403	512	127.0	25,000	30,000	120.0
North Dakota		Y	875	940	107.4	14,000	12,400	88.6
Ohio			305	315	103.3	20,000	21,000	105.0
Oklahoma	Y	Y	1,865	1,965	105.4	53,000	54,000	101.9
Oregon		Y	580	607	104.7	17,000	16,800	98.8
Pennsylvania			190	157	82.6	13,000	12,000	92.3
Rhode Island			1.4	1.5	107.1	180	130	72.2
South Carolina			250	249	99.6	13,000	11,000	84.6
South Dakota		Y	1,545	1,660	107.4	18,000	18,000	100.0
Tennessee	Y	Y	995	1,085	109.0	57,000	54,000	94.7
Texas	Y	Y	5,460	5,460	100.0	125,000	133,000	106.4
Utah			345	355	102.9	5,000	5,200	104.0
Vermont			12	12	100.0	1,300	1,300	100.0
Virginia	Y	Y	695	740	106.5	25,000	26,000	104.0
Washington			349	294	84.2	14,000	13,000	92.9
West Virginia			237	211	89.0	15,000	15,000	100.0
Wisconsin			190	200	105.3	9,600	10,200	106.3
Wyoming	Y	Y	723	794	109.8	4,900	4,900	100.0
U.S.	18	23	33,364.9	34,279.8	102.7	901,870	900,680	99.9

# Section II: NAHMS Population Estimates , 1993-1997

## A. Beef Herd Information & Management Practices

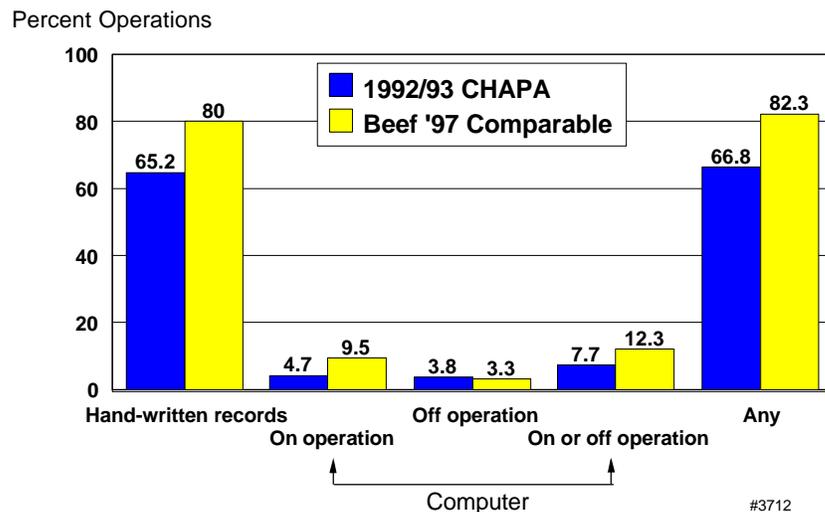
### 1. Record-keeping systems

Increases in the percentage of operations keeping records show that more and more cow-calf producers are recognizing the value of good data for decision making. On-farm computer use doubled from 1993 to 1997, while use of any hand-written records increased by 15 percentage points.

a. Percent of operations by record keeping systems used:						
System	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Hand-written records	65.2	(±3.1)	80.0	(±2.1)	79.1	(±1.7)
Computer located on operation	4.7	(±1.1)	9.5	(±1.1)	10.2	(±0.9)
Computer located off operation	3.8	(±1.1)	3.3	(±0.8)	3.5	(±0.6)
Computer located on or off operation	7.7	(±1.4)	12.3	(±1.3)	13.0	(±1.0)
Any of the above	66.8	(±3.0)	82.3	(±2.0)	81.3	(±1.7)

\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

**Percent of Operations by Record Keeping System(s) Used, 1993-1997**



## 2. Sources of information

Most producers rated veterinarians as a very important source of information for operating their cow-calf herds. The Extension Service rating was essentially unchanged from 1993 to 1997 with only 25 percent of operators rating them as very important. Producers rated veterinarians as a very important source of information more often than other choices. Ratings for magazines and salespersons decreased.

a. Percent of operations where the following information sources were <b>very important</b> for operating the cow-calf operation:						
Source	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*		Beef '97 Comparable**	Standard Error	Beef '97***	Standard Error
	Animal Health Information	Beef Production Information				
Extension Service/ universities/ Vo-Ag instructors	28.6	29.2	24.7	(±2.2)	24.1	(±1.8)
Veterinarians	77.3	56.1	64.1	(±2.3)	60.8	(±2.0)
Beef magazines or agricultural journals	27.0	34.3	17.0	(±1.7)	15.4	(±1.3)
Producer associations	10.8	16.4	11.3	(±1.6)	9.8	(±1.1)
Other producers	27.6	24.8	22.8	(±2.1)	22.7	(±1.6)
Salespersons	30.4	30.8	17.0	(±1.7)	16.0	(±1.3)
Consultants	8.1	6.0	6.5	(±1.0)	6.4	(±0.8)
Radio, television, or newspapers	14.1	14.8	8.8	(±1.6)	8.0	(±1.2)

\* CHAPA asked about sources for animal health information and beef production information separately. For Beef '97, the two topics were combined into a single category source of information for the cow-calf operation. Percent of operations for very important and extremely important were added together. Standard errors were not calculated. Population: Spring calving operations with 5 or more cows in 18 states.

\*\*Population: Spring calving operations with 5 or more cows in 18 states.

\*\*\*Population: All cow-calf operations in 23 states.

### 3. Animal identification

Individual animal identification is becoming less popular among cow-calf producers as fewer operations individually identified their cows or calves in 1996 than in 1992. When individual identification was used, the plastic ear tag remained the most popular.

a. Percent of operations that used the following **individual calf** identification methods:

Method	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Hot iron brand	12.1	(±1.7)	3.5	(±0.5)	4.9	(±0.5)
Freeze brand	0.5	(±0.3)	0.1	(±0.1)	0.1	(±0.1)
Ear notch	N/A	N/A	4.3	(±0.7)	4.7	(±0.6)
Microchip transponder/ Electronic ID	0.4	(±0.4)	0.0	(±0.0)	0.0	(±0.0)
Brucellosis ear tag	21.7	(±2.2)	3.6	(±1.1)	3.6	(±0.8)
Other metal ear tag	1.4	(±0.5)	1.0	(±0.2)	0.9	(±0.2)
Plastic ear tag	40.8	(±2.8)	39.2	(±2.3)	40.7	(±1.9)
Ear tattoo	10.2	(±1.5)	5.7	(±1.3)	6.0	(±1.0)
Other method	N/A	N/A	0.4	(±0.1)	0.5	(±0.1)
None	46.9	(±2.9)	53.7	(±2.4)	51.9	(±1.9)

\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

b. Percent of beef calves on operations that used the following **individual calf** identification methods on one or more calves:

Method	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard 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)
Freeze brand	0.9	(±0.5)	0.4	(±0.2)	0.6	(±0.3)
Ear notch	N/A	N/A	7.1	(±0.9)	8.5	(±1.0)
Microchip transponder/ Electronic ID	0.5	(±0.4)	0.0	(±0.0)	0.0	(±0.0)
Brucellosis ear tag	30.4	(±2.8)	5.4	(±1.3)	6.3	(±1.0)
Other metal ear tag	2.1	(±0.6)	1.6	(±0.4)	1.8	(±0.4)
Plastic ear tag	55.9	(±2.9)	46.6	(±2.1)	52.0	(±1.8)
Ear tattoo	13.6	(±1.7)	6.7	(±1.0)	7.6	(±0.9)
Other method	N/A	N/A	0.8	(±0.3)	0.6	(±0.2)
None	29.8	(±2.6)	40.0	(±2.1)	35.3	(±1.7)

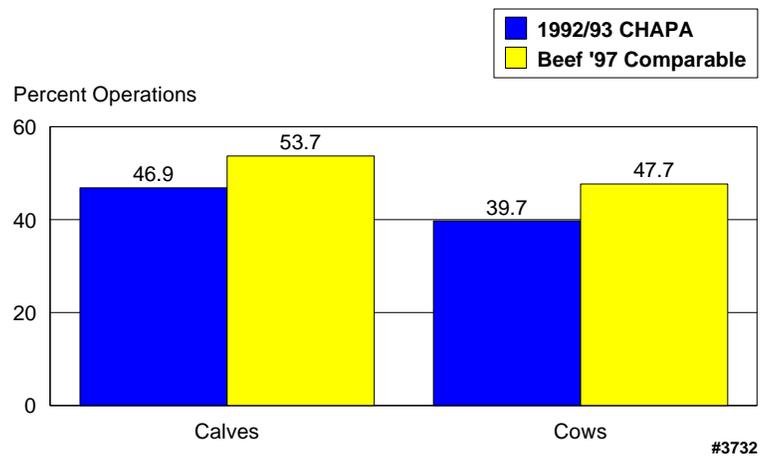
\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

c. Percent of operations that used the following **individual cow** identification methods:

Method	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Hot iron brand	17.9	(±2.1)	4.3	(±0.6)	5.9	(±0.6)
Freeze brand	2.1	(±1.2)	1.1	(±0.4)	1.2	(±0.3)
Ear notch	N/A	N/A	2.8	(±0.6)	3.3	(±0.5)
Microchip transponder/ Electronic ID	0.7	(±0.5)	0.0	(±0.0)	0.0	(±0.0)
Brucellosis ear tag	28.3	(±2.4)	7.7	(±1.2)	7.4	(±0.9)
Other metal ear tag	1.5	(±0.5)	1.9	(±0.6)	1.6	(±0.4)
Plastic ear tag	45.3	(±3.0)	44.2	(±2.3)	44.7	(±1.9)
Ear tattoo	12.9	(±1.7)	6.7	(±1.3)	7.3	(±1.1)
Other method	N/A	N/A	1.0	(±0.2)	1.2	(±0.2)
None	39.7	(±3.1)	47.7	(±2.4)	46.8	(±2.0)

\*Population: Spring calving operations with 5 or more cows in 18 states  
 \*\*Population: All cow-calf operations in 23 states.

**Percent of Operations that Used Individual Identification Methods for Calves and Cows, 1992-1996**



d. Percent of beef cows on operations that used the following *individual cow* identification methods on one or more cows:

Method	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Hot iron brand	31.3	(±3.1)	10.0	(±1.7)	14.0	(±1.5)
Freeze brand	2.6	(±1.1)	1.8	(±0.5)	2.7	(±0.5)
Ear notch	N/A	N/A	4.9	(±0.8)	6.2	(±1.1)
Microchip transponder/ Electronic ID	0.4	(±0.3)	0.0	(±0.0)	0.0	(±0.0)
Brucellosis ear tag	40.3	(±3.1)	11.5	(±1.4)	13.1	(±1.4)
Other metal ear tag	2.4	(±0.8)	2.1	(±0.5)	1.9	(±0.4)
Plastic ear tag	61.3	(±2.8)	53.0	(±2.1)	56.8	(±1.7)
Ear tattoo	20.2	(±2.5)	8.9	(±1.3)	9.6	(±1.0)
Other method	N/A	N/A	1.5	(±0.4)	2.2	(±0.4)
None	21.5	(±2.2)	34.5	(±2.0)	30.2	(±1.5)

\*Population: Spring calving operations with 5 or more cows in 18 states.  
\*\*Population: All cow-calf operations in 23 states.

#### 4. Herd identification

Overall, though individual animal identification declined from 1992 to 1996, herd level identification increased.

a. Percent of operations that used the following **herd** identification (all animals have the same identification) methods:

Method	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Hot iron brand	21.4	(±2.2)	23.8	(±1.5)	26.6	(±1.2)
Freeze brand	1.2	(±0.5)	1.1	(±0.4)	1.3	(±0.3)
Ear notch	6.5	(±1.1)	7.7	(±1.0)	8.0	(±0.8)
Microchip transponder/ Electronic ID	0.4	(±0.4)	0.0	(±0.0)	0.0	(±0.0)
Metal ear tag other than Brucellosis	1.0	(±0.4)	1.6	(±0.6)	1.6	(±0.5)
Plastic ear tag	27.1	(±2.7)	27.9	(±2.3)	27.0	(±1.7)
Ear tattoo	6.8	(±1.2)	6.0	(±1.5)	5.7	(±1.1)
Other method	N/A	N/A	0.2	(±0.1)	0.3	(±0.1)
None	54.3	(±3.0)	48.9	(±2.3)	49.0	(±1.9)

\*Population: Spring calving operations with 5 or more cows in 18 states.  
\*\*Population: All cow-calf operations in 23 states.

b. Percent of cattle on operations that used the following **herd** identification (all animals have the same identification) methods:

Method	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Question Variation	Percent total cattle		Percent cows			
Hot iron brand	40.2	(±2.8)	49.0	(±2.0)	54.5	(±1.5)
Freeze brand	1.5	(±0.6)	1.0	(±0.3)	1.7	(±0.4)
Ear notch	17.5	(±2.1)	19.2	(±2.1)	19.7	(±1.8)
Microchip transponder/ Electronic ID	0.2	(±0.2)	0.0	(±0.0)	0.0	(±0.0)
Metal ear tag other than Brucellosis	1.6	(±0.6)	1.7	(±0.5)	1.6	(±0.4)
Plastic ear tag	32.8	(±2.9)	28.5	(±1.7)	30.9	(±1.4)
Ear tattoo	11.3	(±2.2)	6.1	(±1.0)	6.4	(±0.8)
Other method	N/A	N/A	0.5	(±0.2)	0.8	(±0.3)
None	34.1	(±2.9)	29.4	(±1.6)	25.9	(±1.1)

\*Population: Spring calving operations with 5 or more cows in 18 states.  
\*\*Population: All cow-calf operations in 23 states.

### 5. Source of female replacements

Overall, the proportion of raised to purchased females remained constant during the two studies.

a. Of replacement females that calved, operation average percent of females (and percent of females) purchased and raised:						
	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Question Variation	Of replacement females that calved.		Of replacement heifers that calved in 1996.			
Operation Average Percent						
Purchased	21.1	(±2.2)	9.5	(±1.7)	11.7	(±1.7)
Raised	78.9	(±2.2)	90.5	(±1.7)	88.3	(±1.7)
Percent Replacement Females/Heifers						
Purchased	11.6	(±1.9)	12.6	(±3.1)	12.8	(±2.2)
Raised	88.4	(±1.9)	87.4	(±3.1)	87.2	(±2.2)
*Population: Spring calving operations with 5 or more cows in 18 states.						
**Population: All cow-calf operations in 23 states.						

### 6. Dehorning

The overall percentage of calves that were horned remained rather stable over the two studies.

a. Percent of calves born (and operation average percent born) that had or were expected to have horns:				
Note: Beef '97 estimates comparable to CHAPA estimates not available.				
	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97**	Standard Error
Question Variation	Percent calf crop horned		Percent calves born that had or were expected to have horns.	
Percent calves born	29.3	(±1.2)	27.8	(±1.0)
Operation average percent born	19.0	(±1.1)	26.4	(±1.3)
*Population: All cow-calf operations in 48 states. **Population: All cow-calf operations in 23 states.				

b. Percent of operations with one or more non-polled calves born:				
	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97**	Standard Error
Note: Beef '97 estimates comparable to CHAPA estimates not available.				
Question Variation	Percent with 1 or more horned calves born		Percent with 1 or more non-polled calves born	
	45.3	(±1.8)	62.1	(±1.9)
*Population: All cow-calf operations in 48 states. **Population: All cow-calf operations in 23 states.				

Though calves are discounted for having horns, the percentage of non-polled calves being dehorned decreased.

c. Of non-polled calves born, percent that were or would be dehorned:			
Note: Beef '97 estimates comparable to CHAPA estimates not available.			
1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97**	Standard Error
71.2	(±3.0)	61.1	(±2.2)
*Population: All cow-calf operations in 48 states. **Population: All cow-calf operations in 23 states.			

The average age for dehorning calves increased from 104 to 130 days.

d. For operations with non-polled calves, average age (and operation average age), in days, calves were dehorned:				
Note: Beef '97 estimates comparable to CHAPA estimates not available.				
Measure	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97**	Standard Error
Average age	104	(±5)	130	(±4)
Operation average	159	(±7)	162	(±4)
*Population: All cow-calf operations in 48 states. **Population: All cow-calf operations in 23 states.				

e. For operations that dehorned calves, percent of operations by average age (in days) calves were dehorned:					
Note: Beef '97 estimates comparable to CHAPA estimates not available.					
Age (Days)	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Question Variation: Age (Days)	Beef '97**	Standard Error
1-30	10.6	(±1.5)	1-31	5.5	(±0.7)
31-61	11.7	(±1.5)	32-61	12.5	(±1.5)
62-92	13.2	(±1.7)	62-92	10.1	(±1.3)
93-122	8.9	(±1.8)	93-122	13.3	(±2.8)
123-153	9.1	(±2.2)	123-153	6.9	(±1.1)
154-183	16.2	(±2.2)	154-183	21.2	(±2.6)
184-214	11.8	(±2.4)	184-214	11.1	(±1.4)
215 or more	18.5	(±2.6)	215 or more	19.4	(±2.1)
Total	100.0		Total	100.0	
*Population: All cow-calf operations in 48 states. **Population: All cow-calf operations in 23 states.					

### 7. Castration

Despite price discounts for bulls of up to \$6.00/cwt., the castration rates remained constant.

a. Of male calves born, percent (and operation average percent) of male calves that were or would be castrated before sale:

Note: Beef '97 estimates comparable to CHAPA estimates not available.

Measure	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97**	Standard Error
Percent male calves	80.8	(±1.1)	79.9	(±1.2)
Operation average percent male calves	60.1	(±1.6)	64.0	(±1.8)

\*Population: All cow-calf operations in 48 states.  
 \*\*Population: All cow-calf operations in 23 states.

b. Percent of operations by percent of male calves that were or would be castrated before sale:

Note: Beef '97 estimates comparable to CHAPA estimates not available.

Percent Castrated	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Question Variation: Percent Castrated	Beef '97**	Standard Error
0	34.4	(±1.7)	0.0	29.4	(±1.9)
1-24	2.4	(±0.5)	0.1-24.9	1.0	(±0.4)
25-49	0.5	(±0.2)	25.0-49.9	2.7	(±0.6)
50-74	2.9	(±0.6)	50.0- 74.9	6.2	(±0.9)
75-99	6.0	(±0.7)	75.0- 99.9	10.9	(±1.1)
100.0	53.8	(±1.7)	100.0	49.8	(±1.9)
Total	100.0		Total	100.0	

\*Population: All cow-calf operations in 48 states.  
 \*\*Population: All cow-calf operations in 23 states.

### 8. Weaning weight

The average weaning weight of calves increased.

a. Average weight (lbs) (and operation average weight) of calves weaned by calf type:						
Type	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)		Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
	Part III*	Standard Error				
Average Weight (lbs.)						
Bull and steer calves	N/A	N/A	N/A	N/A	529	(±4)
Nonreplacement heifer calves	N/A	N/A	N/A	N/A	494	(±3)
Replacement heifer calves	N/A	N/A	N/A	N/A	513	(±4)
All calves	502	(±4)	513	(±3)	515	(±3)
Operation Average Weight (lbs.)						
Bull and steer calves	N/A	N/A	N/A	N/A	514	(±4)
Nonreplacement heifer calves	N/A	N/A	N/A	N/A	480	(±4)
Replacement heifer calves	N/A	N/A	N/A	N/A	506	(±4)
All calves	483	(±6)	495	(±4)	497	(±3)
*Population: Spring calving operations with 5 or more cows in 18 states.						
**Population: All cow-calf operations in 23 states.						

### 9. Weaning age

The average age at which producers weaned calves increased by 7 days from 1992 to 1996. This increased age at weaning may be responsible for all of the increase in weaning weight shown in the table above considering an average daily gain of 2 pounds.

a. Average age (days) (and operation average age) of calves at weaning:				
Note: Beef '97 estimates comparable to CHAPA estimates not available.				
Measure	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97**	Standard Error
Average age	214	(±1)	221	(±1)
Operation average age	206	(±2)	215	(±2)
*Population: All cow-calf operations in 48 states.				
**Population: All cow-calf operations in 23 states.				

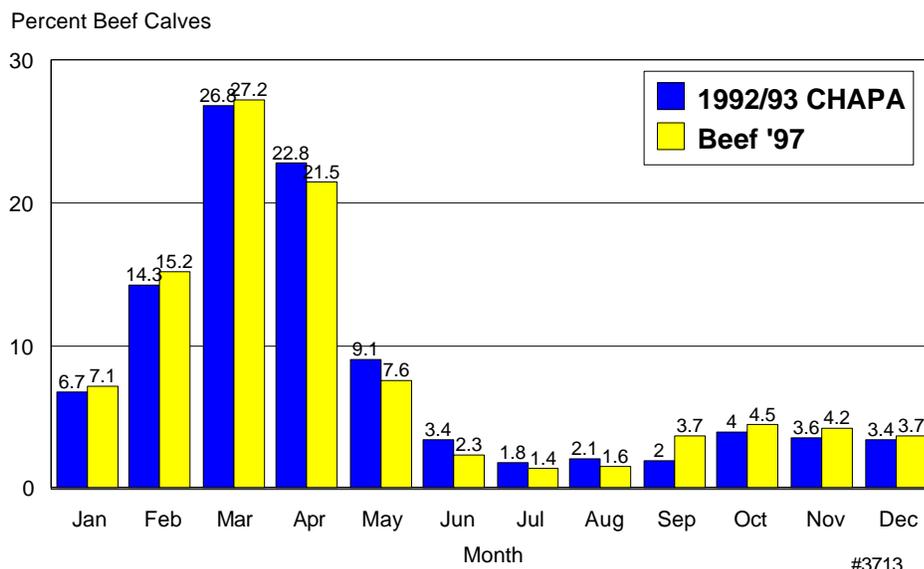
### 10. Monthly calving distribution

The monthly distribution of when calves are born remained relatively constant between the two studies. Most calves (63.9 percent) are born from February through April in each year.

a. Percent of beef calves born by month:				
Note: Beef '97 estimates comparable to CHAPA estimates not available.				
Months	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97**	Standard Error
January	6.7	(±0.5)	7.1	(±0.5)
February	14.3	(±0.8)	15.2	(±0.8)
March	26.8	(±0.8)	27.2	(±0.8)
April	22.8	(±0.8)	21.5	(±0.7)
May	9.1	(±0.5)	7.6	(±0.3)
June	3.4	(±0.3)	2.3	(±0.2)
July	1.8	(±0.2)	1.4	(±0.1)
August	2.1	(±0.4)	1.6	(±0.2)
September	2.0	(±0.3)	3.7	(±0.3)
October	4.0	(±0.3)	4.5	(±0.3)
November	3.6	(±0.2)	4.2	(±0.4)
December	3.4	(±0.3)	3.7	(±0.4)
Total	100.0		100.0	

\*Population: All cow-calf operations in 48 states.  
 \*\*Population: All cow-calf operations in 23 states.

### Percent of Beef Calves Born by Month



Although the calving distribution is stable, the percentage of operations calving in any given month increased because the percentage of operations with a calving season of 5 or more months increased.

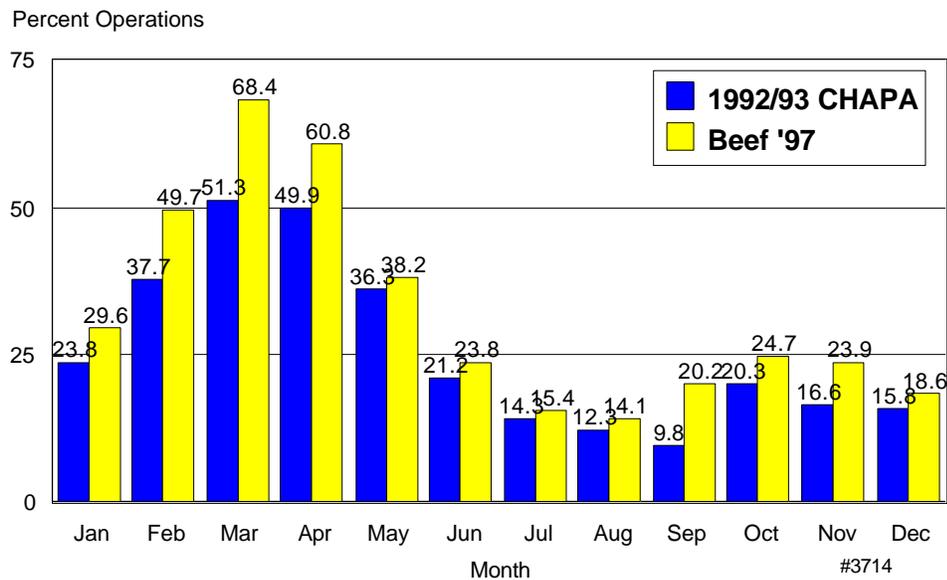
b. Percent of operations with one or more beef calves born in the month listed:

Note: Beef '97 estimates comparable to CHAPA estimates not available.

Months	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97**	Standard Error
January	23.8	(±1.5)	29.6	(±1.8)
February	37.7	(±1.8)	49.7	(±2.0)
March	51.3	(±1.9)	68.4	(±2.0)
April	49.9	(±1.9)	60.8	(±2.0)
May	36.3	(±1.8)	38.2	(±1.9)
June	21.2	(±1.5)	23.8	(±1.7)
July	14.3	(±1.3)	15.4	(±1.4)
August	12.3	(±1.3)	14.1	(±1.3)
September	9.8	(±1.0)	20.2	(±1.4)
October	20.3	(±0.5)	24.7	(±1.7)
November	16.6	(±1.3)	23.9	(±1.7)
December	15.8	(±1.3)	18.6	(±1.5)

\*Population: All cow-calf operations in 48 states.  
 \*\*Population: All cow-calf operations in 23 states.

### Percent of Operations with One or More Beef Calves Born in the Month



## 11. Calf crop

The reported calf crop percentage remained stable over time. In both studies, these percentages were higher than those reported in the Standardized Performance Analysis (SPA) data base. This variation may be due to producers not accounting for all females exposed in their reproductive calculations.

a. Number of females that calved (calf born alive or dead) as a percent of those exposed or artificially inseminated adjusted for inventory changes:				
Note: Beef '97 estimates comparable to CHAPA estimates not available.				
	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97**	Standard Error
Question Variation			...as a percent of those exposed or artificially inseminated plus those brought on minus those leaving the operation.	
	92.4	(±0.3)	92.6	(±0.6)
*Population: All cow-calf operations in 48 states.				
**Population: All cow-calf operations in 23 states.				

## 12. Factors in determining when to wean calves

Calf age/weight continued to be the most important factor for determining when to wean calves in 1996. Weaning due to physical condition of the cow increased in importance while weaning due to market prices or contract and cash flow declined in importance.

a. Percent of operations by most important factor for determining when to wean calves:						
Reason	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Calf age/weight	52.9	(±3.1)	51.7	(±2.4)	49.9	(±2.0)
End of grazing lease or permit	2.3	(±0.9)	1.8	(±0.3)	2.8	(±0.3)
Forage availability	7.0	(±1.4)	7.2	(±1.0)	7.9	(±0.8)
Physical condition of cow	6.8	(±1.7)	13.7	(±1.8)	13.7	(±1.4)
Market price or contract	9.0	(±2.2)	6.3	(±1.1)	6.4	(±1.0)
Cash flow	7.2	(±1.9)	3.7	(±1.1)	3.2	(±0.8)
Tradition	14.8	(±2.0)	11.2	(±1.5)	11.5	(±1.2)
Other	N/A	N/A	4.4	(±0.8)	4.6	(±0.7)
Total	100.0		100.0		100.0	
*Population: Spring calving operations with 5 or more cows in 18 states.						
**Population: All cow-calf operations in 23 states.						

### 13. How animals are marketed

Auctions were the most popular method for selling cattle and weaned calves in both studies.

a. Percent of operations by method most animals were sold:						
Method	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Question Variation	For operations that sold weaned steers or bulls.		For operations that sold beef cattle or weaned calves.			
Auction	85.2	(±1.9)	88.0	(±1.4)	85.0	(±1.4)
Direct - video	0.3	(±0.1)	0.7	(±0.3)	0.7	(±0.2)
Direct - private treaty	8.0	(±1.5)	7.4	(±1.2)	10.4	(±1.3)
Consignment	1.6	(±0.6)	1.4	(±0.5)	1.2	(±0.4)
Forward contract	0.5	(±0.3)	0.3	(±0.1)	0.5	(±0.1)
Carcass basis	0.7	(±0.5)	1.2	(±0.4)	1.3	(±0.3)
Other	1.5	(±0.5)	1.0	(±0.3)	0.9	(±0.3)
None marketed	2.2	(±0.8)	N/A	N/A	N/A	N/A
Total	100.0		100.0		100.0	
*Population: Spring calving operations with 5 or more cows in 18 states.						
**Population: All cow-calf operations in 23 states.						

## 14. Forward pricing

A relatively small proportion of operations used any forward pricing of calves.

Note: The percentage of all operations using forward pricing was higher than shown in Table 13a on page 22 because Table 13a refers to operations where *most animals* were sold by forward pricing.

a. Percent of operations (and percent of calf crop) using forward pricing of calves by herd size:						
Number Cows	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Percent Operations						
Less than 50	1.6	(±1.3)	0.5	(±0.2)	0.7	(±0.2)
50-99	1.7	(±1.5)	2.0	(±0.9)	1.6	(±0.7)
100-299	3.3	(±1.2)	1.9	(±0.6)	4.6	(±0.9)
300 or more	16.2	(±4.8)	12.7	(±3.7)	13.4	(±2.7)
All operations	2.0	(±1.0)	1.0	(±0.2)	1.5	(±0.2)
Percent Calf Crop						
Less than 50	3.3	(±3.1)	0.5	(±0.2)	0.9	(±0.3)
50-99	1.6	(±1.5)	1.2	(±0.5)	1.0	(±0.4)
100-299	2.7	(±1.0)	1.5	(±0.5)	4.0	(±0.8)
300 or more	16.4	(±4.7)	9.2	(±2.6)	8.9	(±1.8)
All operations	5.0	(±1.3)	2.5	(±0.5)	3.5	(±0.5)
*Population: Spring calving operations with 5 or more cows in 18 states.						
**Population: All cow-calf operations in 23 states.						

b. For operations using forward-pricing, percent of calf crop forward priced:					
1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
82.5	(±9.9)	45.7	(±12.9)	53.8	(±8.8)
*Population: Spring calving operations with 5 or more cows in 18 states.					
**Population: All cow-calf operations in 23 states.					

c. For operations using forward-pricing, percent of operations by percent of calf crop that was forward-priced:

Percent Calf Crop Forward Priced	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
1-24.9	3.9	(±2.8)	4.0	(±2.2)	5.1	(±2.4)
25-49.9	10.5	(±9.9)	31.6	(±10.4)	26.5	(±7.8)
50-74.9	10.1	(±6.3)	20.1	(±7.2)	24.1	(±5.5)
75-99.9	13.3	(±11.7)	32.5	(±8.9)	32.5	(±6.2)
100.0	62.2	(±19.9)	11.8	(±5.3)	11.8	(±4.6)
Total	100.0		100.0		100.0	

\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

d. For operations using forward pricing, percent forward priced calves by type of forward pricing used:

Type of Forward Pricing	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Forward cash	54.7	(±10.6)	31.2	(±8.6)	44.2	(±6.2)
Futures contract	13.8	(±5.0)	61.3	(±9.8)	39.1	(±6.5)
Options	25.4	(±12.2)	2.0	(±1.5)	9.8	(±3.4)
Other	6.1	(±4.0)	5.5	(±2.7)	6.9	(±2.9)
Total	100.0		100.0		100.0	

\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

## B. Breeding and Calving Management

### 1. Timing of calving season

Similar percentages of producers reported no set calving season in each study.

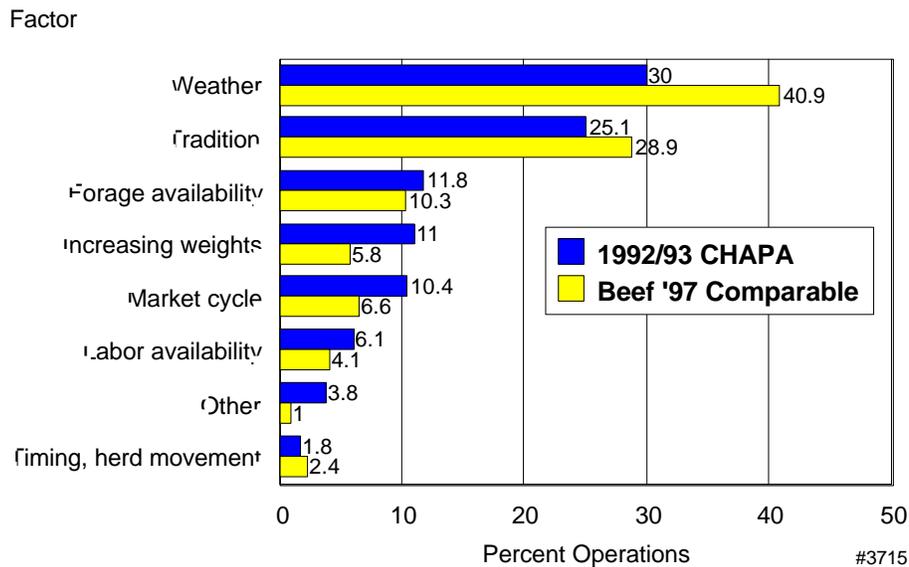
a. Percent of operations by number of breeding seasons:				
Note: Beef '97 estimates comparable to CHAPA estimates not available.				
Number Breeding Seasons	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97**	Standard Error
One season	N/A	N/A	36.6	(±1.7)
Two or more seasons	N/A	N/A	9.8	(±1.0)
No set season	52.7	(±2.9)	53.6	(±1.7)
Total	N/A	N/A	100.0	
*Population: All cow-calf operations in 48 states.				
**Population: All cow-calf operations in 23 states.				

b. Percent of operations with calves born by number of birth months:				
Note: Beef '97 estimates comparable to CHAPA estimates not available.				
Number Month(s)	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97**	Standard Error
1	14.4	(±1.6)	8.2	(±1.3)
2	20.1	(±1.7)	22.9	(±1.8)
3	23.9	(±1.7)	22.3	(±1.6)
4	16.1	(±1.5)	17.8	(±1.6)
5	7.9	(±1.0)	11.5	(±1.4)
6	7.5	(±0.9)	5.7	(±0.8)
7	4.6	(±0.9)	3.1	(±0.5)
8	1.9	(±0.5)	2.6	(±0.5)
9	1.1	(±0.3)	1.7	(±0.5)
10	0.9	(±0.3)	1.7	(±0.4)
11	0.7	(±0.3)	0.8	(±0.4)
12	0.9	(±0.3)	1.7	(±0.3)
Total	100.0		100.0	
*Population: All cow-calf operations in 48 states.				
**Population: All cow-calf operations in 23 states.				

c. Percent of operations by the factor most used to determine timing of the last calving season:							
Factor	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error	
Question Variation	For operations with set breeding season or seasons.		For operations with one breeding season.				
Tradition	25.1	(±3.3)	28.9	(±3.2)	29.7	(±2.4)	
Weather	30.0	(±3.7)	40.9	(±3.8)	39.4	(±2.8)	
Forage availability	11.8	(±2.3)	10.3	(±1.9)	9.3	(±1.4)	
Increasing weaning weights	11.0	(±2.6)	5.8	(±1.1)	5.3	(±0.8)	
Market cycle	10.4	(±2.8)	6.6	(±1.7)	5.7	(±1.3)	
Labor availability	6.1	(±2.0)	4.1	(±0.7)	3.8	(±0.5)	
Timing of herd movement	1.8	(±0.9)	2.4	(±0.8)	4.5	(±1.8)	
Other	3.8	(±1.4)	1.0	(±0.4)	2.3	(±0.9)	
Total	100.0		100.0		100.0		

\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

### Percent of Operations by Factor Most Used to Determine Timing of Calving Season, 1992-1996



## 2. Breeding methods

The percent of operations using artificial insemination has remained stable.

a. Percent of operations that used artificial insemination:					
1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
5.4	(±1.2)	6.3	(±0.8)	7.1	(±0.7)
*Population: Spring calving operations with 5 or more cows in 18 states.					
**Population: All cow-calf operations in 23 states.					

### 3. Bull management

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

Note: Beef '97 estimates comparable to CHAPA estimates not available.

Number Cows	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*		Standard Error	Beef '97**	Standard Error
	Part III*	Standard Error			
Yearling					
Less than 50	N/A	N/A	N/A	14.5	(±0.7)
50-99	N/A	N/A	N/A	17.5	(±0.8)
100-299	N/A	N/A	N/A	19.8	(±0.4)
300 or more	N/A	N/A	N/A	19.5	(±0.8)
All operations	19.0	(±0.3)	(±0.3)	17.5	(±0.4)
Mature					
Less than 50	N/A	N/A	N/A	22.9	(±0.6)
50-99	N/A	N/A	N/A	27.1	(±0.5)
100-299	N/A	N/A	N/A	27.4	(±0.7)
300 or more	N/A	N/A	N/A	26.3	(±0.6)
All operations	29.2	(±0.3)	(±0.3)	25.3	(±0.3)

\*Population: All cow-calf operations in 48 states.  
 \*\*Population: All cow-calf operations in 23 states.

The percent of operations using semen testing and scrotal circumference measurements decreased, while testing for *Trichomonas fetus* increased, especially among herds that brought nonvirgin bulls onto the operation.

b. For operations where bulls serviced female cattle during the most recent breeding season, percent of operations that performed the following reproductive examination procedures on these bulls (excluding purchased, leased, and borrowed bulls):

Procedure	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*				Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
	Part III*	Standard Error	Part IV*	Standard Error				
Semen test	18.3	(±2.7)	19.6	(±2.9)	17.0	(±1.4)	17.3	(±1.1)
Scrotal measurement	10.8	(±1.9)	12.0	(±2.4)	8.9	(±1.0)	9.8	(±0.8)
Culture for <i>Trichomonas fetus</i>	2.0	(±1.1)	3.0	(±1.3)	4.4	(±0.8)	4.5	(±0.6)

\*Population: Spring calving operations with 5 or more cows in 18 states. Parts III and IV refer to specific CHAPA reports.  
 \*\*Population: All cow-calf operations in 23 states.

The higher percentage of bulls on operations performing reproductive examinations indicates this practice was more common on larger operations.

c. For operations where bulls serviced female cattle during the most recent breeding season, percent of bulls on those operations where the following reproductive examination procedures on bulls were performed (excluding purchased, leased, and borrowed bulls):

Procedure	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)				Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
	Part III*	Standard Error	Part IV*	Standard Error				
Semen test	37.3	(±4.4)	38.4	(±4.4)	30.1	(±2.3)	29.6	(±1.8)
Scrotal measurement	28.1	(±4.2)	29.6	(±4.4)	17.7	(±1.9)	18.7	(±1.4)
Culture for <u>Trichomonas fetus</u>	7.9	(±3.0)	6.7	(±2.8)	7.8	(±1.0)	8.5	(±0.9)

\*Population: Spring calving operations with 5 or more cows in 18 states. Parts III and IV refer to specific CHAPA reports.

\*\*Population: All cow-calf operations in 23 states.

d. For operations that purchased, leased, or borrowed bulls for the last breeding season, percent of operations that semen tested or scrotal measured any purchased, leased, or borrowed bulls:

Procedure	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)				Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
	Part III*	Standard Error	Part IV*	Standard Error				
Semen test	47.0	(±5.0)	60.1	(±7.1)	54.7	(±4.4)	57.3	(±3.3)
Scrotal measurement	31.3	(±4.6)	46.9	(±7.0)	43.5	(±4.4)	45.9	(±3.2)

\*Population: Spring calving operations with 5 or more cows in 18 states. Parts III and IV refer to specific CHAPA reports.

\*\*Population: All cow-calf operations in 23 states.

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

1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*				Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Part III*	Standard Error	Part IV*	Standard Error				
60.6	(±5.0)	44.8	(±7.0)	66.3	(±3.4)	61.3	(±2.8)

\*Population: Spring calving operations with 5 or more cows in 18 states. Parts III and IV refer to specific CHAPA reports.

\*\*Population: All cow-calf operations in 23 states.

f. For operations that introduced bulls older than 18 months of age or no longer considered virgin, percent of operations that cultured all these bulls for Trichomonas fetus:

1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)				Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Part III*	Standard Error	Part IV*	Standard Error				
4.4	(±2.3)	13.4	(±6.7)	27.1	(±6.1)	24.5	(±4.5)

\*Population: Spring calving operations with 5 or more cows in 18 states. Parts III and IV refer to specific CHAPA reports.

\*\*Population: All cow-calf operations in 23 states.

### 4. Calving location

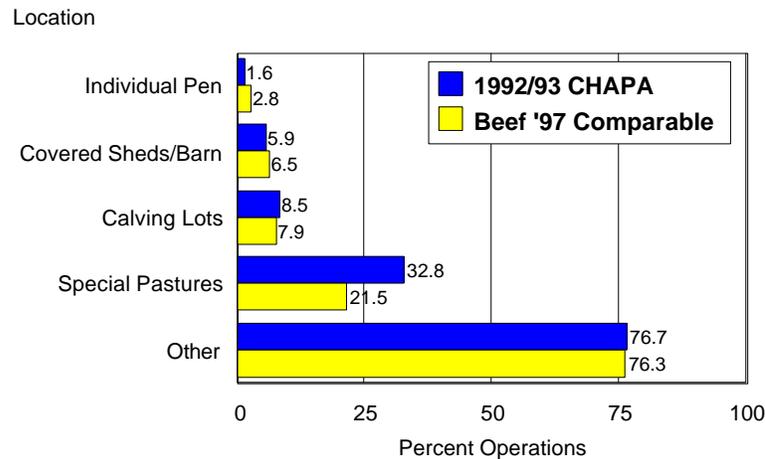
Most operations continued to use open pastures as the primary calving location. Use of a special calving pasture declined, while use of individual pens sheds/barns increased since 1992.

a. For operations where at least one **replacement heifer or cow** calved, percent of operations by calving location:

Location	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Individual calving pens (covered or uncovered)	1.6	(±0.6)	2.8	(±0.5)	4.3	(±0.5)
Covered sheds or barns (without individual pens or outside access)	5.9	(±1.4)	6.5	(±0.9)	8.1	(±0.8)
Calving lots (corrals or pens that do not allow grazing)	8.5	(±1.5)	7.9	(±0.7)	9.0	(±0.6)
Special calving pastures that allow increased observation and/or shelter	32.8	(±2.7)	21.5	(±1.9)	21.1	(±1.4)
Other pastures, open range, or other locations	76.7	(±2.3)	76.3	(±1.9)	74.1	(±1.5)

\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

### Percent of Operations Where at Least One Female Calved by Location, 1992-1996



#3716

b. For operations where at least one <b>replacement heifer or cow</b> calved, percent of calvings by calving location:						
Location	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Percent All Females						
Individual calving pens (covered or uncovered)	0.8	(±0.3)	1.5	(±0.3)	2.5	(±0.3)
Covered sheds or barns (without individual pens or outside access)	2.9	(±1.2)	3.0	(±0.4)	4.2	(±0.4)
Calving lots (corrals or pens that do not allow grazing)	8.1	(±1.4)	7.4	(±0.9)	8.5	(±0.7)
Special calving pastures that allow increased observation and/or shelter	33.5	(±2.6)	22.7	(±1.9)	24.4	(±1.5)
Other pastures, open range, or other locations	54.7	(±2.7)	65.4	(±2.0)	60.4	(±1.5)
Totals	100.0		100.0		100.0	
Percent Cows						
Individual calving pens (covered or uncovered)	N/A	N/A	N/A	N/A	2.0	(±0.3)
Covered sheds or barns (without individual pens or outside access)	N/A	N/A	N/A	N/A	3.7	(±0.4)
Calving lots (corrals or pens that do not allow grazing)	N/A	N/A	N/A	N/A	7.3	(±0.7)
Special calving pastures that allow increased observation and/or shelter	N/A	N/A	N/A	N/A	24.2	(±1.5)
Other pastures, open range, or other locations	N/A	N/A	N/A	N/A	62.8	(±1.5)
Totals					100.0	
Percent Replacement Heifers						
Individual calving pens (covered or uncovered)	N/A	N/A	N/A	N/A	7.3	(±1.0)
Covered sheds or barns (without individual pens or outside access)	N/A	N/A	N/A	N/A	9.3	(±1.2)
Calving lots (corrals or pens that do not allow grazing)	N/A	N/A	N/A	N/A	21.0	(±2.0)
Special calving pastures that allow increased observation and/or shelter	N/A	N/A	N/A	N/A	26.0	(±2.2)
Other pastures, open range, or other locations	N/A	N/A	N/A	N/A	36.4	(±2.5)
Totals					100.0	
*Population: Spring calving operations with 5 or more cows in 18 states.						
**Population: All cow-calf operations in 23 states.						

### 5. Calving observation

a. Percent of operations observing females during calving:

Animal Type	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Question Variation	Observed one or more times per 24-hour period.		On a regular basis.			
Replacement heifers	95.3	(±1.7)	91.9	(±2.8)	93.3	(±2.0)
Cows	92.2	(±1.5)	91.4	(±1.4)	91.6	(±1.2)

\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

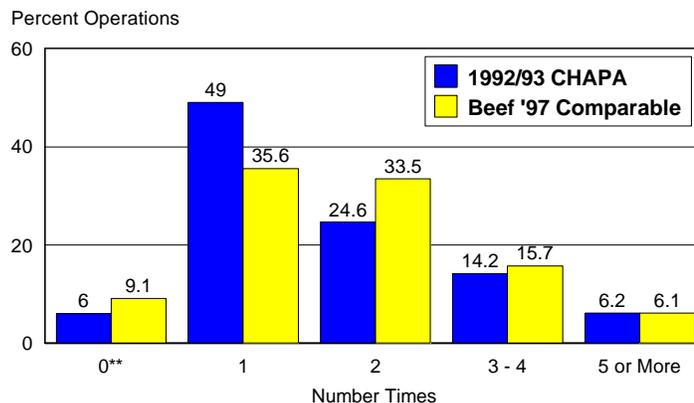
Most operations observed their calving females at least once during an average 24-hour period with a trend towards twice per day. Replacement heifers were still more likely to have been observed more than twice per day than mature cows in 1996.

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

Number Times	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Question Variation: Number Times	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
0	4.7	(±1.7)	Less than 1	8.4	(±2.8)	7.0	(±2.0)
1	26.5	(±3.3)	1	22.7	(±3.6)	20.1	(±2.7)
2	30.8	(±3.8)	2	31.8	(±3.7)	28.6	(±2.9)
3 - 4	21.6	(±2.8)	3 - 4	19.5	(±2.7)	21.6	(±2.3)
5 or more	16.4	(±2.3)	5 or more	17.6	(±2.1)	22.7	(±1.8)
Total	100.0		Total	100.0		100.0	

\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

**Percent of Operations\* by Number of Times per Day Replacement Heifers Were Observed When Calving, 1992-1996**



\* For operations where at least one heifer calved.  
 \*\*The 1991 CHAPA questionnaire stated 0, and the Beef '97 question stated "Less than one". #3731

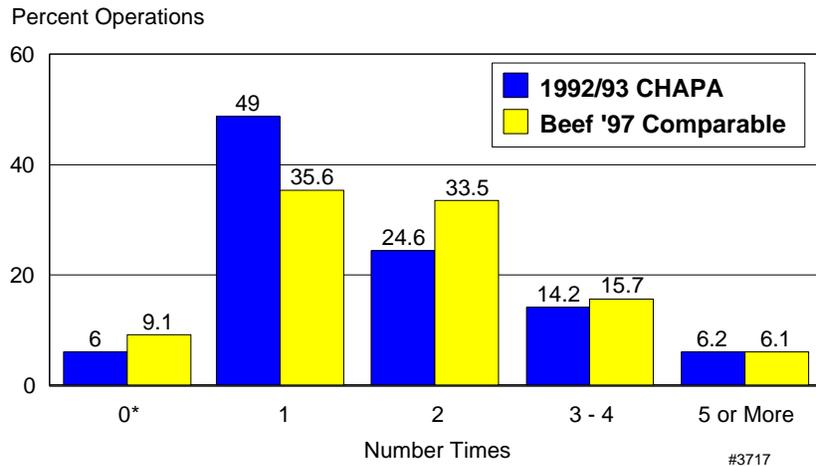
c. For operations where at least one **cow** calved, percent of operations by number of times cows were observed during an average 24-hour period when calving:

Number Times	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Question Variation: Number Times	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
0	6.0	(±1.3)	Less than 1	9.1	(±1.4)	9.0	(±1.2)
1	49.0	(±3.1)	1	35.6	(±2.4)	31.8	(±1.9)
2	24.6	(±2.7)	2	33.5	(±2.4)	32.1	(±1.9)
3 - 4	14.2	(±1.9)	3 - 4	15.7	(±1.5)	19.1	(±1.3)
5 or more	6.2	(±1.1)	5 or more	6.1	(±0.7)	8.0	(±0.6)
Total	100.0		Total	100.0		100.0	

\*Population: Spring calving operations with 5 or more cows in 18 states.

\*\*Population: All cow-calf operations in 23 states.

### Percent of Operations by Number of Times per Day Cows Were Observed When Calving, 1992-1996



\* The 1991 CHAPA questionnaire stated 0, and the Beef '97 question stated "Less than one".

## 6. Calving assistance

The percentage of deliveries that were hard pulls or Cesarean sections for heifers declined between the two studies.

a. Percent of females requiring various levels of assistance during calving:						
Level of Assistance	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Percent Replacement Heifers						
Easy pull	9.4	(±1.4)	10.6	(±1.1)	11.2	(±0.8)
Hard pull	7.4	(±0.8)	4.7	(±0.4)	5.1	(±0.4)
Cesarean section	0.4	(±0.1)	0.3	(±0.1)	0.4	(±0.1)
No assistance	82.8	(±1.6)	84.4	(±1.2)	83.3	(±0.9)
Total	100.0		100.0		100.0	
Percent Cows						
Easy pull	1.4	(±0.2)	1.7	(±0.2)	1.8	(±0.1)
Hard pull	0.8	(±0.1)	0.8	(±0.1)	0.9	(±0.1)
Cesarean section	0.0	(±0.0)	0.1	(±0.0)	0.0	(±0.0)
No assistance	97.8	(±0.2)	97.4	(±0.2)	97.3	(±0.2)
Total	100.0		100.0		100.0	
Percent All Females						
Easy pull	N/A	N/A	2.5	(±0.2)	2.7	(±0.2)
Hard pull	N/A	N/A	1.1	(±0.1)	1.2	(±0.1)
Cesarean section	N/A	N/A	0.1	(±0.0)	0.1	(±0.0)
No assistance	N/A	N/A	96.3	(±0.2)	96.0	(±0.2)
Total	N/A	N/A	100.0		100.0	
*Population: Spring calving operations with 5 or more cows in 18 states.						
**Population: All cow-calf operations in 23 states.						

The average number of hours mature cows were in labor before they were given assistance increased in the 5-year period.

b. Operation average number of hours females were allowed to labor before given assistance:						
Animal Type	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Replacement heifers	2.9	(±0.1)	2.9	(±0.2)	2.8	(±0.1)
Cows	2.6	(±0.1)	3.4	(±0.1)	3.5	(±0.1)
All females	N/A	N/A	3.4	(±0.1)	3.5	(±0.1)
*Population: Spring calving operations with 5 or more cows in 18 states.						
**Population: All cow-calf operations in 23 states.						

Most producers continued to assist replacement heifers, if needed, within 4 hours.

c. Percent of operations by average number of hours <b>replacement heifers</b> were normally allowed to labor before given assistance:						
Number Hours	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
1	25.8	(±3.3)	26.6	(±3.3)	27.9	(±2.5)
2	30.2	(±3.4)	30.8	(±3.1)	32.8	(±2.5)
3	19.2	(±3.1)	14.4	(±2.6)	14.7	(±2.1)
4	11.4	(±3.0)	14.7	(±3.5)	12.4	(±2.5)
5-6	8.4	(±2.3)	8.0	(±1.5)	7.3	(±1.2)
7 or more	5.0	(±1.6)	5.5	(±1.7)	4.9	(±1.3)
Total	100.0		100.0		100.0	
*Population: Spring calving operations with 5 or more cows in 18 states.						
**Population: All cow-calf operations in 23 states.						

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

Number Hours	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
1	16.3	(±2.3)	18.4	(±1.7)	18.2	(±1.3)
2	29.6	(±2.8)	27.4	(±2.0)	27.3	(±1.6)
3	24.9	(±2.9)	18.2	(±1.9)	16.9	(±1.4)
4	16.6	(±2.5)	15.7	(±2.0)	16.0	(±1.6)
5-6	8.4	(±1.8)	11.6	(±2.0)	12.8	(±1.7)
7 or more	4.2	(±1.3)	8.7	(±1.7)	8.8	(±1.3)
Total	100.0		100.0		100.0	

\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

e. Percent of assisted calvings attended by a veterinarian:

Animal Type	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Replacement heifers	N/A	N/A	11.7	(±1.4)	9.9	(±1.0)
Cows	N/A	N/A	15.1	(±1.8)	13.0	(±1.2)
All females	15.3	(±2.0)	13.9	(±1.3)	11.8	(±0.9)

\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

## C. Health and Health Management

### 1. Deworming

a. Percent of operations that dewormed cattle:					
1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
77.4	(±2.6)	75.0	(±2.1)	72.8	(±1.8)

\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

### 2. Operator-given injections

The percentage of operations where the operator gave injections in 1996 was similar to the percentage in 1992, with operators on 67.4 percent of operations giving injections to 83.0 percent of their cows.

a. Percent of operations (and percent of cows on these operations) where the operator or any unpaid or hired workers gave injections to any beef cattle:						
Percent	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA) Part V*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Operations	72.9	(±3.3)	67.4	(±2.4)	66.9	(±2.0)
Cows	88.5	(±1.8)	83.0	(±1.2)	84.3	(±1.0)

\*Population: Spring calving operations with 5 or more cows in 18 states. Part V refers to a specific CHAPA report.  
 \*\*Population: All cow-calf operations in 23 states.

Although decreasing, the percentage of producers that gave injections by the intramuscular route was still high in 1996 at 70.3 percent.

b. For operations where the operator or any unpaid or hired worker gave injections to any beef cattle, percent of operations that gave one or more injections by route:						
Route	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA) Part V*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Intramuscular	78.7	(±3.3)	70.3	(±2.8)	71.3	(±2.3)
Subcutaneous	67.6	(±4.5)	68.6	(±2.5)	67.8	(±2.0)
Other	0.9	(±0.4)	0.3	(±0.1)	0.3	(±0.1)

\*Population: Spring calving operations with 5 or more cows in 18 states. Part V refers to a specific CHAPA report.  
 \*\*Population: All cow-calf operations in 23 states.

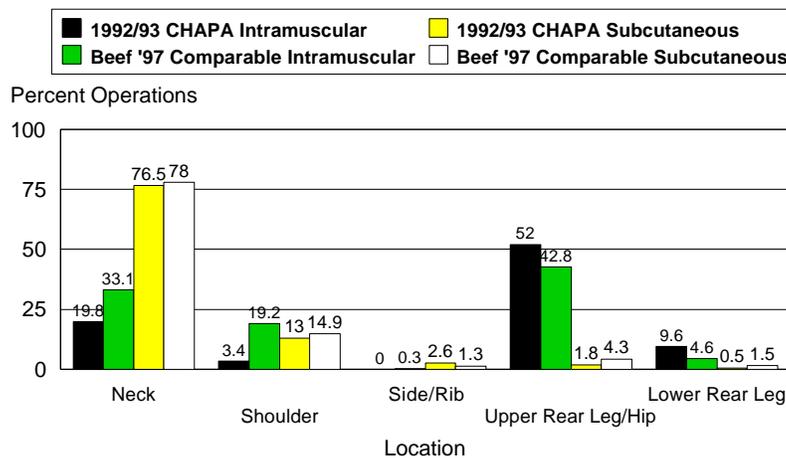
The neck region continued to be the predominant site of choice for subcutaneous injections. However, almost 50 percent of the intramuscular injections were still given in the rear leg.

c. For operations where the operator or any unpaid or hired workers gave intramuscular or subcutaneous injections to any beef cattle, percent of operations by usual location of injections within each route:

Route	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA) Part V*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Intramuscular						
Head	0.5	(±0.5)	N/A	N/A	N/A	N/A
Neck	19.8	(±3.8)	33.1	(±2.6)	35.2	(±2.1)
Shoulder	3.4	(±1.1)	19.2	(±3.1)	17.1	(±2.4)
Side/rib	0.0	(±0.0)	0.3	(±0.2)	0.3	(±0.1)
Upper rear leg/hip	52.0	(±5.4)	42.8	(±3.2)	42.8	(±2.5)
Lower rear leg	9.6	(±3.2)	4.6	(±1.3)	4.6	(±1.0)
Rump (along tail)	14.7	(±3.9)	N/A	N/A	N/A	N/A
Total	100.0		100.0		100.0	
Subcutaneous						
Head	5.4	(±3.3)	N/A	N/A	N/A	N/A
Neck	76.5	(±4.9)	78.0	(±3.1)	78.1	(±2.3)
Shoulder	13.0	(±4.0)	14.9	(±2.7)	13.3	(±2.1)
Side/rib	2.6	(±1.3)	1.3	(±0.4)	2.3	(±0.5)
Upper rear leg/hip	1.8	(±0.8)	4.3	(±1.3)	4.6	(±1.0)
Lower rear leg	0.5	(±0.4)	1.5	(±1.0)	1.7	(±0.9)
Rump (along tail)	0.2	(±0.1)	N/A	N/A	N/A	N/A
Total	100.0		100.0		100.0	

\*Population: Spring calving operations with 5 or more cows in 18 states. Part V refers to a specific CHAPA report.  
 \*\*Population: All cow-calf operations in 23 states.

**Percent of Operations by Usual Location of Operator-given Injections by Route\*, 1992-1996**



\*CHAPA categories of Head and Rump Along Tail are not shown.

#3718

### 3. Veterinarian-given injections

Use of veterinarians to give injections declined after 1992.

a. Percent of operations (and percent of cows on these operations) where a veterinarian gave injections to any beef cattle:						
Percent	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA) Part V*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Operations	49.9	(±3.7)	37.2	(±2.3)	36.2	(±1.8)
Cows	62.9	(±3.8)	47.4	(±2.0)	48.4	(±1.6)

\*Population: Spring calving operations with 5 or more cows in 18 states. Part V refers to a specific CHAPA report.  
 \*\*Population: All cow-calf operations in 23 states.

b. For operations where a veterinarian gave injections to any beef cattle, percent of operations by route:						
Route	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA) Part V*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Intramuscular	63.2	(±4.9)	75.5	(±2.7)	72.5	(±2.6)
Subcutaneous	76.4	(±4.5)	50.7	(±3.8)	53.7	(±3.1)
Other	2.2	(±1.5)	0.9	(±0.6)	1.1	(±0.5)

\*Population: Spring calving operations with 5 or more cows in 18 states. Part V refers to a specific CHAPA report.  
 \*\*Population: All cow-calf operations in 23 states.

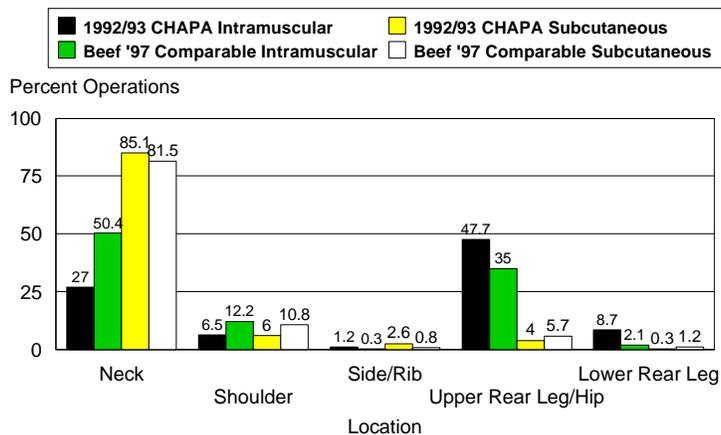
When veterinarians did give intramuscular injections, they tended to use the neck more frequently than producers. However, veterinarians still gave over one-third of their intramuscular injections in the leg in 1996. More veterinarians were using the neck for intramuscular injections in 1996.

c. For operations where a veterinarian gave intramuscular or subcutaneous injections to any beef cattle, percent of operations by usual location of veterinarian-delivered injections by route:

Location	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA) Part V*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Intramuscular						
Head	0.0	(±0.0)	N/A	N/A	N/A	N/A
Neck	27.0	(±5.7)	50.4	(±4.6)	49.8	(±3.7)
Shoulder	6.5	(±1.9)	12.2	(±3.4)	12.9	(±2.7)
Side/rib	1.2	(±0.8)	0.3	(±0.2)	0.4	(±0.2)
Upper rear leg/hip	47.7	(±6.4)	35.0	(±4.6)	34.8	(±3.6)
Lower rear leg	8.7	(±3.2)	2.1	(±0.7)	2.1	(±0.6)
Rump (along tail)	8.9	(±4.8)	N/A	N/A	N/A	N/A
Total	100.0		100.0		100.0	
Subcutaneous						
Head	1.9	(±1.1)	N/A	N/A	N/A	N/A
Neck	85.1	(±3.4)	81.5	(±4.9)	82.2	(±3.7)
Shoulder	6.0	(±1.9)	10.8	(±4.7)	10.5	(±3.4)
Side/rib	2.6	(±1.3)	0.8	(±0.4)	0.8	(±0.3)
Upper rear leg/hip	4.0	(±2.3)	5.7	(±2.3)	5.7	(±2.0)
Lower rear leg	0.3	(±0.3)	1.2	(±0.6)	0.8	(±0.4)
Rump (along tail)	0.1	(±0.1)	N/A	N/A	N/A	N/A
Total	100.0		100.0		100.0	

\*Population: Spring calving operations with 5 or more cows in 18 states. Part V refers to a specific CHAPA report.  
 \*\*Population: All cow-calf operations in 23 states.

**Percent of Operations by Usual Location of Veterinarian-given Injections by Route\*, 1992-1996**



\* CHAPA categories of Head and Rump Along Tail are not shown.

#### 4. Calf death loss

Calf death loss percentage had not changed since 1992, although causes of death changed. Deaths due to respiratory problems and weather increased, while those due to calving difficulties declined.

a. Calves born dead, died, or were lost as a percent of calves born by age (Beef '97 estimates comparable to CHAPA estimates not available):				
Note: Beef '97 estimates comparable to CHAPA estimates not available.				
Age	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97**	Standard Error
Born dead	2.1	(±0.1)	2.1	(±0.1)
24 hours or less after birth	0.8	(±0.1)	1.1	(±0.1)
More than 24 hours but less than 3 weeks after birth	N/A	N/A	1.1	(±0.1)
3 weeks or more after birth but before weaning	N/A	N/A	1.2	(±0.1)
Total	5.5	(±0.4)	5.5	(±0.2)
*Population: All cow-calf operations in 48 states. **Population: All cow-calf operations in 23 states.				

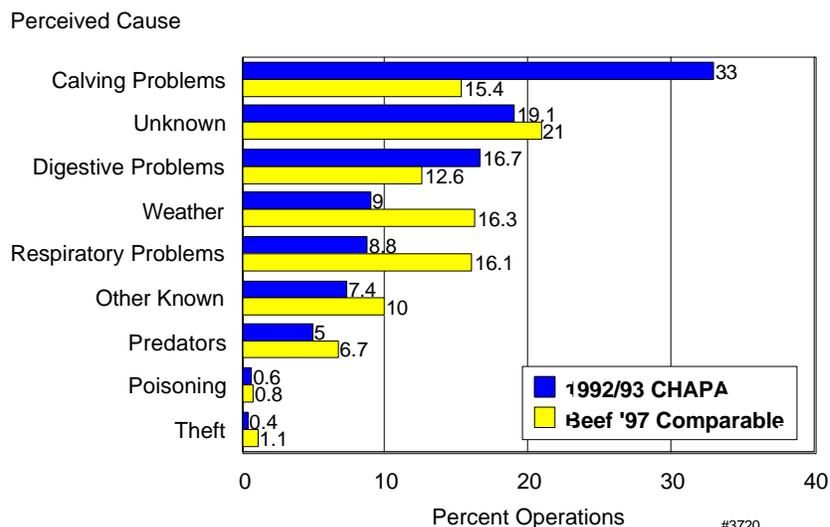
b. Unweaned calves that died or were lost to all causes...				
Note: Beef '97 estimates comparable to CHAPA estimates not available.				
	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97**	Standard Error
Question Variation	...as a percent of last weaned calf crop:		...as a percent of calves born alive in 1996:	
	3.5	(±0.3)	3.4	(±0.1)
*Population: All cow-calf operations in 48 states. **Population: All cow-calf operations in 23 states.				

c. For calves that died or were lost, percent of calf losses by perceived cause:

Perceived Cause	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Question Variation	For calves weighing less than 500 lbs.		For unweaned calves.			
Digestive problems	16.7	(±2.6)	12.6	(±1.2)	14.4	(±1.0)
Respiratory problems	8.8	(±1.4)	16.1	(±1.6)	16.3	(±1.2)
Weather	9.0	(±1.6)	16.3	(±1.6)	20.2	(±1.4)
Calving problems	33.0	(±2.9)	15.4	(±1.9)	13.9	(±1.3)
Poisoning	0.6	(±0.3)	0.8	(±0.3)	1.3	(±0.7)
Predators	5.0	(±1.1)	6.7	(±0.9)	6.4	(±0.7)
Theft	0.4	(±0.2)	1.1	(±0.4)	0.8	(±0.3)
Other known	7.4	(±1.8)	10.0	(±1.1)	9.2	(±0.9)
Unknown	19.1	(±1.9)	21.0	(±2.1)	17.5	(±1.4)
Total	100.0		100.0		100.0	

\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

### Percent of Calf\* Losses by Perceived Cause, 1992-1996



\*CHAPA referred to calves weighing less than 500 lbs., while Beef '97 asked about unweaned calves.

## 5. Calf morbidity

Fewer calves had scours in the first 3 weeks of life and slightly more had respiratory disease in 1996 than in 1992.

a. Number of calves 3 weeks old or less affected with the following conditions as a percent of calves born alive:						
Perceived Condition	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Respiratory disease	0.3	(±0.1)	0.4	0.1	0.5	(±0.1)
Scours or diarrhea	5.5	(±1.3)	1.8	0.2	2.4	(±0.2)
Pinkeye	<0.1	(±0.0)	0.1	0.0	0.1	(±0.0)
Foot rot	<0.1	(±0.0)	N/A	N/A	N/A	N/A

\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

## 6. Cattle death loss

The percent death loss for all operations increased from 1992 to 1996.

a. Weaned replacement heifers, cows, and bulls that died or were lost to all causes as a percent of January 1, 1997, beef breeding cattle inventory by herd size:						
Number Cows	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Question Variation	For all cattle weighing 500 or more lbs.		For beef breeding cattle.			
Less than 50	N/A	N/A	2.9	(±0.7)	2.4	(±0.3)
50-99	N/A	N/A	1.5	(±0.3)	1.4	(±0.1)
100-299	N/A	N/A	1.0	(±0.1)	1.2	(±0.1)
300 or more	N/A	N/A	1.0	(±0.1)	1.0	(±0.1)
All operations	1.0	(±0.1)	1.7	(±0.3)	1.5	(±0.1)
*Population: Spring calving operations with 5 or more cows in 18 states.						
**Population: All cow-calf operations in 23 states.						

Deaths due to weather increased while deaths due to calving problems declined.

b. For beef breeding cattle (weaned replacement heifers, cows, and bulls) that died or were lost, percent of breeding cattle losses by perceived cause:						
Perceived Cause	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Question Variation	For all cattle weighing 500 or more lbs.		For beef breeding cattle.			
Digestive problems	10.4	(±2.7)	6.0	(±1.2)	6.1	(±0.1)
Respiratory problems	8.5	(±2.2)	5.7	(±1.2)	6.0	(±1.0)
Weather	4.5	(±0.9)	19.8	(±5.4)	18.0	(±3.9)
Calving problems	25.9	(±4.3)	17.4	(±2.4)	17.0	(±1.9)
Poisoning	3.7	(±1.9)	3.9	(±0.8)	3.7	(±0.6)
Predators	0.4	(±0.2)	0.8	(±0.3)	1.1	(±0.3)
Theft	0.4	(±0.2)	0.5	(±0.3)	0.8	(±0.3)
Other known	20.6	(±3.4)	27.0	(±3.3)	27.0	(±2.8)
Unknown	25.6	(±3.6)	18.9	(±2.1)	20.3	(±2.2)
Total	100.0		100.0		100.0	
*Population: Spring calving operations with 5 or more cows in 18 states.						
**Population: All cow-calf operations in 23 states.						

## 7. Breeding female morbidity

Diarrhea and footrot problems in replacement heifers increased in 1996 while the abortion rate decreased. The adult cow herd saw decreases in cancer eye, foot rot, abortions, and retained placentas.

a. Percent breeding females affected by the following conditions:						
Perceived Condition	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
<b>Replacement Heifers</b>						
Respiratory disease	0.5	(±0.2)	0.6	(±0.2)	0.9	(±0.3)
Scours or diarrhea	0.2	(±0.1)	0.9	(±0.3)	1.0	(±0.2)
Pinkeye	1.1	(±0.4)	1.3	(±0.2)	1.9	(±0.4)
Cancer eye	<0.1	(±0.0)	0.0	(±0.0)	0.0	(±0.0)
Foot rot	0.3	(±0.1)	0.8	(±0.3)	0.8	(±0.2)
Mastitis	<0.1	(±0.0)	N/A	N/A	N/A	N/A
Retained placenta or uterine infection	0.5	(±0.2)	N/A	N/A	N/A	N/A
Abortion	0.7	(±0.2)	0.2	(±0.1)	0.3	(±0.1)
Neurologic problems	N/A	N/A	0.0	(±0.0)	0.0	(±0.0)
<b>Cows</b>						
Respiratory disease	0.2	(±0.1)	0.3	(±0.1)	0.3	(±0.0)
Scours or diarrhea	0.5	(±0.2)	0.5	(±0.1)	0.4	(±0.1)
Pinkeye	1.3	(±0.2)	1.3	(±0.2)	1.2	(±0.1)
Cancer eye	0.5	(±0.1)	0.2	(±0.0)	0.3	(±0.0)
Foot rot	1.3	(±0.4)	0.8	(±0.2)	0.8	(±0.1)
Mastitis	0.2	(±0.1)	0.2	(±0.0)	0.2	(±0.0)
Retained placenta or uterine infection	0.9	(±0.1)	0.3	(±0.0)	0.4	(±0.0)
Abortion	0.5	(±0.1)	0.2	(±0.0)	0.3	(±0.0)
Neurologic problems	N/A	N/A	0.1	(±0.0)	0.1	(±0.0)
<b>All Females</b>						
Respiratory disease	N/A	N/A	0.3	(±0.1)	0.4	(±0.1)
Scours or diarrhea	N/A	N/A	0.5	(±0.1)	0.5	(±0.1)
Pinkeye	N/A	N/A	1.4	(±0.2)	1.3	(±0.1)
Cancer eye	N/A	N/A	0.2	(±0.0)	0.2	(±0.0)
Foot rot	N/A	N/A	0.8	(±0.2)	0.8	(±0.1)
Mastitis	N/A	N/A	0.2	(±0.0)	0.2	(±0.0)
Retained placenta or uterine infection	N/A	N/A	0.2	(±0.0)	0.3	(±0.0)
Abortion	N/A	N/A	0.2	(±0.0)	0.3	(±0.0)
Neurologic problems	N/A	N/A	0.1	(±0.0)	0.1	(±0.0)

\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

## D. Nutrition Management

### 1. Implanting practices

Use of implants either before or at weaning declined from 1992 to 1996.

a. Percent of operations that implanted calves prior to or at weaning by practice:						
Practice	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
<b>Any calves prior to weaning:</b>	18.3	(±2.1)	13.8	(±1.0)	14.3	(±0.8)
Heifers intended for replacement prior to weaning	N/A	N/A	N/A	N/A	4.4	(±0.4)
Other calves prior to weaning	N/A	N/A	N/A	N/A	14.2	(±0.8)
<b>Any calves at weaning:</b>	17.6	(±1.9)	11.0	(±1.0)	10.8	(±1.0)
Heifers intended for replacement at weaning	N/A	N/A	N/A	N/A	2.2	(±0.7)
Other calves at weaning	N/A	N/A	N/A	N/A	9.8	(±0.8)
<b>Any calves prior to or at weaning:</b>	27.1	(±2.4)	18.4	(±1.3)	18.8	(±1.1)
Heifers intended for replacement prior to or at weaning	N/A	N/A	N/A	N/A	5.8	(±0.8)
Other calves prior to or at weaning	N/A	N/A	N/A	N/A	18.0	(±1.0)

\*Population: Spring calving operations with 5 or more cows in 18 states.  
 \*\*Population: All cow-calf operations in 23 states.

b. Number of calves born on operations that implanted as a percent of calves born on all operations by practice...						
Practice	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*	Standard Error	Beef '97 Comparable*	Standard Error	Beef '97**	Standard Error
Question Variation	...as a percent of calves born		...as a percent of calves born alive.			
<b>Any calves prior to weaning:</b>	37.9	(±3.1)	29.5	(±2.1)	33.0	(±1.6)
Heifers intended for replacement prior to weaning	N/A	N/A	N/A	N/A	11.8	(±1.0)
Other calves prior to weaning	N/A	N/A	N/A	N/A	32.8	(±1.6)
<b>Any calves at weaning:</b>	28.9	(±2.5)	19.9	(±1.5)	19.1	(±1.2)
Heifers intended for replacement at weaning	N/A	N/A	N/A	N/A	3.8	(±0.6)
Other calves at weaning	N/A	N/A	N/A	N/A	18.4	(±1.2)
<b>Any calves prior to or at weaning:</b>	47.9	(±3.0)	34.6	(±2.1)	37.3	(±1.7)
Heifers intended for replacement prior to or at weaning	N/A	N/A	N/A	N/A	13.7	(±1.1)
Other calves prior to or at weaning	N/A	N/A	N/A	N/A	37.0	(±1.7)
*Population: Spring calving operations with 5 or more cows in 18 states.						
**Population: All cow-calf operations in 23 states.						

## E. Sample Profile

### 1. Responding operations

	1992/93 Beef Cow/calf Health & Productivity Audit (CHAPA)*					Beef '97
	Part I	Part II	Part III	Part IV	Part V	
Number Responding Operations						
1. Total beef calves on hand:	Oct. 1992	Oct. 1992	Jan. 1, 1993	Jan. 1, 1993	Jan. 1, 1993	Jan. 1, 1997
0 cows, heifers only	19	0	0	0	0	0
1 - 4	106	15	10	9	9	*
5 - 9	135	41	29	27	25	*
10 - 49	790	255	165	161	153	1,231*
50 - 99	460	148	102	100	93	645
100 - 299	545	187	127	125	119	641
300 or more	484	153	107	101	96	196
Total	2,539	799	540	523	495	2,713
*Beef '97 number of responding operations with fewer than 50 beef cows on hand January 1, 1997. Parts I through V refer to specific CHAPA data collections and reports.						

# Beef '97: Expected Products and Related Study Objectives

## 1. Support global trade by estimating the prevalence of important animal pathogens.

- Johne's disease (interpretive summary), *expected fall 1998*.
- Bovine leukosis virus and Salmonella (info sheets), *expected fall 1998*.

## 2. Support efforts of the industry to supply quality products.

- Part I: Reference of 1997 Beef Cow-Calf Management Practices, June 1997.
- Part II: Reference of 1997 Beef Cow-Calf Health & Health Management Practices, July 1997.
- Information Sources for Cow-Calf Herds (Info Sheet), July 1997.
- Quality assurance, *expected summer 1998*.
- Calving management (info sheet), *expected summer 1998*.
- Injection sites (info sheet), *expected summer 1998*.
- Implants (info sheet), *expected summer 1998*.
- Weaning management (info sheet), *expected summer 1998*.

## 3. Support the efforts of APHIS to achieve a high level of emergency preparedness.

- Part I: Reference of 1997 Beef Cow-Calf Management Practices, June 1997.
- Part II: Reference of 1997 Beef Cow-Calf Health & Health Management Practices, July 1997.
- Part III: Beef Cow-Calf Production and Disease Control, January 1998.

## 4. Describe trends in animal health.

- *Part IV: Changes in Beef Cow-Calf Management Practices, 1993-1997*, May 1998.

## 5. Support disease control efforts.

- Vaccinations (info sheet), *expected summer 1998*.
- Johne's disease (interpretive summary), *expected fall 1998*.
- Bovine leukosis virus and Salmonella (info sheets), *expected fall 1998*.
- Part III: Beef Cow-Calf Production and Disease Control, January 1998.

## 6. Support efforts of the beef industry to become more efficient.

- Part I: Reference of 1997 Beef Cow-Calf Management Practices, June 1997.
- Identification in Beef Cow-Calf Herds (info sheet), July 1997.
- Part III: Beef Cow-Calf Production and Disease Control, January 1998.
- Marketing practices (info sheet), *expected summer 1998*.
- Nutritional management (info sheet), *expected summer 1998*.
- Reproductive technology (info sheet), *expected summer 1998*.
- Down market effects (info sheet), *expected summer 1998*.
- Grazed forage management (info sheet), *expected summer 1998*.
- Record keeping (info sheet), *expected summer 1998*.

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N238.598