

# **Trends in the Missouri Cattle Industry**

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## **Overview**

Cattle production has always been important to Missouri. In 1998, the value of cattle production was \$2.4 Billion (Table 1). The value of cattle production contributing to Missouri's economy has been volatile since 1980, with a low of \$1.68 Billion in 1986. From 1986 to 1994, value of production increased 73% to \$2.9 Billion (Table 1, Figure 1). Cattle production contributed 24% of the cash receipts from all Missouri commodities in 1980, but dropped to 16% in 1998 (Table 2, Figure 2). The largest decline was from 1994 to 1995, when the value of cattle production fell from 22% to 15.7% (Figure 2). The price decline during this period was a significant contributor to this fall. This publication discusses historical trends in the Missouri cattle industry. The information in this paper is intended to provide livestock persons in Missouri a snapshot of the importance of the cattle industry to Missouri agriculture and a perspective of how Missouri compares nationally.

## **Number of Operations**

As of 1998 Missouri was home to 6.2 percent of the U.S. Cattle operations ranking second nationally (Table 3). Historically, Missouri has maintained its second place rank in the number of cattle operations and also beef cow operations. Between 1980 and 1984 the number of cattle operations stayed around 100,000 operations. After 1984, the number of cattle operations fell sharply to 74,000 by 1992. Figure 3 (and table 4) illustrates that from 1981 to 1998 the number of operations decreased approximately 30% to around 69,000 operations. Total farms in Missouri decreased 15% between 1980 and 1998 (Figure 3). When compared to the number of farms in Missouri and their disappearance, Missouri has been losing cattle operations at twice the rate (Figure 3). The number of beef operations in Missouri has declined also. From 1986 to 1998 the number of Missouri beef operations dropped 22% from 76,000 to 59,000 (Figure 4, Table 4).

## **Operation Size**

Missouri has held second place in number of beef cows, but ranked second in the number of all cows until 1997 when it dropped to third place (Table 3). Missouri lost inventory of cattle and calves also, falling from a rank of second place in 1975 to seventh in 1990 with 4.5 million head and placing sixth in 1998 with 4.4 million head (Table 3). Missouri's latest rank came simultaneously with a decrease in inventory. The number of beef cattle on farms increased steadily from 1.2 million in 1867 to 6.8 million in 1977, but dropped off to around 4.4 million in 1998 (Figure 5). Overall, beef cattle on farms increased 281% over the entire time period (Figure 5). Average herd size has changed as well (Figure 6). The average beef herd size in 1986 was 25.7 and grew to 35 by 1998 (Table 4 and Figure 6). By separating the cattle operations into

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size classes it is easier to see how the cattle industry is evolving. Table 5 indicates that in 1989, 67.5% of the total operations had between 1 and 49 head of cattle; by 1998 that percentage decreased to 62.3%. The 50-99 and 100-499 head operations are growing more than the largest operations of 500 head and above. The Missouri beef cattle industry is concentrated in the small, 1-49 head category with around 80% of the operations (Table 6). However, it is worth noting that 17.5% of the operations own 60% of the cattle in Missouri. Beef operations in the mid-sized category of 50-99 head increased 3.2 percentage points from 1989 to 1997 (Table 6).

### **Slaughter**

Missouri's average head of cattle slaughtered has declined substantially since 1980. Between 1988 and 1998, Missouri lost over 60% of its cattle slaughter (Figure 7). Over this sixteen-year period, Missouri lost 87% of its cattle slaughter. Missouri's calf slaughter has declined 75% from 1981 to 1998 (Figure 9). The seasonal index in Figure 10 illustrates that more cattle are slaughtered in the months of October through February. From January to May, slaughter normally decreases around 36 percentage points. The upward trend in slaughter cattle weight has transpired into a 7.5% total increase in weight over time (Figure 11). One issue currently being addressed in the cattle industry is the larger supply of beef. Figure 11 illustrates that the increase in the supply of beef may be due partially to heavier cattle. The seasonal index of slaughter cattle weight indicates that cattle slaughtered in the months April through August generally weigh around 5% more than the cattle slaughtered in fall and winter months (Figure 12). The trend in slaughter calf weight is very similar to the trend in slaughter cattle weight with an increase in weight beginning in 1990 (Figure 13).

### **Input Costs**

The average cost in the state of Missouri for renting pasture in 1999 was \$18.50, down from \$24.10 in 1991. The highest cost occurred between 1989 and 1992 when the state average price was 20% higher (Table 7) - also corresponds to higher cattle prices. Cash renting pasture is becoming cheaper in every district of Missouri. The five-year average loss in value reached as high as 4.23% decline and as low as a 2.7% decline - probably corresponds to lower cattle prices. For the state as a whole, the drop in cash rent prices was 3.44% (Table 8). The largest drop in occurred between 1993 and 1994 when there was a drop as large as 22.8%.

Volatility in alfalfa prices has diminished since 1991 (Figure 14). Prices increased about \$20/ton between 1991 and 1998, remaining above \$90/ton. In 1986, alfalfa prices fell to as low as \$60/ton and reached \$85/ton by 1989. The same decrease in volatility is occurring in the price of hay. Hay prices increased 7% overall (Figure 15). Corn prices have been very variable. Between 1996 and 1997 the price rose 118% and then fell back to pre-1996 price levels, but then fell by 49% to current prices (Figure 16).

### **Prices Received**

The price of beef cows increased from around \$50/cwt. to \$83.70/cwt. from 1987 to 1991 and fell back to around \$45/cwt. in the 1996 period (Figure 17). Prices have since rebounded significantly; however, most of the increase has occurred only recently. Steer and heifer prices

follow the beef cow price trends very closely with a jump in prices starting in 1987 to a high in 1991 of \$90.90/cwt. and a low in 1996 of \$49.00/cwt (Figure 18). Over this time period, beef-cow prices dropped to a low of \$26/cwt. in 1981 and increased to \$57/cwt. by 1990. The 1990s were a period of decline in cow prices as prices fell to a low of \$29/cwt. in 1997. Calf prices increased 97% from \$55/cwt. in 1987 to \$109/cwt. in 1992 . After the increase in prices of the late 1980s and early 1990s there was a drop in prices of 62% to \$41/cwt. by 1996. Since 1996 price has trended upward to near pre-peak cattle cycle calf prices. Again, most of this price increase has been seen during the past year.

Table 1. Missouri Value of All Cattle Production

Source: Missouri Agricultural Statistics

	Nominal Dollars Value (\$000)	Real 1997 Dollars Value (\$000)
1980	2,619,000	3,628,102
1981	2,469,750	3,135,070
1982	2,025,000	2,519,100
1983	1,980,000	2,431,510
1984	1,846,000	2,214,488
1985	1,770,250	2,133,906
1986	1,680,000	2,085,749
1987	1,794,000	2,170,949
1988	2,178,000	2,534,548
1989	2,475,000	2,744,118
1990	2,618,000	2,800,337
1991	2,706,000	2,889,497
1992	2,587,500	2,746,459
1993	2,760,000	2,887,670
1994	2,921,250	3,018,301
1995	2,587,500	2,581,275
1996	2,047,500	1,994,589
1997	1,935,000	1,886,473
1998	2,408,000	2,408,000

Table 2. Missouri Cash Receipts

Source: Missouri Agricultural Statistics

	All Commodities (\$000)	Cattle & Calves (\$000)	% of All Commodities
1980	4,149,959	1,000,740	24.1
1981	4,181,494	1,081,055	25.9
1982	3,889,551	865,003	22.2
1983	3,988,002	973,056	24.4
1984	3,699,898	912,962	24.7
1985	3,677,287	753,840	20.5
1986	3,509,197	772,981	22.0
1987	3,686,765	897,674	24.3
1988	3,796,366	930,333	24.5
1989	3,920,860	897,843	22.9
1990	3,984,282	921,399	23.1
1991	3,884,910	929,570	23.9
1992	4,146,752	882,145	21.3
1993	4,112,062	861,180	20.9
1994	4,502,072	953,998	21.2
1995	4,373,947	707,455	16.2
1996	4,895,642	643,886	13.2
1997	5,402,223	924,761	17.1
1998	4,686,877	758,893	16.2

Table 3. Missouri's Cattle Industry Rank Among States

Source: Missouri Agricultural Statistics

	U.S. Rank	Total	% of US Total
1975			
Beef Cow Operations	n/a	n/a	n/a
Cattle Operations	2	n/a	n/a
Beef Cows (head)	2	n/a	n/a
Cattle & Calves (head)	2	n/a	n/a
All Cows (head)	2	n/a	n/a
1980			
Beef Cow Operations	n/a	n/a	n/a
Cattle Operations	2	n/a	6
Beef Cows (head)	2	n/a	6
Cattle & Calves (head)	5	n/a	5
All Cows (head)	2	n/a	5
1985			
Beef Cow Operations	n/a	n/a	n/a
Cattle Operations	2	n/a	7
Beef Cows (head)	2	n/a	6
Cattle & Calves (head)	7	n/a	5
All Cows (head)	2	n/a	5
1990			
Beef Cow Operations	2	67,000	7.2
Cattle Operations	2	82,000	6.4
Beef Cows (head)	2	2,040,000	6.1
Cattle & Calves (head)	7	4,500,000	4.5
All Cows (head)	2	2,270,000	5.2
1995			
Beef Cow Operations	2	62,000	6.8
Cattle Operations	2	75,000	6.2
Beef Cows (head)	2	2,165,000	6.1
Cattle & Calves (head)	5	4,650,000	4.5
All Cows (head)	2	2,350,000	5.3
1996			
Beef Cow Operations	2	64,000	7.1
Cattle Operations	2	74,000	6.2
Beef Cows (head)	2	2,075,000	6.1
Cattle & Calves (head)	6	4,450,000	4.4
All Cows (head)	2	2,250,000	5.2
1997			
Beef Cow Operations	2	60,000	6.8
Cattle Operations	2	69,000	5.9
Beef Cows (head)	2	1,990,000	5.9
Cattle & Calves (head)	6	4,300,000	4.3
All Cows (head)	3	2,150,000	5
1998			
Beef Cow Operations	2	59,000	6.9
Cattle Operations	2	69,000	6.2
Beef Cows (head)	2	2,065,000	6.2
Cattle & Calves (head)	6	4,400,000	4.5
All Cows (head)	3	2,230,000	5.2

Table 4. Missouri Number of Farms, Inventory and Average Herd Size.

Source: Missouri Agricultural Statistics

	All Cattle Operations	All Cattle On Farms (000 Head)	Average Herd Size	Beef Operations	Beef Cows on Farms (000 Head)	Average Beef Herd Size
1980	100,000	5400	54	n/a	2278	n/a
1981	100,000	5550	56	n/a	2315	n/a
1982	100,000	5400	54	n/a	2205	n/a
1983	100,000	5500	55	n/a	2223	n/a
1984	100,000	5200	52	n/a	2122	n/a
1985	98,000	4850	49	n/a	2000	n/a
1986	96,000	4800	50	76,000	1955	26
1987	92,000	4600	50	73,000	2003	27
1988	87,000	4400	51	70,000	1924	27
1989	83,000	4400	53	67,000	1957	29
1990	82,000	4400	54	67,000	1964	29
1991	80,000	4400	55	65,000	1980	30
1992	74,000	4500	61	61,000	2050	34
1993	75,000	4600	61	62,000	2060	33
1994	75,000	4750	63	63,000	2230	35
1995	75,000	4600	61	63,000	2145	34
1996	73,000	4650	64	63,000	2185	35
1997	71,000	4550	64	60,000	2140	36
1998	69,000	4350	63	59,000	2045	35

Table 5. Missouri All Cattle on Farms by Size of Operation (1989-1998).

Source: Missouri Agricultural Statistics

	1-49 Head		50-99 Head		100-499 Head		500-999 Head		1000 Head & Over	
	Operations	Inventory	Operations	Inventory	Operations	Inventory	Operations	Inventory	Operations	Inventory
	--percent--									
1989	67.5	23.3	17.5	22.8	14.4	45.6	0.6	8.3	N/A*	N/A
1990	68.3	22.5	16.6	22.2	14.4	46	0.7	9.3	N/A	N/A
1991	66.3	21.1	17	20.7	16	48.1	0.8	10.1	N/A	N/A
1992	63.5	19.6	18.9	22.3	16.6	46.7	0.9	11.4	N/A	N/A
1993	62.7	20	20	22	16.5	48	0.8	10	N/A	N/A
1994	62.7	21	20	21.5	16.5	48	0.8	7	0.08	2.5
1995	64	23	19.3	22	16	47	0.7	6	0.06	2
1996	61.6	21	20.8	22	16.8	48	0.7	5.5	0.12	3.5
1997	59.4	20	22.2	21	17.7	49	0.7	6	0.13	4
1998	62.3	19	20.3	21	16.5	48	0.7	7	0.18	5

\* Data not previously reported until 1999

Table 6. Missouri Beef Cattle on Farms by Size of Operation (1989-1998).

Source: Missouri Agricultural Statistics

	1-49 Head		50-99 Head		100-499 Head		500 Head & Over	
	Operations	Inventory	Operations	Inventory	Operations	Inventory	Operations	Inventory
	--percent--							
1989	84.8	50.5	10.6	23.5	4.6	26	N/A*	N/A
1990	85	49	10	22.6	5	28.4	N/A	N/A
1991	83.1	46.3	11.8	25.1	5.1	28.5	N/A	N/A
1992	82	44	12.3	25	5.7	31	N/A	N/A
1993	79	42	14.5	28	6.5	30	N/A	N/A
1994	79.4	44	14.1	27	6.5	26.5	0.16	3.5
1995	81	45	13.3	25	5.7	26	0.16	4
1996	81	44	12.7	25	6.3	27	0.16	4
1997	80	41	13.8	27	6.2	27	0.18	5
1998	79.7	42	13.9	26	6.2	27	0.2	5

\* Data not previously reported until 1999

Table 7. Missouri Pasture Cash Rent

Source: Missouri Agricultural Statistics

<u>Year</u>	<u>NW</u>	<u>NC</u>	<u>NE</u>	<u>WC</u>	<u>C</u>	<u>EC</u>	<u>SW</u>	<u>SC</u>	<u>SE</u>	<u>State</u>
1989	\$24.00	\$20.70	\$24.00	\$22.00	\$22.30	\$22.00	\$23.00	\$24.00	\$26.00	\$22.80
1990	\$25.00	\$22.30	\$25.40	\$22.40	\$25.30	\$23.20	\$24.50	\$23.40	\$28.00	\$24.10
1991	\$25.80	\$24.80	\$26.70	\$22.50	\$23.90	\$25.40	\$23.40	\$22.70	\$27.30	\$24.10
1992	\$26.00	\$23.60	\$27.80	\$24.50	\$24.40	\$23.50	\$21.90	\$21.00	\$26.00	\$23.70
1993	\$25.20	\$22.60	\$25.50	\$22.00	\$22.40	\$23.50	\$22.30	\$20.50	\$24.00	\$22.60
1994	\$21.60	\$19.20	\$20.00	\$18.50	\$18.70	\$18.30	\$17.20	\$16.70	\$19.50	\$18.50
1995	\$19.50	\$17.60	\$17.50	\$16.40	\$16.00	\$16.30	\$15.00	\$15.40	\$17.20	\$16.40
1996	\$23.00	\$20.50	\$22.00	\$20.00	\$20.00	\$20.00	\$19.00	\$18.20	\$21.00	\$20.00
1997	\$22.00	\$19.50	\$21.00	\$19.00	\$19.00	\$19.00	\$17.50	\$17.00	\$20.00	\$19.00
1998	\$20.00	\$19.00	\$20.00	\$18.00	\$18.00	\$18.00	\$17.50	\$16.00	\$19.00	\$18.00
1999	\$21.00	\$19.50	\$20.50	\$18.50	\$18.50	\$18.50	\$18.50	\$16.00	\$19.00	\$18.50
5-year avg	\$21.10	\$19.22	\$20.20	\$18.38	\$18.30	\$18.36	\$17.50	\$16.52	\$19.24	\$18.38

Table 8. Missouri Pasture Cash Rent Percentage Change in Value from Previous Year

Source: Missouri Agricultural Statistics

<u>Year</u>	<u>NW</u>	<u>NC</u>	<u>NE</u>	<u>WC</u>	<u>C</u>	<u>EC</u>	<u>SW</u>	<u>SC</u>	<u>SE</u>	<u>State</u>
1989	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1990	4.17%	7.73%	5.83%	1.82%	13.45%	5.45%	6.52%	-2.50%	7.69%	5.70%
1991	3.20%	11.21%	5.12%	0.45%	-5.53%	9.48%	-4.49%	-2.99%	-2.50%	0.00%
1992	0.78%	-4.84%	4.12%	8.89%	2.09%	-7.48%	-6.41%	-7.49%	-4.76%	-1.66%
1993	-3.08%	-4.24%	-8.27%	-10.20%	-8.20%	0.00%	1.83%	-2.38%	-7.69%	-4.64%
1994	-14.29%	-15.04%	-21.57%	-15.91%	-16.52%	-22.13%	-22.87%	-18.54%	-18.75%	-18.14%
1995	-9.72%	-8.33%	-12.50%	-11.35%	-14.44%	-10.93%	-12.79%	-7.78%	-11.79%	-11.35%
1996	17.95%	16.48%	25.71%	21.95%	25.00%	22.70%	26.67%	18.18%	22.09%	21.95%
1997	-4.35%	-4.88%	-4.55%	-5.00%	-5.00%	-5.00%	-7.89%	-6.59%	-4.76%	-5.00%
1998	-9.09%	-2.56%	-4.76%	-5.26%	-5.26%	-5.26%	0.00%	-5.88%	-5.00%	-5.26%
1999	5.00%	2.63%	2.50%	2.78%	2.78%	2.78%	5.71%	0.00%	0.00%	2.78%
5-year avg	-2.70%	-3.20%	-4.23%	-4.10%	-3.83%	-3.07%	-3.01%	-3.42%	-4.18%	-3.44%

Figure 1. Missouri Value of Cattle Production (nominal dollars)  
 Source: Missouri Agricultural Statistics

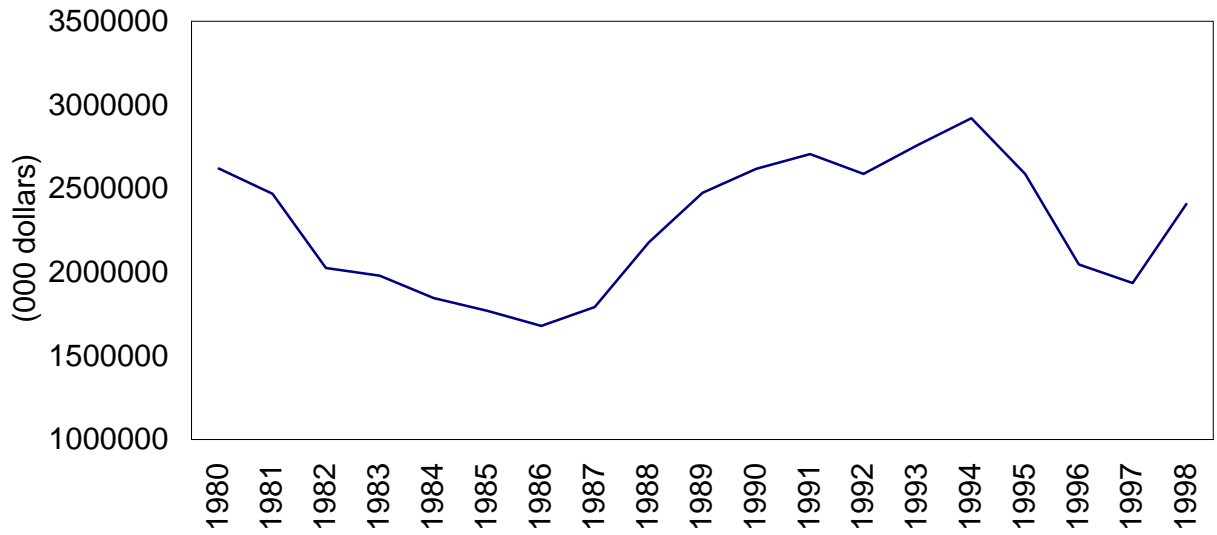


Figure 2. Missouri Value of Cattle and Calves Percentage of All Commodities.  
 Source: Missouri Agricultural Statistics

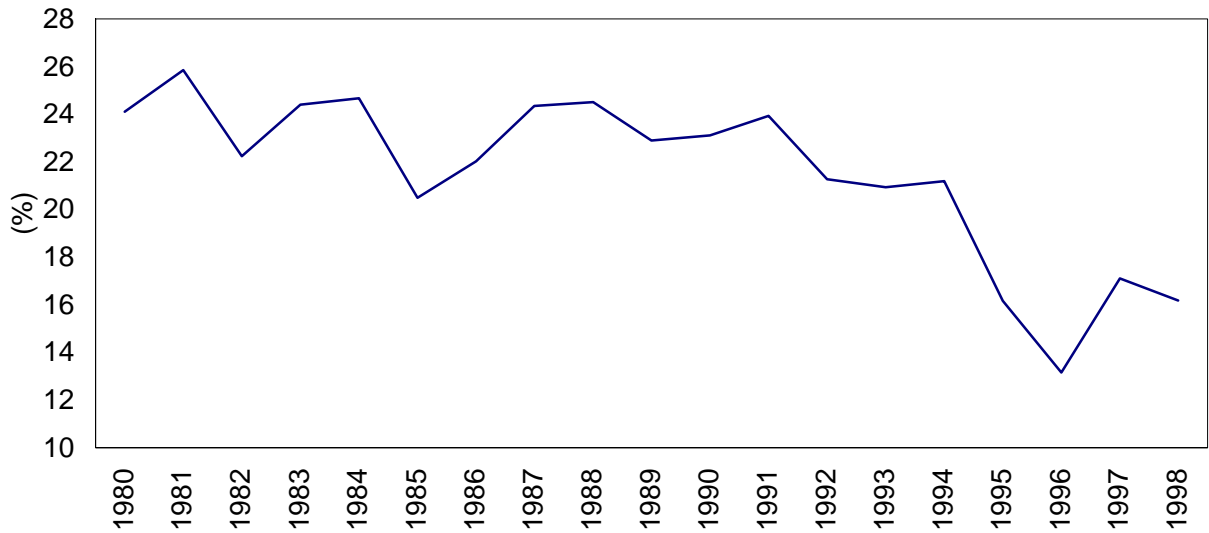


Figure 3. Missouri Cattle Operations and Number of All Farms

Source: Missouri Agricultural Statistics

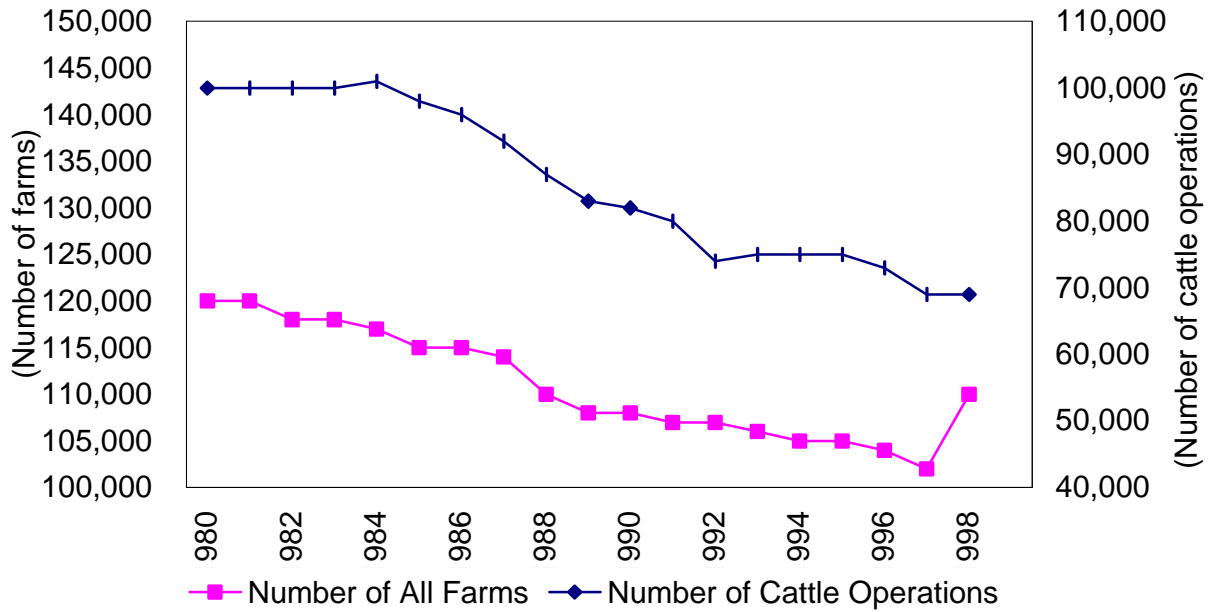


Figure 4. Missouri Beef Operations and Number on Farms

Source: Missouri Agricultural Statistics

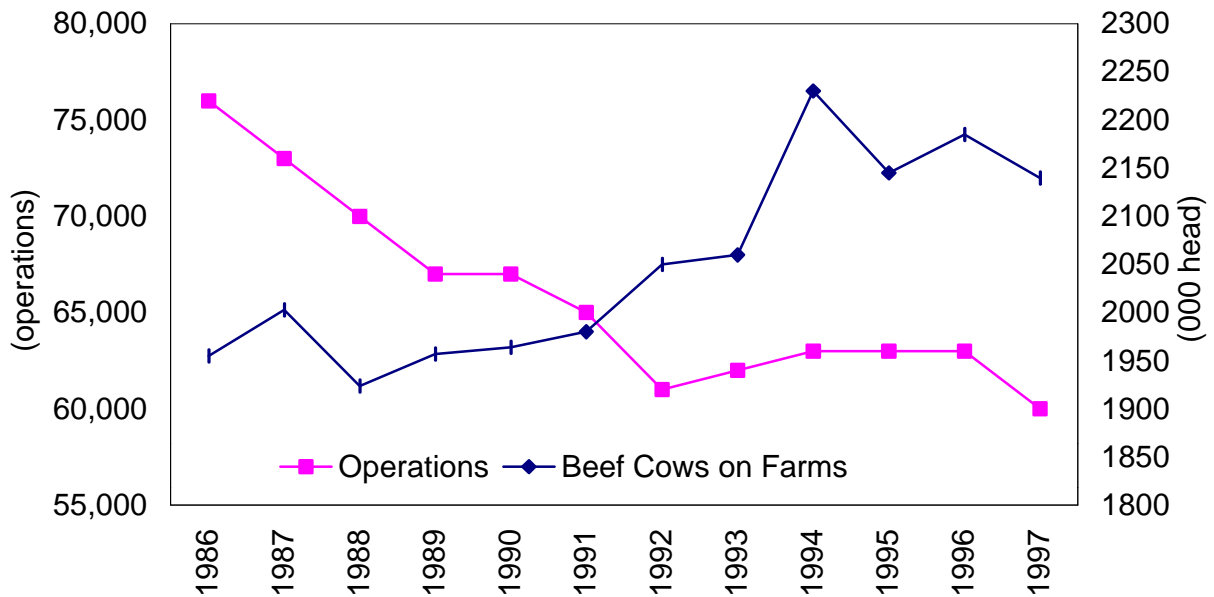


Figure 5. Missouri Cattle on Farms 1867 to 1999

Source: Missouri Agricultural Statistics

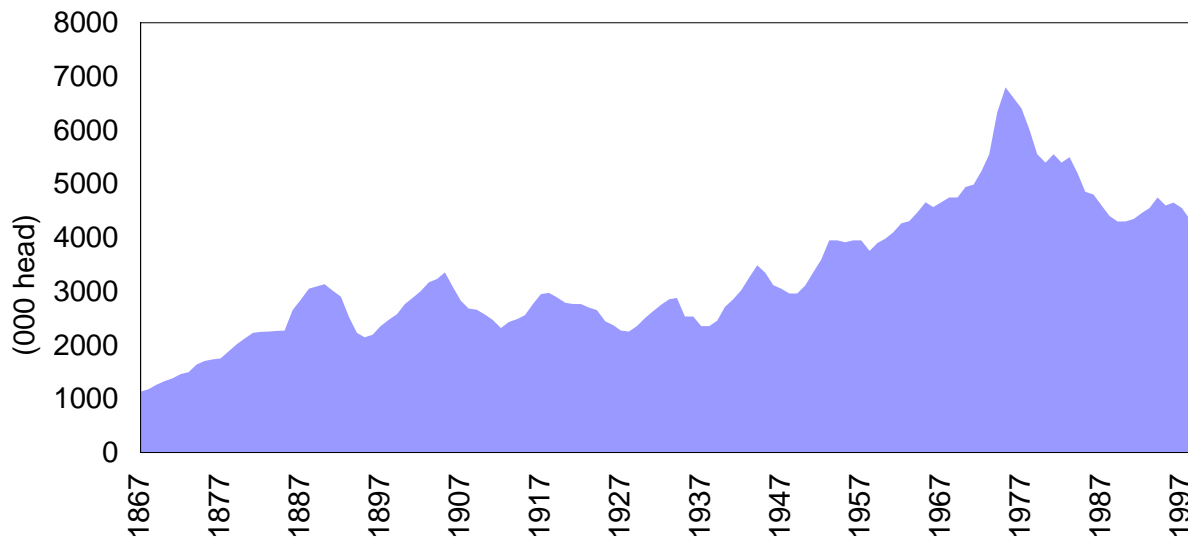


Figure 6. Missouri Average Herd Size for All Cattle and Beef Operations

Source: Missouri Agricultural Statistics

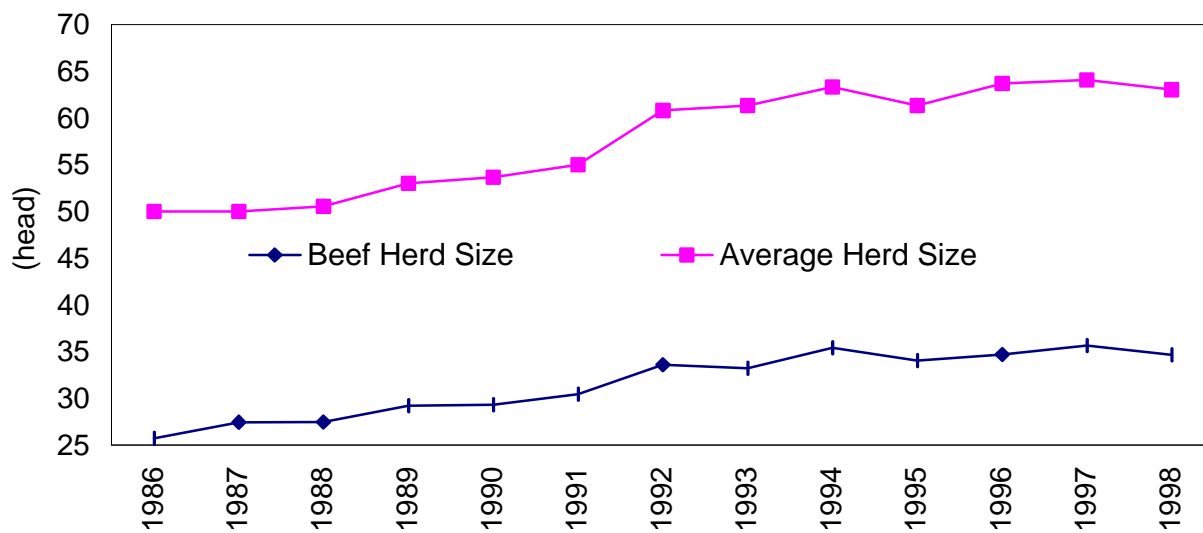


Figure 7. Missouri Annual Cattle Slaughter

Source: Missouri Agricultural Statistics

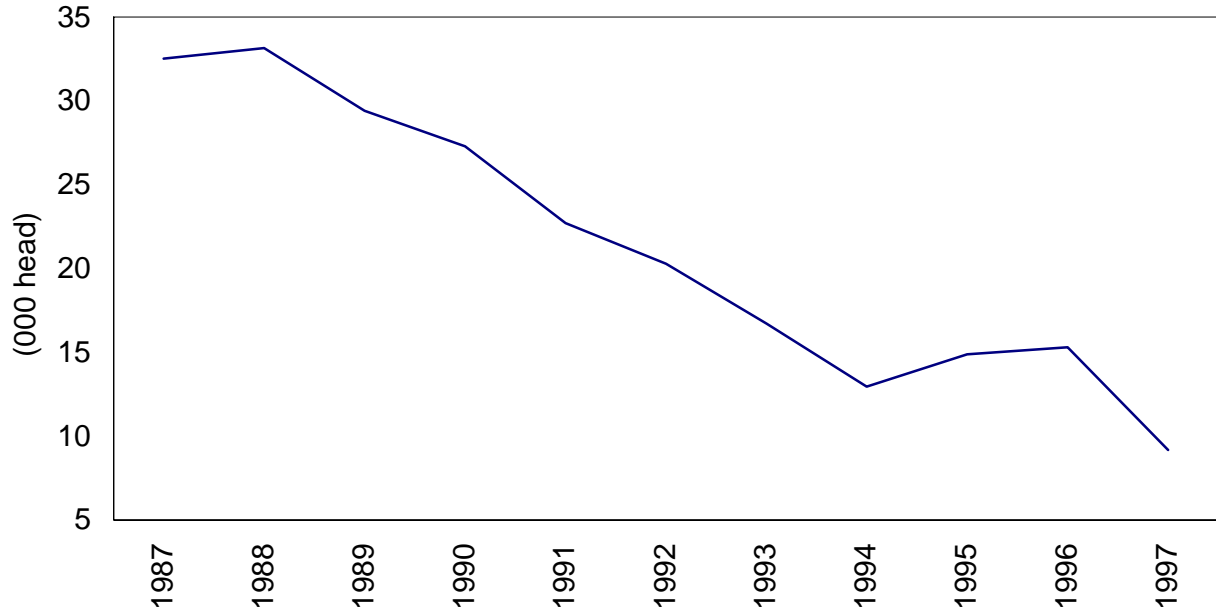


Figure 8. Missouri Head of Cattle Slaughtered and Total cwt. Slaughtered

Source: Missouri Agricultural Statistics

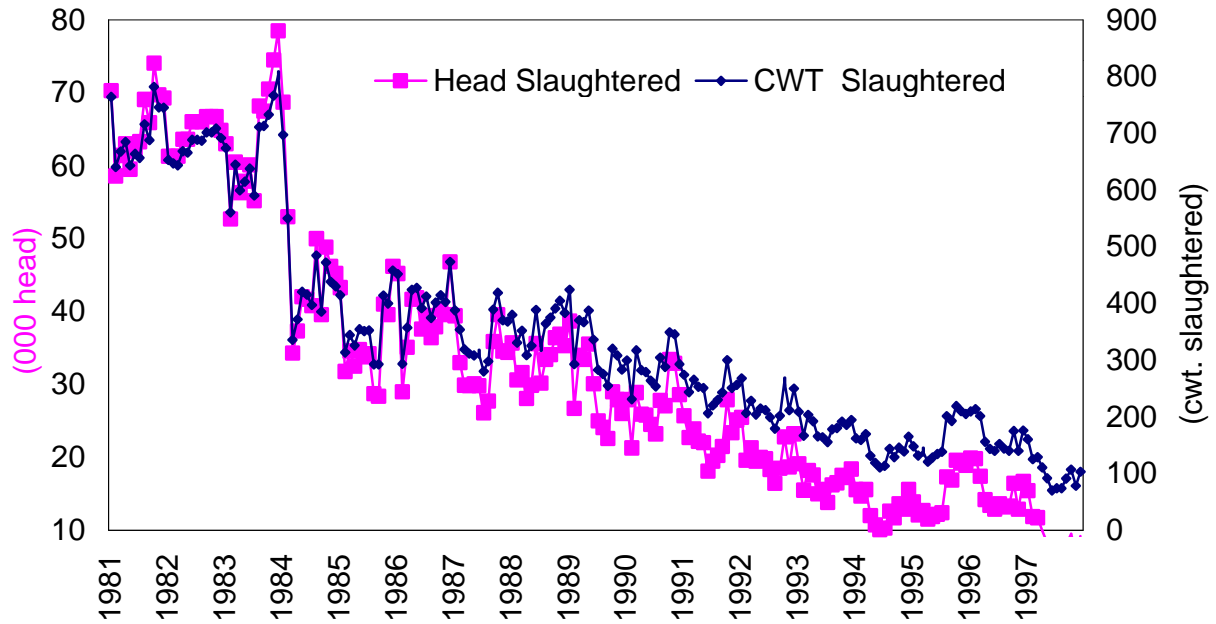


Figure 9. Missouri Slaughter Calf Head  
 Source: Missouri Agricultural Statistics

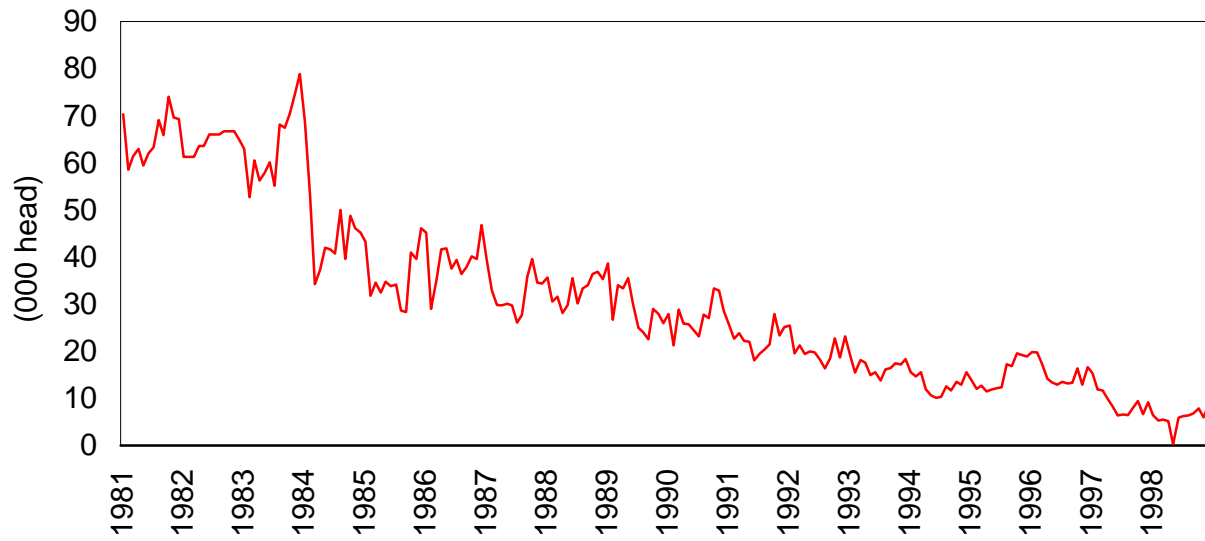


Figure 10. Missouri Seasonal Index, Head of Cattle Slaughtered  
 Source: Missouri Agricultural Statistics

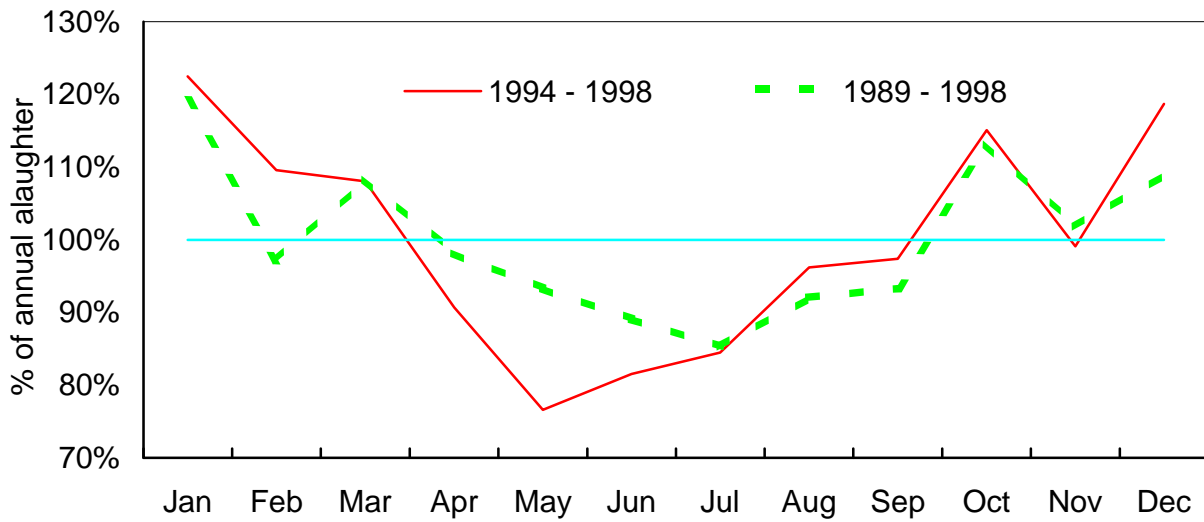


Figure 11. Missouri Slaughter Cattle Weight

Source: Missouri Agricultural Statistics

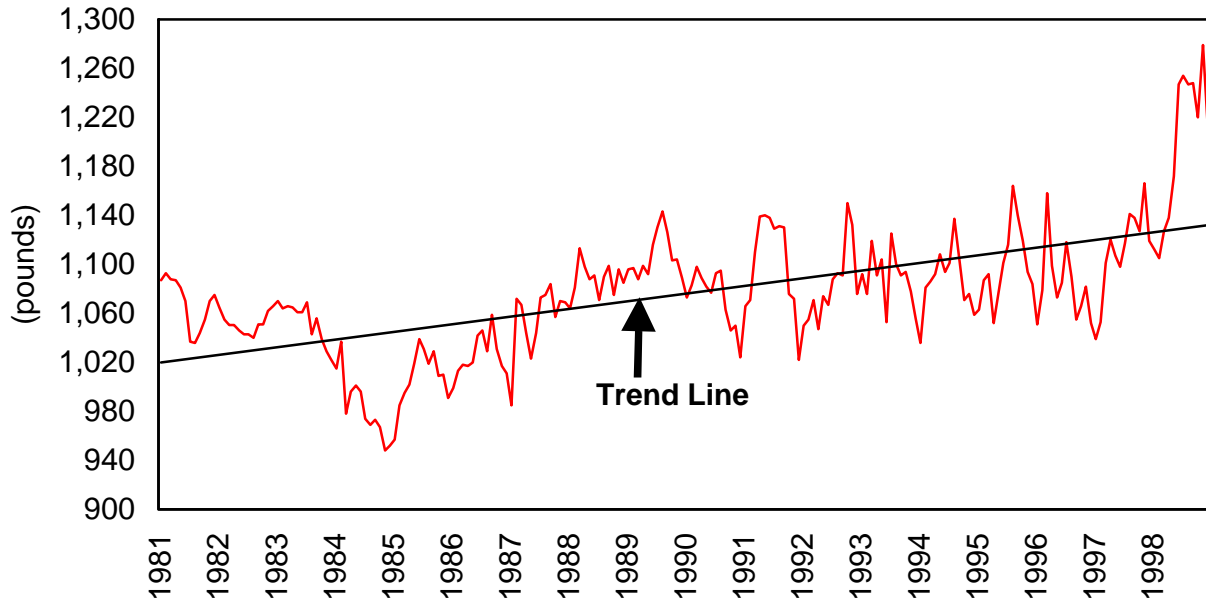


Figure 12. Missouri Seasonal Index of Slaughter Cattle Weight

Source: Missouri Agricultural Statistics

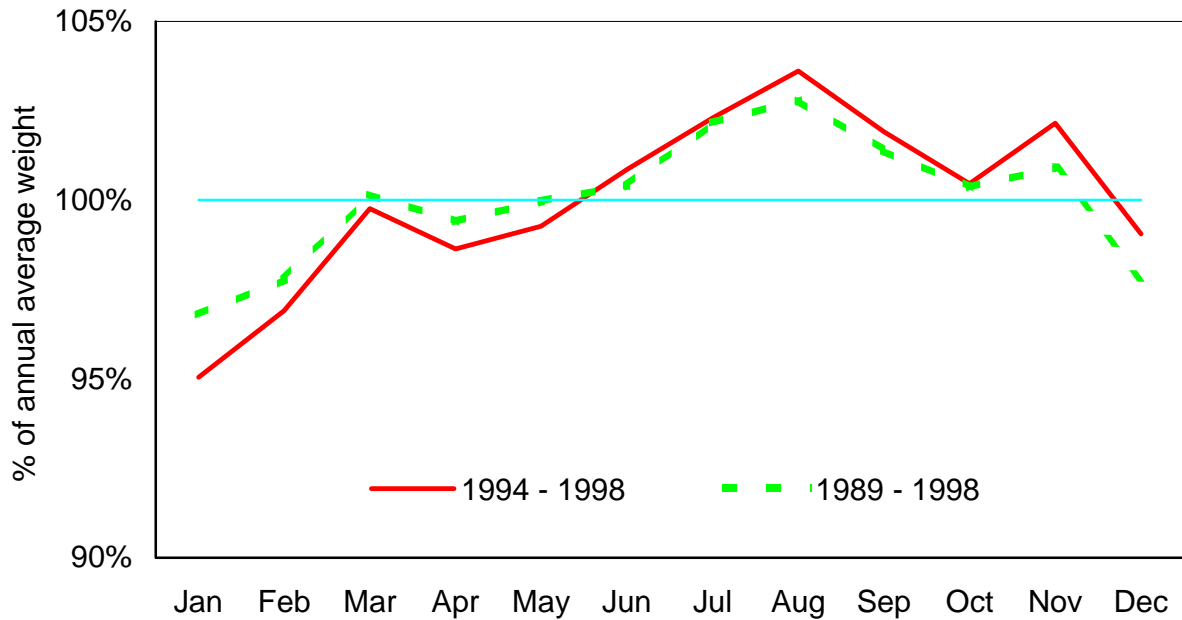


Figure 13. Missouri Slaughter Calf Weight  
Source: Missouri Agricultural Statistics

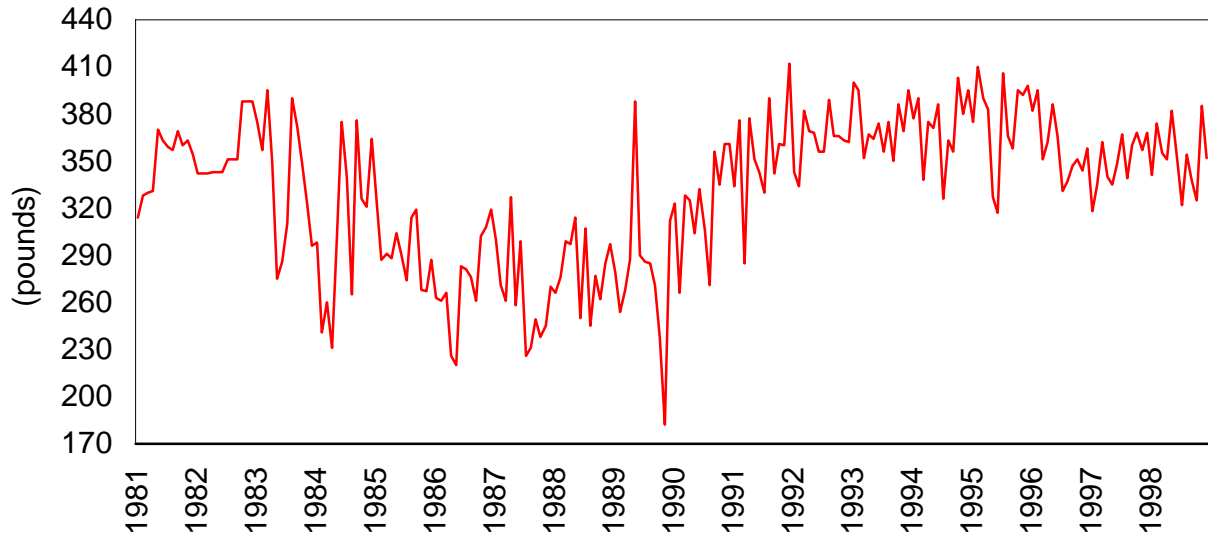


Figure 14. Missouri Alfalfa Price  
Source: Missouri Agricultural Statistics

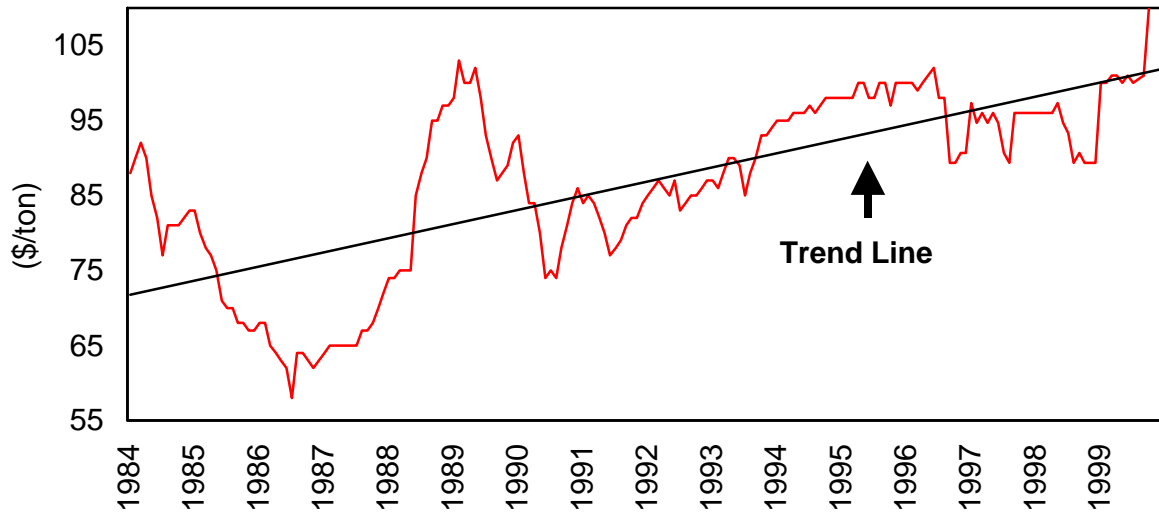


Figure 15. Missouri Hay Price  
Source: Missouri Agricultural Statistics

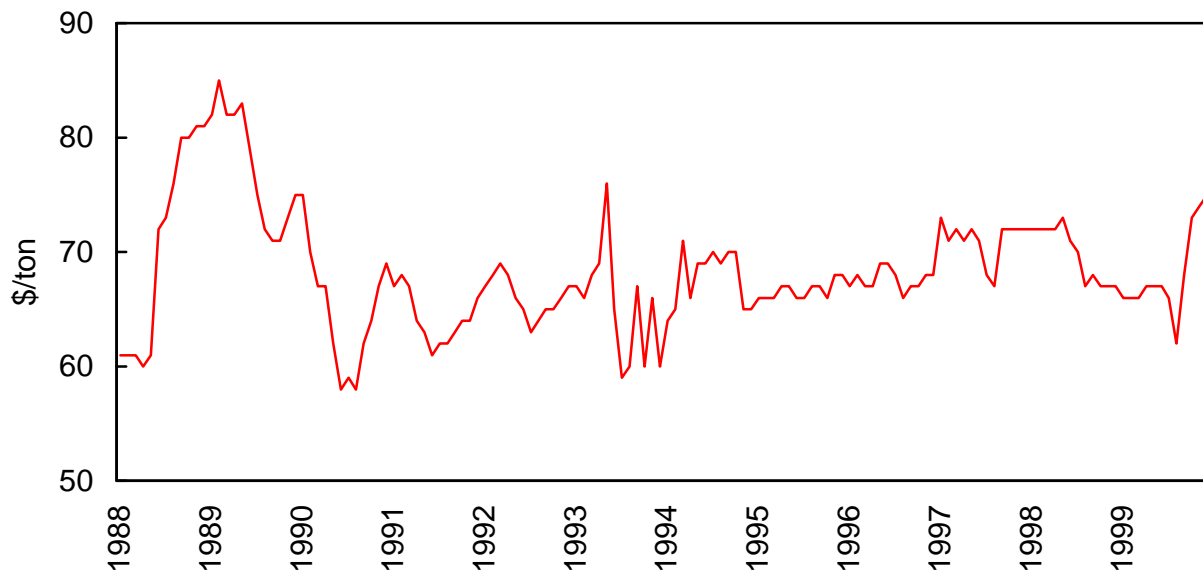


Figure 16. Missouri Corn Price  
Source: Missouri Agricultural Statistics

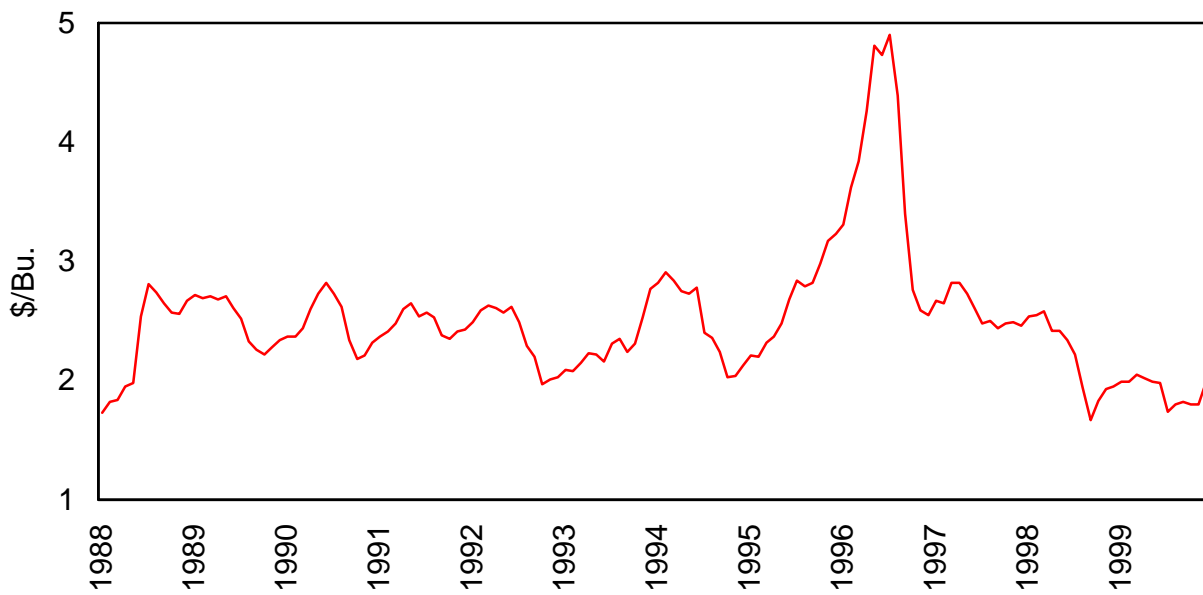


Figure 17. Missouri Cow Prices  
Source: Missouri Agricultural Statistics

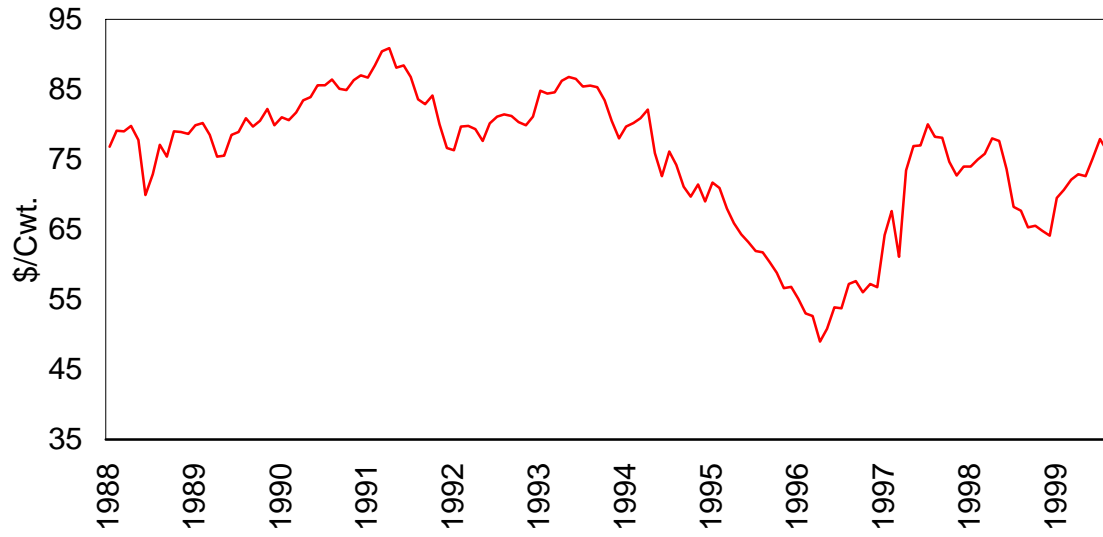


Figure 18. Missouri Steer and Heifer Prices  
Source: Missouri Agricultural Statistics

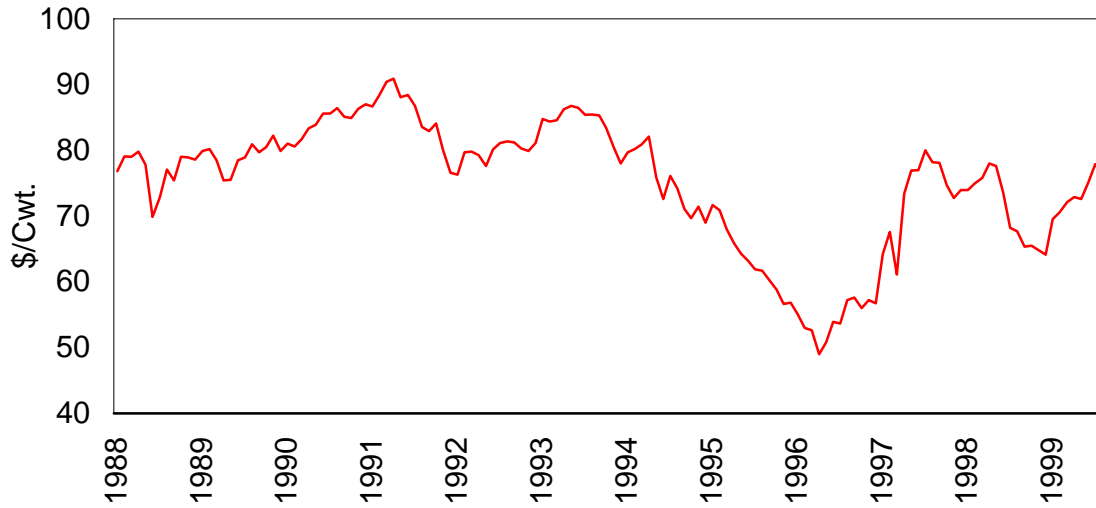


Figure 19. Missouri Beef-Cow Price  
Source: Missouri Agricultural Statistics

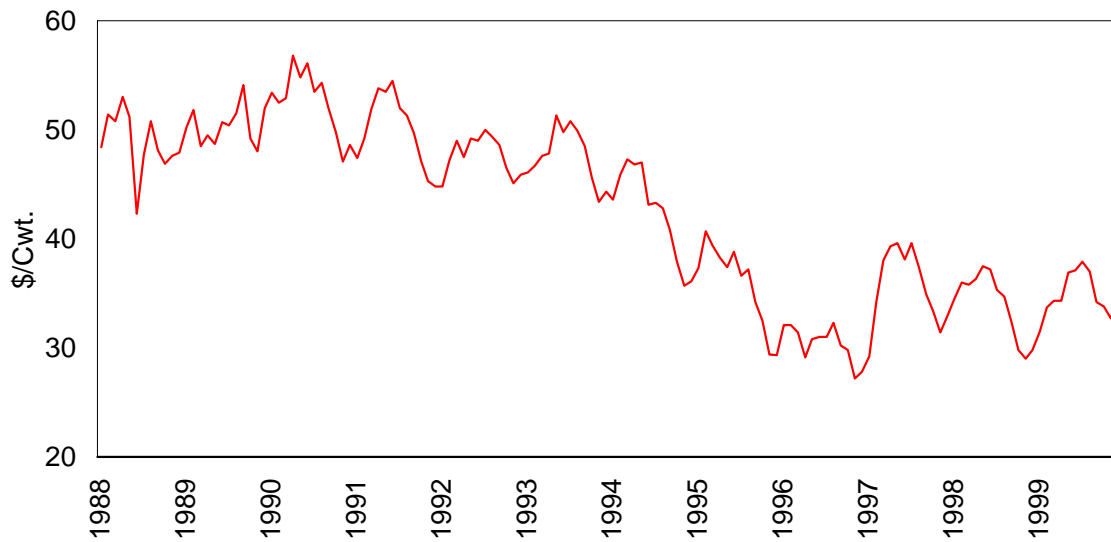


Figure 20. Missouri Calf Price  
Source: Missouri Agricultural Statistics

