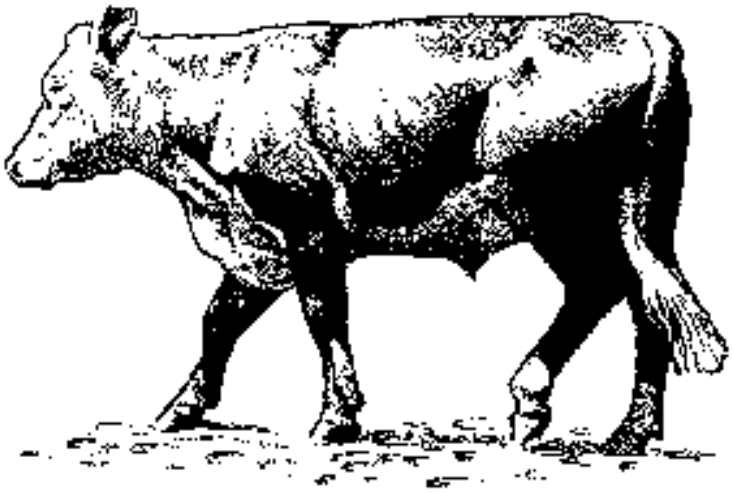
United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

**Veterinary
Services**

Part V:
Quality Assurance Profile



Beef
CHAPA
Cow/Calf Health & Productivity Audit

NAHMS

August 1994

Acknowledgements

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The Beef Cow/Calf Health and Productivity Audit was a cooperative effort between State and Federal agricultural statisticians, animal health officials, university researchers, and extension personnel. We want to thank the State and Federal Veterinary Medical Officers (VMO's) who visited the farms 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, Veterinary Medical Officer (VMO), Animal Health Technician (AHT), and enumerators from the National Agricultural Statistics Service (NASS) were critical in providing quality data for this report. All participants are to be commended for their efforts, particularly the producers whose voluntary efforts made the study possible.

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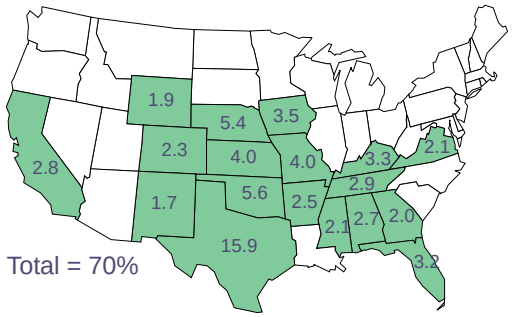
States Participating in Data Collection for this Report and Percent of U.S. Cow Inventory, January 1, 1992



Introduction

As part of the National Animal Health Monitoring System (NAHMS), USDA:APHIS:Veterinary Services conducted a National study of beef production designed to provide both participants and the industry with information on animal health, productivity, and management practices of cow/calf producers. The National Agricultural Statistics Service (NASS) collaborated with USDA:APHIS:VS to select a producer sample that was statistically designed to provide inferences about the nation's cow/calf population.

NASS enumerators contacted producers in the 48 continental States by computer-assisted telephone interview and asked a series of questions about management practices and the health of their animals. The 3,397 cow/calf producers participating represented all U.S. cow/calf operations. Results of NASS telephone contacts for the Beef Cow/Calf Health and Productivity Audit were released in August 1993 as *Part I: Beef Cow/Calf Herd Management Practices in the United States.*

Parts II and III were released in January of 1994. NASS enumerators collected data for *Part II:Nutritional & Reproductive Management Practices*, from November 9 through December 4, 1992, by personal interview from a subset of producers responding to the first NASS contact. Selective criteria were used to identify a new target population. Producers participating in this portion of the study were required to have five or more beef cows (or beef replacement heifers) at the start of the study and 50 percent or more of the 1992 calf crop born between January 1 and June 30, 1992. Data collection was limited to 18 of the largest cow/calf-producing States (facing page). These 18 States had 70 percent of the U.S. beef cow inventory.

The target population (spring calvers with 5 or more beef cows or replacement heifers) represented:

- 71 percent of beef cows on predominantly spring calving beef operations in the U.S. with 5 or more beef cows (or replacement heifers).
- 75 percent of predominantly spring calving beef operations in the U.S. with 5 or more beef cows (or replacement heifers).
- 49 percent of beef cows in the U.S.
- 42 percent of beef operations in the U.S.

Data for *Part III: Beef Cow/Calf Health & Health Management* were collected from 540 producers from the

CHAPA Descriptive Results

Part I: Beef Cow/Calf Herd Management Practices in the U.S.

- States surveyed: 48
- Target population: all U.S. beef cow/calf producers
- Participating producers: 3,397
- Data collection period: 9/29-10/9/92
- Date distributed: August 1993

Part II: Beef Cow/Calf Reproductive and Nutritional Management Practices

- States surveyed: 18
- Target population: beef cow/calf producers with 5 or more beef cows and with 50 percent or more of 1992 calves born from January through June
- Participating producers: 799
- Data collection period: 11/9-12/4/93

subset described previously. Federal and State Veterinary Officers (VMO's) conducted personal interviews with the producers between January 4 and February 28, 1993.

Data for *Part IV: Beef Cow/Calf Breeding Management* were collected from 523 producers continuing in the program. VMO's conducted personal interviews with producers from July 1-30, 1993.

Part V: Quality Assurance Profile data were collected from 495 producers who completed the entire program. VMO's conducted personal interviews with producers from January 1 through 31, 1994.

Descriptive tables in this report are divided into two parts:

- The **Participant Profile** contains descriptive results from only the subset of operations that completed the personal interview.
- **Population Estimates Based on Data Collected** are population estimates, such as averages and proportions which have been weighted to represent the cow/calf population. Most of the estimates are provided with a measure of variability called the standard error and denoted by (±). 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 at right, an estimate of 7.5 with a standard error of ±1.0 results in a range of 5.5 to 9.5 (two times the standard error above and below the estimate).

Additional Beef CHAPA National results will be released as they are completed. If you have questions about this report contact NAHMS at:

Centers for Epidemiology and Animal Health
USDA:APHIS:VS, Attn. NAHMS
555 South Howes, Suite 200
Fort Collins, Colorado 80521
(303) 490-7800
Internet: NAHMS-INFO@aphis.ag.gov

CHAPA Descriptive Results

Part III: Beef Cow/Calf Health and Health Management

- States surveyed: 18
- Target population: Same as Part II
- Participating producers: 540
- Data collection period: 1/4-2/28/93
- Date distributed: January 1994

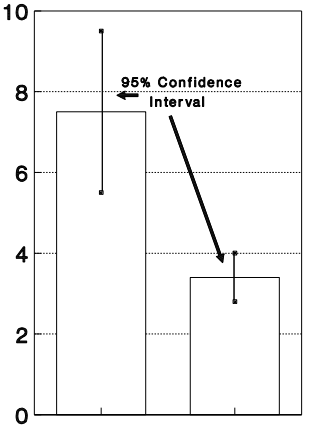
Part IV: Beef Cow/Calf Breeding Management

- States surveyed: 18
- Target population: Same as Parts II & III
- Participating producers: 523
- Data collection period: 7/1-7/30/93
- Distribution date: March 1994

Part V: Quality Assurance Profile

- States surveyed: 18
- Target population: Same as Parts II, III, & IV
- Participating producers: 495

Examples of 95% Confidence Intervals



(±1.0) (±0.3)
Standard Errors

Part V: Participant Profile[1]

1. Descriptive statistics of responding operations
   a. Beef cow herd size (as of 1/1/93):

Beef Cow Herd Size[2]	Number of Operations
1-4	9
5-9	25
10-49	153
50-99	93
100-299	119
300+	96
Total	495

1 Actual study values; not population estimates.

2 Post-stratification here is based strictly on number of beef cows. Replacement heifers were not included.

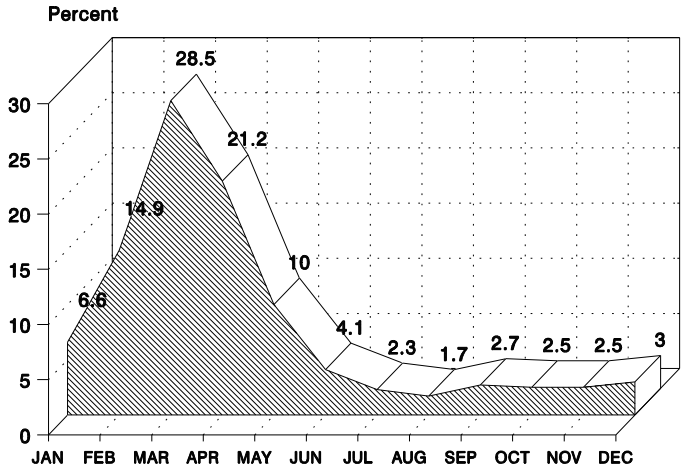
Part V: Population Estimates

1. Monthly calving management
   a. Percent of calves born by month during 1993:

Month	Percent	Standard Error
January	6.6	(± 0.8)
February	14.9	(± 1.2)
March	28.5	(± 1.6)
April	21.2	(± 1.3)
May	10.0	(± 0.9)
June	4.1	(± 0.4)
July	2.3	(± 0.3)
August	1.7	(± 0.3)
September	2.7	(± 0.3)
October	2.5	(± 0.3)
November	2.5	(± 0.3)
December	3.0	(± 0.3)
Total	100.0	

2. Calves weaned in 1993 - average weight and value at weaning

Percent of Calves Born by Month During 1993



   a. Operation average weaning weight and value per head[1]:

	Weaning Weight		Value	
	Average Pounds	Standard Error	Average Dollars	Standard Error
Calves	484.8	(±9.7)	$437.16	(±9.79)

1 Averages were first calculated for each operation, then an average (of the operation averages) was calculated across all operations.

b. Average weaning weight and value per head[1]:

	Weaning Weight		Value	
	Average Pounds	Standard Error	Average Dollars	Standard Error
Calves	503.6	(±8.0)	$467.34	(±7.15)

3. Breeding-age animals (culls and replacements) sold in 1993

a. Operation average weight and value per head for[2]:

	Weight		Value	
	Average Pounds	Standard Error	Average Dollars	Standard Error
Breeding-age females sold	1019.0	(±14.6)	$515.44	(±12.13)
Breeding-age bulls sold	1578.9	(±54.2)	$976.60	(±28.41)

b. Average weight and value per head for[1]:

	Weight		Value	
	Average Pounds	Standard Error	Average Dollars	Standard Error
Breeding-age females sold	1023.5	(±11.8)	$577.86	(±17.34)
Breeding-age bulls sold	1429.7	(±51.0)	$1137.06	(±54.01)

c. For operations that culled one or more breeding-age female during 1993, operation average percent sold (and percent of animals sold) for each of the following reasons:

Reason	Operation Average Percent	Standard Error	Percent of Animals	Standard Error
Pregnancy status (open or aborted)	28.3	(±3.7)	32.7	(±4.7)
Other reproductive problems (other than open or aborted)	7.4	(±2.5)	3.7	(±1.1)
Physical unsoundness (injury or lame)	4.1	(±1.6)	2.1	(±0.4)
Digestive problem	2.2	(±2.0)	0.2	(±0.2)
Respiratory problem	0.1	(±<0.1)	0.1	(±<0.1)
Udder problem	3.4	(±1.3)	1.8	(±0.4)
Producing poor calves	4.9	(±1.5)	5.2	(±1.3)
Bad eye(s)	3.4	(±1.1)	2.7	(±0.6)
Age/bad teeth	26.5	(±3.3)	21.4	(±2.4)
Temperament	3.3	(±1.3)	3.5	(±1.4)
Economics (drought, market, herd reduction)	7.5	(±2.5)	15.2	(±3.3)
Other	8.9	(±2.8)	11.4	(±2.7)
Total	100.0		100.0	

1 Reported number of head, total weight, and total value were summed over all operations, then per head weight and value derived.

2 Averages were first calculated for each operation, then an average (of the operation averages) was calculated across all operations.

4. Disposition of calves weaned July 1-December 31, 1993

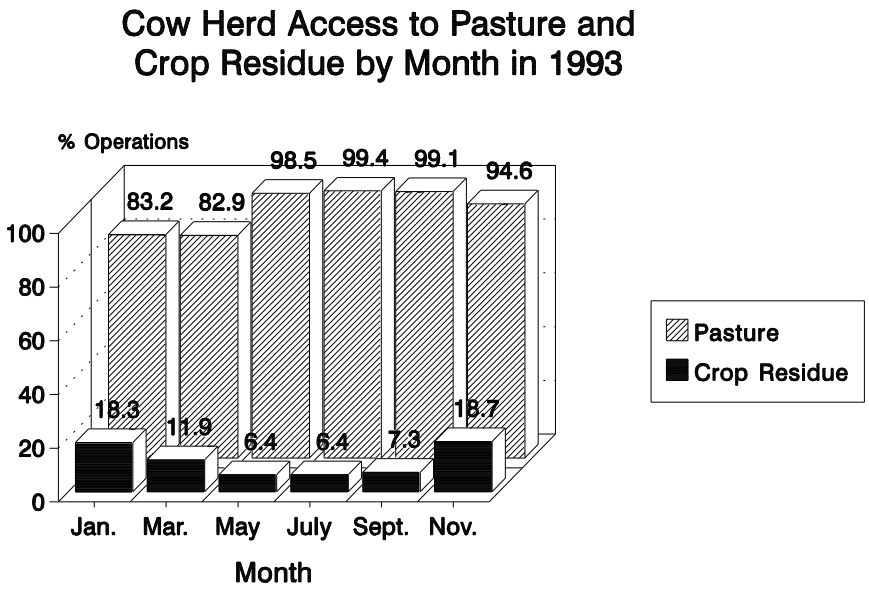
   a. Operation average percent and percent of calves:

Disposition	Operation Average Percent	Standard Error	Percent of Calves	Standard Error
Sold during 1993	59.2	(±2.9)	44.8	(±3.4)
Kept for replacement	14.3	(±1.3)	17.0	(±1.2)
Kept to graze or feed (stocker, feeder)	21.6	(±2.5)	32.8	(±3.5)
Kept for other purposes	4.9	(±1.4)	5.4	(±1.4)
Total	100.0		100.0	

5. Nutrition

   a. Percent of operations providing the cow herd with access to pasture or crop residue by selected month:

	Percent of Operations			
Month	Pasture	Standard Error	Crop Residue	Standard Error
January	83.2	(±2.3)	18.3	(±3.2)
March	82.9	(±2.2)	11.9	(±2.5)
May	98.5	(±0.6)	6.4	(±2.4)
July	99.4	(±0.4)	6.4	(±2.4)
September	99.1	(±0.5)	7.3	(±2.5)
November	94.6	(±0.9)	18.7	(±3.0)



5. Nutrition (continued)

b. Percent of operations feeding hay, silage, supplements, or grain to the cow herd during 1993 by month:

	Percent of Operations							
Month	Hay	Standard Error	Silage	Standard Error	Supplements	Standard Error	Grain	Standard Error
January	95.6	(±1.3)	3.5	(±1.2)	53.1	(±4.0)	40.0	(±3.8)
March	88.1	(±2.5)	3.6	(±1.2)	50.2	(±4.0)	34.9	(±3.7)
May	14.9	(±2.5)	0.9	(±0.3)	24.9	(±3.3)	8.1	(±1.9)
July	0.8	(±0.4)	0.0	(±0.0)	18.5	(±3.0)	4.1	(±1.5)
September	11.8	(±3.1)	0.4	(±0.4)	24.0	(±3.2)	6.4	(±2.1)
November	63.9	(±3.3)	0.1	(±0.1)	42.7	(±3.8)	22.9	(±3.4)

c. For operations feeding the following feedstuffs in the indicated month, average pounds fed per head per day to the cow herd during 1993 by month:

	Percent of Operations							
Month	Hay	Standard Error	Silage	Standard Error	Supplements	Standard Error	Grain	Standard Error
January	28.4	(±1.3)	25.3	(±2.2)	1.9	(±0.2)	3.4	(±0.3)
March	27.0	(±1.4)	26.3	(±2.1)	1.7	(±0.2)	3.8	(±0.4)
May	19.7	(±1.9)	28.2	(±5.8)	1.2	(±0.2)	4.1	(±1.1)
July	22.3	(±5.8)	0.0	(±0.0)	0.9	(±0.2)	4.4	(±1.9)
September	12.4	(±1.8)	15.0	(±0.0)	1.4	(±0.3)	3.0	(±1.2)
November	22.7	(±1.9)	34.4	(±0.7)	1.6	(±0.2)	4.3	(±1.2)

d. Percent of operations (and percent of cows on these operations grazing cattle in the previous 12 months:

Grazing Options	Percent of Operations	Standard Error	Percent of Cows	Standard Error
On public land	5.7	(± 2.0)	14.4	(±3.1)
In a grazing association	1.6	(±1.3)	2.0	(±1.0)

5. Nutrition (continued)

e. Percent of operations with cow herd access to the following water sources by selected months:

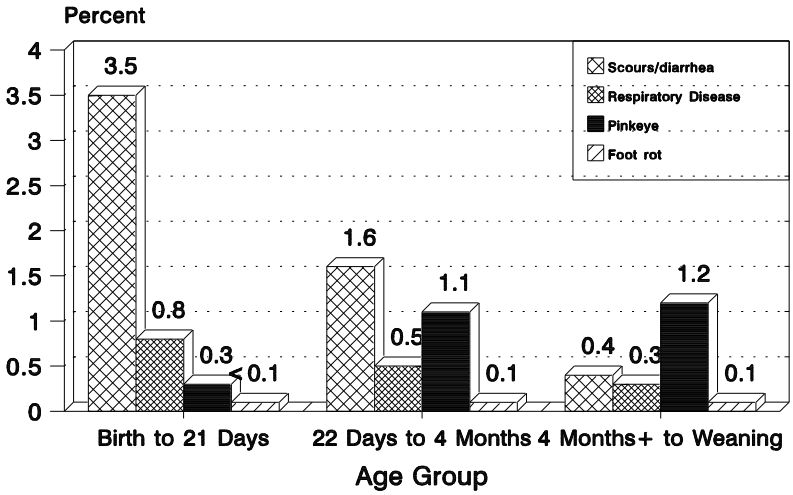
	Percent of Operations							
	January		April		July		October	
Water Source	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Tank or trough	42.6	(±3.8)	36.6	(±3.7)	38.2	(±3.9)	36.2	(±3.7)
Automatic waterer	15.4	(±2.6)	13.9	(±2.4)	9.9	(±2.1)	12.4	(±2.6)
River/stream	45.5	(±4.0)	47.9	(±4.1)	46.6	(±4.0)	48.1	(±4.0)
Pond/lake	54.7	(±3.8)	58.9	(±3.7)	62.8	(±3.7)	61.9	(±3.7)
Other	4.7	(±1.9)	3.9	(±1.8)	4.6	(±1.9)	5.4	(±1.9)

6. Death loss and health concerns

a. Operation average percent of calves affected during the 12 months prior to the study by the following conditions[1]:

	Birth to 21 Days		22 Days to 4 Months		Over 4 Months Until Weaning	
Condition	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Scours/diarrhea	3.5	(±0.6)	1.6	(±0.6)	0.4	(±0.3)
Respiratory disease	0.8	(±0.4)	0.5	(±0.2)	0.3	(±0.1)
Pinkeye	0.3	(±0.3)	1.1	(±0.3)	1.2	(±0.3)
Foot rot	<0.1	(±<0.1)	0.1	(±0.1)	0.1	(±<0.1)

Operation Average Percent of Calves Affected by Selected Conditions During the Past 12 Months, 1993



1 Owner-attributed condition.

6. Death loss and health concerns (continued)

b. Percent of calves affected during the past 12 months by the following conditions[1]:

	Birth to 21 Days		22 Days to 4 Months		Over 4 Months Until Weaning	
Condition	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Scours/diarrhea	7.0	(±0.9)	2.6	(±0.5)	0.6	(±0.4)
Respiratory disease	1.4	(±0.3)	1.1	(±0.2)	0.6	(±0.1)
Pinkeye	0.2	(±0.1)	1.0	(±0.2)	1.6	(±0.3)
Foot rot	<0.1	(±<0.1)	<0.1	(±<0.1)	0.2	(±0.1)

c. Operation average percent of cows and replacement heifers affected during the past 12 months by the following conditions[1]:

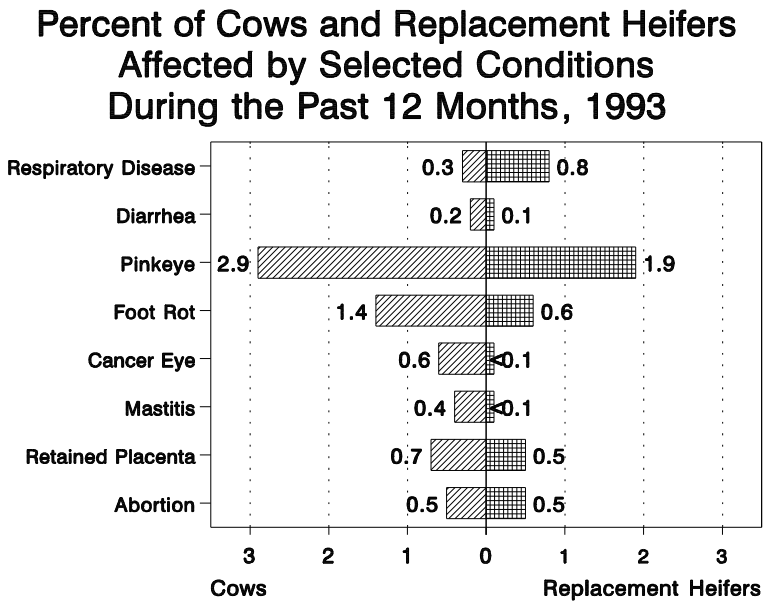
	Cows		Replacement Heifers	
Condition	Percent	Standard Error	Percent	Standard Error
Respiratory disease	0.3	(±0.1)	0.3	(±0.1)
Diarrhea	0.4	(±0.2)	<0.1	(±<0.1)
Pinkeye	2.5	(±0.7)	1.6	(±0.8)
Foot rot	1.1	(±0.3)	0.1	(±<0.1)
Cancer eye	0.3	(±0.1)	<0.1	(±<0.1)
Mastitis	0.3	(±0.1)	<0.1	(±<0.1)
Retained placenta or uterine infection	0.5	(±0.2)	0.1	(±<0.1)
Abortion	0.3	(±0.2)	<0.1	(±<0.1)

1 Owner-attributed condition.

6. Death loss and health concerns (continued)

d. Percent of cows and replacement heifers affected during the past 12 months by the following conditions[1]:

	Cows		Replacement Heifers	
Condition	Percent	Standard Error	Percent	Standard Error
Respiratory disease	0.3	(±0.1)	0.8	(±0.3)
Diarrhea	0.2	(±0.1)	0.1	(±0.1)
Pinkeye	2.9	(±1.0)	1.9	(±0.6)
Foot rot	1.4	(±0.3)	0.6	(±0.2)
Cancer eye	0.6	(±0.1)	<0.1	(±<0.1)
Mastitis	0.4	(±0.1)	<0.1	(±<0.1)
Retained placenta or uterine infection	0.7	(±0.1)	0.5	(±0.1)
Abortion	0.5	(±0.1)	0.5	(±0.1)



e. Calf death loss during 1993 (calves weighing less than 500 pounds died or lost) as a percent of calf crop:

Percent of Calf Crop	Standard Error
6.5	(±0.4)

f. Cattle death during 1993 (cattle weighing 500 pounds or more died or lost as a percent of total inventory:

Percent of Cattle Inventory	Standard Error
1.1	(±0.1)

1 Owner-attributed condition.

6. Death loss and health concerns (continued)

g. Percent of total cattle and calves that died or were lost during 1993 due to the following:

Perceived Cause[1]	Percent of Total Calf Death Loss	Standard Error	Percent of Total Cattle Death Loss	Standard Error
Digestive problems (e.g., bloat, scours, parasites)	13.3	(±2.3)	9.3	(±2.1)
Respiratory problems (e.g., pneumonia, shipping fever)	11.4	(±2.1)	8.1	(±2.7)
Weather (e.g., lightning, drowning, chilling)	21.5	(±2.7)	13.5	(±3.8)
Calving problems	31.8	(±2.8)	18.1	(±3.0)
Poisoning (e.g., nitrates, fescue, noxious weeds, feed)	0.4	(±0.2)	5.1	(±2.0)
Predators	2.8	(±0.9)	0.5	(±0.3)
Theft	0.5	(±0.2)	1.5	(±0.8)
Other known causes (e.g., lameness)	3.8	(±0.8)	26.9	(±4.5)
Unknown causes	14.5	(±1.9)	17.0	(±3.1)
Total	100.0		100.0	

h. Calf death loss by cause as a percent of calf crop:

Perceived Cause[1]	Percent of Calf Crop	Standard Error
Digestive problems (e.g., bloat, scours, parasites)	0.9	(±0.2)
Respiratory problems (e.g., pneumonia, shipping fever)	0.7	(±0.2)
Weather (e.g., lightning, drowning, chilling)	1.4	(±0.2)
Calving problems	2.1	(±0.2)
Poisoning (e.g., nitrates, fescue, noxious weeds, feed)	<0.1	(±<0.1)
Predators	0.2	(±0.1)
Theft	<0.1	(±<0.1)
Other known causes (e.g., lameness)	0.3	(±0.1)
Unknown causes	0.9	(±0.1)

1 Owner-attributed cause of death.

7. Animal identification: hide branding

a. Percent of operations hide branding unweaned calves:

Percent	Standard Error
16.0	(± 2.2)

b. Number of unweaned calves on operations hide branding as a percent of unweaned calves on all beef operations: 38.4 (± 3.6)

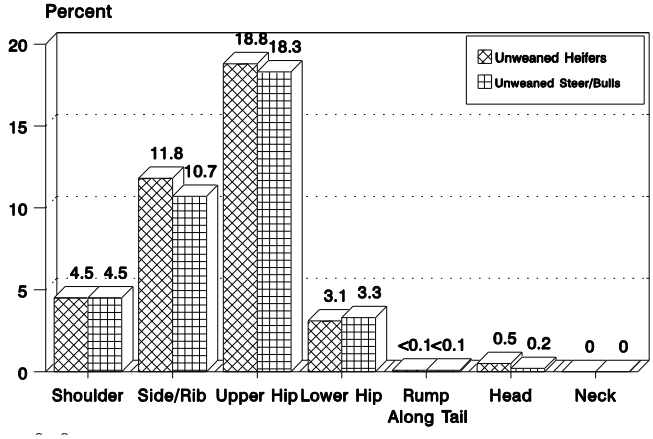
c. For operations hide branding, percent of operations branding by site location and operation average percent of unweaned calves branded (for those operations branding at a specific site):

	Operations Branding		Percent of Calves Branded			
Site [1]	Percent	Stand. Error	Unweaned Heifers	Stand. Error	Unweaned Steers/Bulls	Stand. Error
Shoulder (site A)	5.9	(± 2.0)	86.7	(± 9.5)	86.5	(± 9.5)
Side/rib (site B)	29.0	(± 5.7)	86.9	(± 4.5)	81.8	(± 6.7)
Upper hip (site C)	63.9	(± 6.8)	87.2	(± 4.5)	83.7	(± 5.7)
Lower hip (site D)	9.7	(± 4.9)	82.6	(± 10.9)	36.6	(± 22.0)
Rump along tail (site E)	<0.1	(± <0.1)	100.0	(± 0.0)	100.0	(± 0.0)
Head (site F)	0.2	(± 0.2)	100.0	(± 0.0)	2.7	(± 3.5)
Neck (site G)	0.0	(± 0.0)	0.0	(± 0.0)	0.0	(± 0.0)

d. Percent of unweaned beef calf crop (heifers and steers) hide-branded by site location:

	Percent Branded			
Site [1]	Unweaned Heifers	Standard Error	Unweaned Steers/Bulls	Standard Error
Shoulder (site A)	4.5	(± 2.3)	4.5	(± 2.3)
Side/rib (site B)	11.8	(± 1.9)	10.7	(± 1.8)
Upper hip (site C)	18.8	(± 3.7)	18.3	(± 3.7)
Lower hip (site D)	3.1	(± 1.1)	3.3	(± 1.4)
Rump along tail (site E)	<0.1	(± <0.1)	<0.1	(± <0.1)
Head (site F)	0.5	(± 0.4)	0.2	(± 0.2)
Neck (site G)	0.0	(± 0.0)	0.0	(± 0.0)

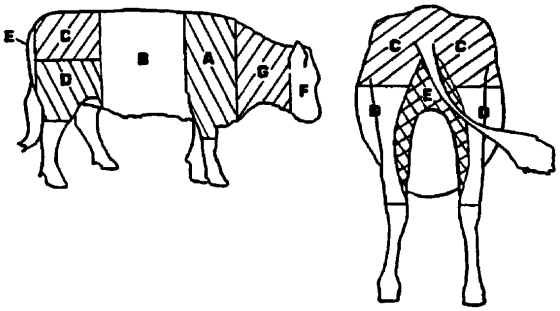
Percent of Unweaned Beef Calf Crop Hide-Branded by Site Location, 1993



1 See diagram of sites on page 13.

Injection and Branding Sites

A: Shoulder
B: Side/rib
C: Upper hip
D: Lower hip
E: Rump along tail
F: Head
G: Neck



8. Injections (vaccine, antibiotic, injectable dewormer, injectable minerals or vitamins) given to beef cattle in the last 12 months by *owner(s) or employees*.

a. Percent of operations where producers give injections:

Percent	Standard Error
72.9	(± 3.3)

b. Number of cows on operations where producers give injections as a percent of cows on all beef operations:

88.5	(± 1.8)

c. For operations where producers give injections, percent of operations giving one or more injection by each of the following routes:

Route	Percent	Standard Error
Muscle or intramuscular	78.7	(± 3.3)
Under the skin or subcutaneous	67.6	(± 4.5)
Other	0.9	(±0.4)

8. Injections by *owner(s) or employees* (continued)

d. For operations where producers give injections, operation average percent of injections given by each route:

Route	Percent	Standard Error
Muscle or intramuscular	53.3	(± 3.5)
Under the skin or subcutaneous	46.5	(± 3.5)
Other	0.2	(± 0.1)
Total	100.0	

e. For operations using various injection routes, number of cows on those operations as a percent of cows on all beef operations:

Route	Percent	Standard Error
Muscle or intramuscular	72.6	(± 3.0)
Under the skin or subcutaneous	68.2	(± 3.8)
Other	1.6	(± 0.6)

f. Percent of operations by main location of injection within each route:

	Percent of Operations by Site Within Each Route					
Injection Route:	Muscle/Intramuscular		Skin/Subcutaneous		Other	
Site	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Shoulder (site A)	3.4	(± 1.1)	13.0	(± 4.0)	0.0	(± 0.0)
Side/rib (site B)	0.0	(± 0.0)	2.6	(± 1.3)	13.1	(± 12.5)
Upper hip (site C)	52.0	(± 5.4)	1.8	(± 0.8)	0.0	(± 0.0)
Lower hip (site D)	9.6	(± 3.2)	0.5	(± 0.4)	14.8	(± 13.8)
Rump along tail (site E)	14.7	(± 3.9)	0.2	(± 0.1)	0.0	(± 0.0)
Head (site F)	0.5	(± 0.5)	5.4	(± 3.3)	23.4	(± 13.0)
Neck (site G)	19.8	(± 3.8)	76.5	(± 4.9)	48.7	(± 20.8)
Total	100.0		100.0		100.0	

g. Percent of all beef cows in herds by preferred injection site by route:

	Percent of All Cows					
Injection Route:	Muscle/Intramuscular		Skin/Subcutaneous		Other	
Site [1]	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Shoulder (site A)	2.8	(± 1.0)	7.2	(± 1.5)	0.0	(± 0.0)
Side/rib (site B)	0.0	(± 0.0)	2.0	(± 0.7)	0.2	(± 0.2)
Upper hip (site C)	39.7	(± 4.2)	1.5	(± 0.6)	0.0	(± 0.0)
Lower hip (site D)	6.0	(± 1.8)	0.3	(± 0.2)	0.2	(± 0.2)
Rump along tail (site E)	7.1	(± 1.7)	0.6	(± 0.5)	0.0	(± 0.0)
Head (site F)	1.5	(± 1.4)	3.1	(± 1.6)	0.4	(± 0.2)
Neck (site G)	15.4	(± 2.4)	53.6	(± 4.1)	0.8	(± 0.5)

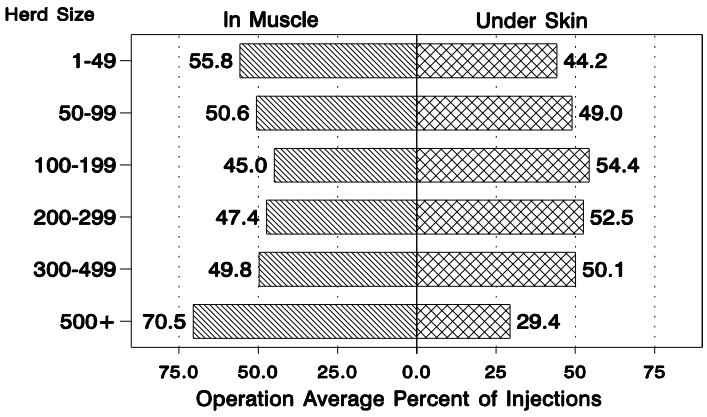
1 See diagram of sites on page 13.

8. Injections by *owner(s) or employees* (continued)

h. For producers giving any injections, operation average percent of injections by route & herd size:

	Percent of Injections						
	Muscle/Intramuscular		Skin/Subcutaneous		Other		
Beef Cow Herd Size	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error	Total
1-49	55.8	(± 4.9)	44.2	(± 4.9)	<0.1	(± <0.1)	100.0
50-99	50.6	(± 6.9)	49.0	(± 6.9)	0.4	(± 0.4)	100.0
100-199	45.0	(± 5.6)	54.4	(± 5.6)	0.6	(± 0.4)	100.0
200-299	47.4	(± 7.9)	52.5	(± 7.9)	0.1	(± <0.1)	100.0
300-499	49.8	(± 6.0)	50.1	(± 6.0)	0.1	(± 0.1)	100.0
500+	70.5	(± 10.8)	29.4	(± 10.8)	0.1	(± <0.1)	100.0
All	53.3	(± 3.5)	46.5	(± 3.5)	0.2	(± 0.1)	100.0

For Producers Giving Injections Percent of Injections Given by Route & Herd Size, 1993



9. Injections (vaccine, antibiotics, injectable dewormer, injectable minerals or vitamins) given to beef cattle on this farm in the last 12 months by *a veterinarian*

a. Percent of operations where veterinarians give injections:

Percent	Standard Error
49.9	(± 3.7)

b. Number of cows on operations where veterinarians give injections as a percent of cows on all beef operations: 62.9 (± 3.8)

c. For operations where injections are given by a veterinarian, percent of operations where one or more injections are given by each of the following routes:

Route	Percent	Standard Error
Muscle or intramuscular	63.2	(± 4.9)
Under the skin or subcutaneous	76.4	(± 4.5)
Other	2.2	(± 1.5)

d. For operations where injections are given by a veterinarian, operation average percent of injections given by route:

Route	Percent	Standard Error
Muscle or intramuscular	40.8	(± 4.2)
Under the skin or subcutaneous	57.5	(± 4.2)
Other	1.7	(± 1.5)
Total	100.0	

e. For operations using various injection routes, number of cows as a percent of cows on all beef operations:

Route	Percent	Standard Error
Muscle or intramuscular	35.0	(± 3.5)
Under the skin or subcutaneous	51.5	(± 4.0)
Other	0.9	(± 0.4)

9. Injections by *a veterinarian* (continued)

f. Percent of operations by main location of injection within each route:

Injection Route:	Percent of Operations by Site Within Each Route					
	Muscle/Intramuscular		Skin/Subcutaneous		Other	
Site [1]	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Shoulder (site A)	6.5	(± 1.9)	6.0	(± 1.9)	0.0	(± 0.0)
Side/rib (site B)	1.2	(± 0.8)	2.6	(± 1.3)	0.0	(± 0.0)
Upper hip (site C)	47.7	(± 6.4)	4.0	(± 2.3)	0.0	(± 0.0)
Lower hip (site D)	8.7	(± 3.2)	0.3	(± 0.3)	0.0	(± 0.0)
Rump along tail (site E)	8.9	(± 4.8)	0.1	(± 0.1)	0.0	(± 0.0)
Head (site F)	0.0	(± 0.0)	1.9	(± 1.1)	0.0	(± 0.0)
Neck (site G)	27.0	(± 5.7)	85.1	(± 3.4)	100.0	(± 0.0)
Total	100.0		100.0		100.0	

g. Percent of all beef cows in herds by preferred injection site by route:

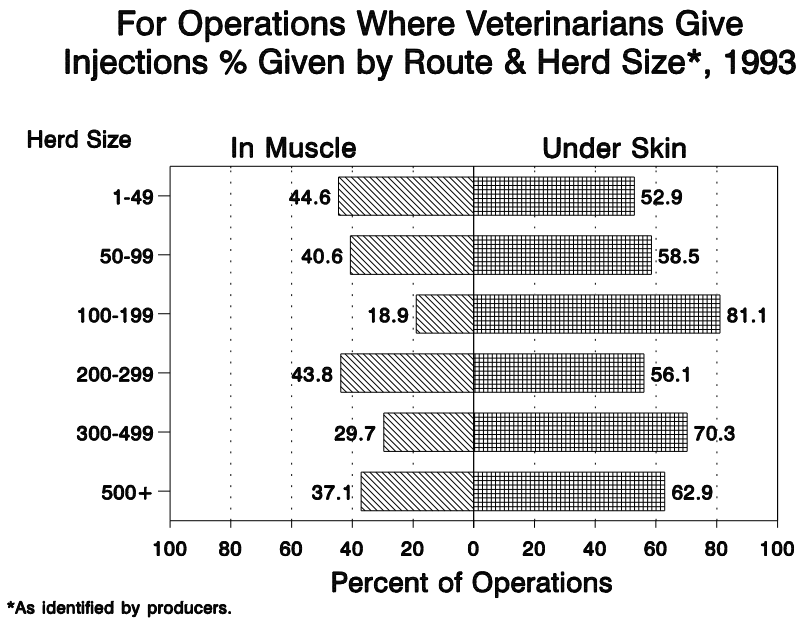
Injection Route:	Percent of Cows by Route					
	Muscle/Intramuscular		Skin/Subcutaneous		Other	
Site [1]	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error
Shoulder (site A)	3.3	(± 1.3)	3.7	(± 1.1)	0.0	(± 0.0)
Side/rib (site B)	0.4	(± 0.3)	1.0	(± 0.5)	0.0	(± 0.0)
Upper hip (site C)	16.7	(± 2.5)	1.0	(± 0.5)	0.0	(± 0.0)
Lower hip (site D)	2.3	(± 0.7)	0.4	(± 0.3)	0.0	(± 0.0)
Rump along tail (site E)	1.9	(± 0.9)	0.2	(± 0.2)	0.0	(± 0.0)
Head (site F)	0.0	(± 0.0)	0.8	(± 0.5)	0.0	(± 0.0)
Neck (site G)	10.2	(± 2.1)	44.4	(± 4.1)	0.9	(± 0.4)

1 See diagram of sites on page 13.

9. Injections by *a veterinarian* (continued)

h. For operations with veterinarians giving any injections, operation average percent of injections by route and herd size:

	Percent of Injections by Route						
	Muscle/Intramuscular		Skin/Subcutaneous		Other		
Beef Cow Herd Size	Percent	Standard Error	Percent	Standard Error	Percent	Standard Error	Total
1-49	44.6	(± 5.6)	52.9	(± 5.6)	2.5	(± 2.4)	100.0
50-99	40.6	(± 7.5)	58.5	(± 7.5)	0.9	(± 0.6)	100.0
100-199	18.9	(± 6.8)	81.1	(± 6.8)	<0.1	(± <0.1)	100.0
200-299	43.8	(± 14.7)	56.1	(± 14.7)	0.1	(± 0.1)	100.0
300-499	29.7	(± 7.5)	70.3	(± 7.5)	0.0	(± 0.0)	100.0
500+	37.1	(± 11.6)	62.9	(± 11.6)	<0.1	(± <0.1)	100.0
All	40.8	(± 4.2)	57.5	(± 4.2)	1.7	(± 1.5)	100.0



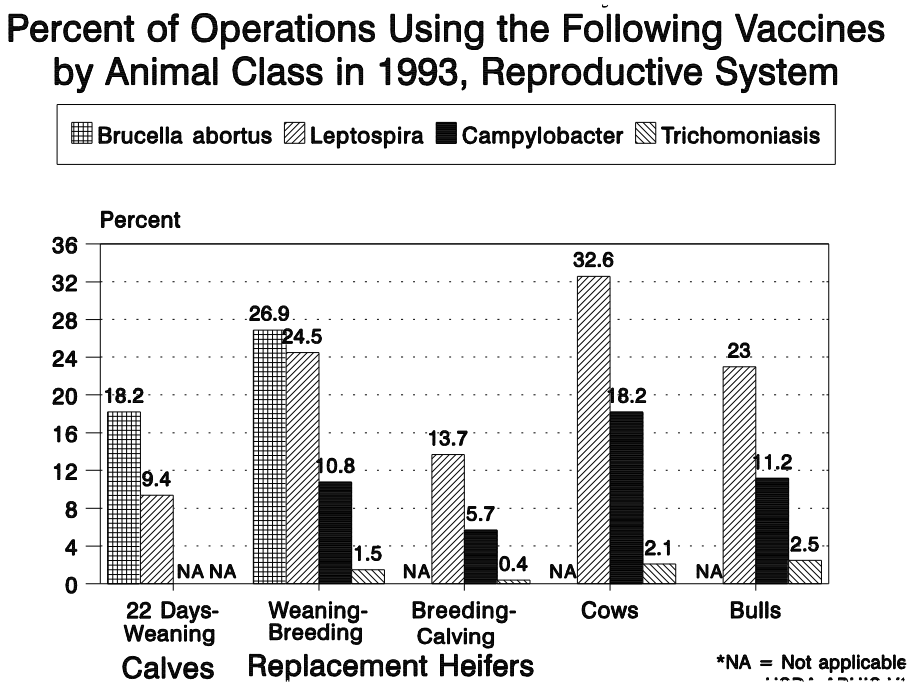
10. Vaccine usage

a. Percent of operations using the following vaccines in the last 12 months:

	Percent of Operations					
	Calves		Replacement Heifers			
Vaccine	1 to 21 Days	22 Days to Weaning	Weaning Through Breeding	After Breed. Through Calving	Cows	Bulls
General:						
IBR (rednose, infectious bovine rhinotracheitis)	2.2	17.3	15.9	7.4	17.7	13.2
Standard Error	(±1.1)	(±2.4)	(±2.7)	(±2.0)	(±2.6)	(±2.5)
BVD (bovine viral diarrhea)	1.8	16.0	15.4	7.4	19.4	14.5
Standard Error	(±1.1)	(±2.3)	(±2.7)	(±2.0)	(±2.9)	(±2.8)
Hemophilus somnus	1.6	11.4	9.3	2.6	5.5	5.1
Standard Error	(±1.0)	(±2.1)	(±2.2)	(±1.1)	(±1.9)	(±1.9)
Respiratory:						
PI3 (parainfluenza virus)	2.1	15.9	13.7	6.7	15.7	11.3
Standard Error	(±1.1)	(±2.3)	(±2.6)	(±1.9)	(±2.6)	(±2.5)
BRSV (bovine respiratory syncitial virus)	0.7	12.6	10.7	4.8	12.8	8.8
Standard Error	(±0.5)	(±2.1)	(±2.3)	(±1.5)	(±2.5)	(±2.3)
Pasteurella	0.5	8.2	8.2	2.1	5.3	5.3
Standard Error	(±0.4)	(±1.9)	(±2.2)	(±1.0)	(±1.9)	(±1.9)

10. Vaccine usage (continued)

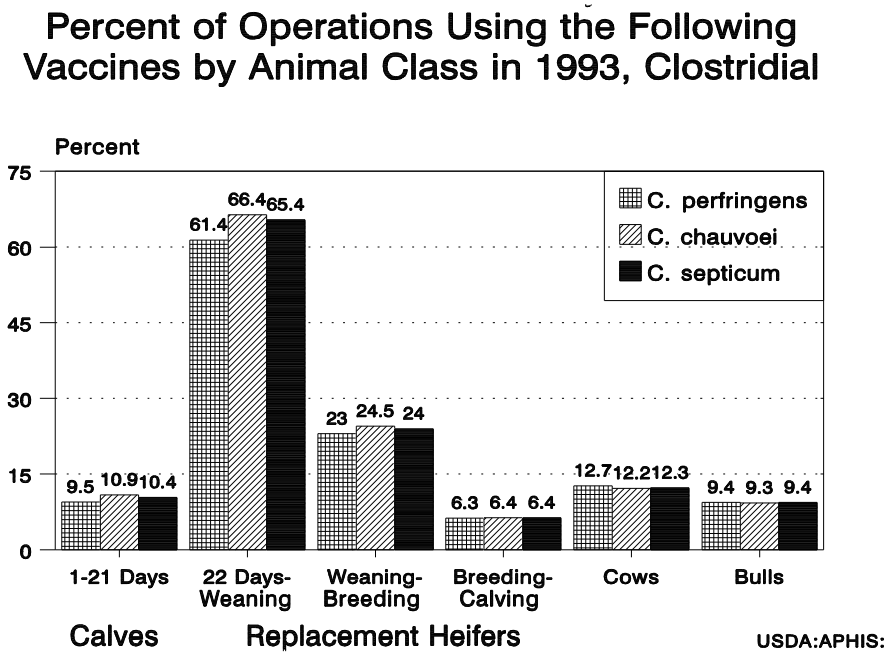
	Percent of Operations					
	Calves		Replacement Heifers			
Vaccine	1 to 21 Days	22 Days to Weaning	Weaning Through Breeding	After Breed. Through Calving	Cows	Bulls
Reproductive:						
Brucella abortus	NA[1]	18.2	26.9	NA[1]	NA[1]	NA[1]
Standard Error	NA[1]	(±2.9)	(±3.3)	NA[1]	NA[1]	NA[1]
Leptospira	NA[1]	9.4	24.5	13.7	32.6	23.0
Standard Error	NA[1]	(±2.6)	(±3.4)	(±2.6)	(±3.5)	(±3.2)
Campylobacter (vibrio)	NA[1]	NA[1]	10.8	5.7	18.2	11.2
Standard Error	NA[1]	NA[1]	(±2.0)	(±1.4)	(±2.7)	(±2.3)
Trichomoniasis	NA[1]	NA[1]	1.5	0.4	2.1	2.5
Standard Error	NA[1]	NA[1]	(±1.2)	(±0.2)	(±1.2)	(±1.4)



1 NA: Not applicable.

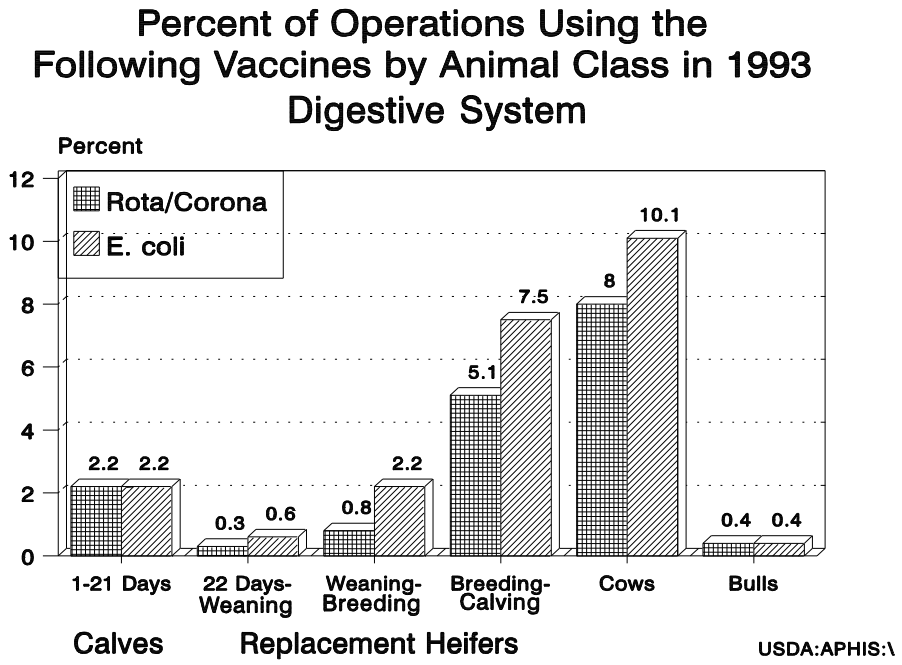
10. Vaccine usage (continued)

	Percent of Operations					
	Calves		Replacement Heifers			
Vaccine	1 to 21 Days	22 Days to Weaning	Weaning Through Breeding	After Breed. Through Calving	Cows	Bulls
Clostridial:						
C. perfringens C and D (enterotoxemia, overeating)	9.5	61.4	23.0	6.3	12.7	9.4
Standard Error	(±2.1)	(±3.6)	(±3.3)	(±2.0)	(±2.6)	(±2.4)
C. chauvoei (blackleg)	10.9	66.4	24.5	6.4	12.2	9.3
Standard Error	(±2.3)	(±3.7)	(±3.4)	(±2.0)	(±2.6)	(±2.4)
C. septicum (malignant edema)	10.4	65.4	24.0	6.4	12.3	9.4
Standard Error	(±2.3)	(±3.7)	(±3.3)	(±2.0)	(±2.6)	(±2.4)
C. sordeli	9.2	57.9	21.8	5.9	11.2	9.1
Standard Error	(±2.0)	(±3.6)	(±3.2)	(±2.0)	(±2.5)	(±2.4)
C. hemolyticum (redwater)	7.2	45.6	17.3	3.6	7.4	6.7
Standard Error	(±1.8)	(±3.8)	(±3.0)	(±1.5)	(±2.2)	(±2.2)
C. novyi (black disease)	9.2	60.6	21.5	5.8	10.7	9.0
Standard Error	(±2.0)	(±3.6)	(±3.2)	(±2.0)	(±2.4)	(±2.4)
C. tetani (tetanus)	6.0	36.2	13.8	3.3	6.5	5.8
Standard Error	(±1.8)	(±3.8)	(±2.8)	(±1.5)	(±2.1)	(±2.1)



10. Vaccine usage (continued)

	Percent of Operations					
	Calves		Replacement Heifers			
Vaccine	1 to 21 Days	22 Days to Weaning	Weaning Through Breeding	After Breed. Through Calving	Cows	Bulls
Digestive:						
Rota/corona	2.2	0.3	0.8	5.1	8.0	0.4
Standard Error	(±1.5)	(±0.2)	(±0.8)	(±1.6)	(±2.0)	(±0.3)
E. coli	2.2	0.6	2.2	7.5	10.1	0.4
Standard Error	(±1.5)	(±0.4)	(±1.4)	(±2.2)	(±2.3)	(±0.3)
Salmonella	<0.1	0.3	0.2	1.7	1.7	0.0
Standard Error	(±<0.1)	(±0.2)	(±0.2)	(±1.1)	(±1.1)	(±0.0)



Other:						
Anaplasmosis	NA[1]	0.0	0.2	0.1	0.3	0.3
Standard Error	NA[1]	(±0.0)	(±0.1)	(±0.1)	(±0.2)	(±0.1)
Moraxella bovis (pinkeye)	NA[1]	9.0	5.5	3.4	8.6	6.2
Standard Error	NA[1]	(±2.3)	(±2.0)	(±1.7)	(±2.4)	(±2.2)
Wart virus	0.0	0.0	0.7	0.1	0.0	0.0
Standard Error	(±0.0)	(±0.0)	(±0.4)	(±0.1)	(±0.0)	(±0.0)

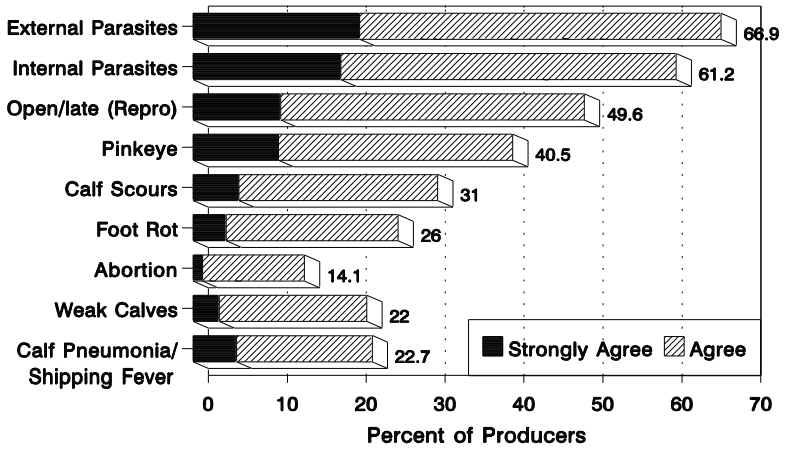
1 NA: Not applicable.

11. Producer opinions on beef health

a. Opinions on health conditions that had a significant economic impact on the cow/calf operation in the last 12 months. Considerations included the cost of prevention, cost of treatment, and lost production:

	Percent of Operations										
Conditions	Strongly Agree	Stand. Error	Agree	Stand. Error	Disagree	Stand. Error	Strongly Disagree	Stand. Error	No Opinion	Stand. Error	Total
Parasites											
Internal	18.7	(±3.0)	42.5	(±3.9)	26.6	(±3.7)	8.0	(±1.9)	4.2	(±1.5)	100.0
External	21.1	(±3.5)	45.8	(±4.0)	22.7	(±3.8)	5.6	(±1.6)	4.8	(±1.8)	100.0
Digestive											
Calf scours	5.8	(±1.3)	25.2	(±3.6)	45.8	(±4.0)	16.0	(±2.8)	7.2	(±2.2)	100.0
Bloat	2.3	(±1.0)	4.4	(±1.2)	53.4	(±4.2)	25.9	(±3.5)	14.0	(±3.0)	100.0
Ulcers (abomasal/ stomach)	0.4	(±0.2)	2.5	(±1.3)	47.6	(±4.1)	26.6	(±3.4)	22.9	(±3.5)	100.0
Coccidiosis	3.2	(±1.2)	9.7	(±2.6)	44.0	(±4.1)	25.2	(±3.5)	17.9	(±3.0)	100.0
Reproductive											
Open/late	11.1	(±2.5)	38.5	(±3.9)	31.3	(±3.8)	10.0	(±2.3)	9.1	(±2.5)	100.0
Abortion	1.2	(±0.4)	12.9	(±2.8)	54.5	(±4.1)	20.0	(±3.1)	11.4	(±2.7)	100.0
Weak calves	3.3	(±1.2)	18.7	(±3.0)	49.6	(±4.1)	17.8	(±3.1)	10.6	(±2.6)	100.0
Retained placenta/uterine infection	0.4	(±0.2)	14.7	(±2.7)	53.3	(±3.9)	19.6	(±3.2)	12.0	(±2.7)	100.0
Respiratory											
Calf pneumonia/shipping fever	5.5	(±1.4)	17.2	(±2.8)	47.1	(±4.0)	20.3	(±3.3)	9.9	(±2.6)	100.0
Cow asthma	<0.1	(±<0.1)	4.0	(±1.3)	48.1	(±4.0)	24.2	(±3.3)	23.7	(±3.2)	100.0

1993 Top Conditions that Producers Agreed Had a Significant Economic Impact on the Cow/Calf Operation During the Past 12 Months*



*Considerations included: cost of prevention, cost of treatment, and lost production.

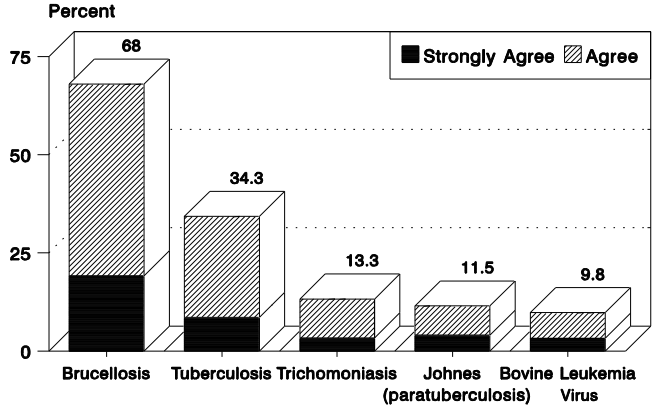
11. Producer opinions on beef health (continued)

Conditions	Strongly Agree	Stand. Error	Agree	Stand. Error	Disagree	Stand. Error	Strongly Disagree	Stand. Error	No Opinion	Stand. Error	Total
	Percent of Operations										
Plant-related											
Fescue	3.2	(±1.3)	7.2	(±1.9)	49.2	(±3.9)	21.0	(±3.1)	19.4	(±3.3)	100.0
Nitrate	0.8	(±0.6)	1.9	(±0.7)	47.4	(±4.1)	28.6	(±3.7)	21.3	(±3.3)	100.0
Larkspur	0.6	(±0.5)	0.3	(±0.1)	43.0	(±4.1)	26.9	(±3.6)	29.2	(±3.8)	100.0
Other plant-related problems	1.3	(±0.6)	3.6	(±1.5)	40.7	(±3.9)	25.6	(±3.6)	28.8	(±3.7)	100.0
Other											
Pinkeye	10.8	(±2.5)	29.7	(±3.7)	37.4	(±4.1)	13.0	(±2.3)	9.1	(±2.5)	100.0
Foot rot	4.2	(±1.6)	21.8	(±3.1)	44.2	(±4.1)	18.8	(±3.1)	11.0	(±2.7)	100.0
White muscle disease (selenium/vitamin E deficiency)	1.5	(±0.7)	3.8	(±1.2)	45.8	(±4.1)	23.1	(±3.4)	25.8	(±3.5)	100.0
Copper deficiency	1.2	(±0.6)	5.0	(±1.6)	43.6	(±4.1)	21.0	(±3.2)	29.2	(±3.7)	100.0
Anaplasmosis	0.9	(±0.6)	2.8	(±1.2)	46.0	(±3.8)	22.6	(±2.9)	27.7	(±3.4)	100.0
Grass tetany	3.7	(±1.1)	12.7	(±2.6)	46.6	(±4.0)	20.2	(±3.3)	16.8	(±3.1)	100.0

b. Opinions on the following conditions that are significant problems for the beef cattle industry:

Conditions	Strongly Agree	Stand. Error	Agree	Stand. Error	Disagree	Stand. Error	Strongly Disagree	Stand. Error	No Opinion	Stand. Error	Total
	Percent of Operations										
Tuberculosis	8.6	(±1.8)	25.7	(±3.4)	26.4	(±3.5)	5.8	(±1.5)	33.5	(±3.8)	100.0
Brucellosis1	19.2	(±2.9)	48.8	(±4.2)	14.5	(±2.5)	2.8	(±0.9)	14.7	(±3.0)	100.0
Trichomoniasis	3.4	(±1.2)	9.9	(±2.1)	19.1	(±3.1)	6.4	(±1.7)	61.2	(±3.5)	100.0
Johnes disease (para-tuberculosis)	4.1	(±1.9)	7.4	(±1.8)	15.0	(±2.8)	7.9	(±2.0)	65.6	(±3.6)	100.0
Bovine leukemia virus infection	3.3	(±1.6)	6.5	(±1.7)	15.9	(±2.8)	6.4	(±1.9)	67.9	(±3.5)	100.0

% Producers That Agreed the Following Conditions Are Significant Problems for the Beef Cattle Industry, 1993



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