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# Heifers: Average monthly futures price, cash price and basis

## Montana, 1983 to 2002

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Reviewing monthly heifer prices from the last 20 years can offer a better understanding of futures prices, cash prices and basis, and can help producers choose price risk management strategies.

This MontGuide presents the average monthly prices for feeder cattle contracts, Billings cash prices, and basis for various weights of heifers. Historical basis patterns can help producers manage price risk by shifting the risk of price movements from cash prices to basis, which is

generally less variable than cash price.

Table 1 presents the simple average settlement price for the CME Feeder Cattle futures contract for each month between 1983 and 2002. Tables 2 through 5 present monthly cash prices. Tables 6

through 9 contain monthly basis calculations for the years 1983 through 2002.

### Data collection

Table 1 entries were calculated using the nearby futures contract for feeder cattle for that particular month. For example, feeder cattle

**Table 1. Feeder Cattle Futures—Average monthly futures price and simple annual average futures price**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Simple Avg.
1983	69.17	71.12	70.81	68.67	65.78	64.46	62.86	61.11	58.75	59.85	63.30	68.50	\$65.37
1984	69.67	69.97	69.42	66.93	64.08	65.74	66.98	66.18	65.15	66.24	68.81	71.15	\$67.53
1985	72.41	72.05	68.04	66.10	66.17	67.07	62.93	64.25	60.51	64.89	65.04	65.91	\$66.28
1986	65.50	64.70	60.98	55.92	56.88	58.68	64.41	65.15	62.79	61.24	62.54	61.85	\$61.72
1987	64.35	68.27	67.84	69.61	69.11	69.87	71.46	75.54	78.79	76.32	74.42	74.69	\$71.69
1988	80.33	81.86	81.75	79.74	79.97	73.38	76.11	80.90	80.16	81.96	81.78	83.55	\$80.12
1989	84.34	83.45	81.20	76.76	76.93	80.36	82.61	84.22	82.86	82.94	83.26	83.83	\$81.90
1990	84.02	81.63	82.19	83.54	84.38	84.87	86.81	89.20	88.36	87.43	87.83	88.74	\$85.75
1991	89.15	88.75	90.13	89.95	88.96	88.08	89.13	85.77	85.59	85.64	83.59	79.13	\$86.99
1992	80.04	79.10	79.85	79.33	78.25	77.61	81.42	85.18	84.09	84.03	84.04	85.45	\$81.53
1993	87.77	84.73	85.55	85.59	86.07	87.22	86.83	88.04	86.84	85.14	83.72	82.62	\$85.84
1994	83.30	81.37	81.68	80.34	75.41	73.06	78.14	78.31	73.68	72.68	74.27	74.55	\$77.23
1995	75.83	71.71	68.36	65.89	64.55	65.97	66.13	66.35	65.14	65.33	65.16	63.78	\$67.02
1996	59.37	57.64	56.71	52.43	55.13	60.12	61.48	63.30	63.77	63.12	65.11	66.57	\$60.40
1997	68.87	68.23	68.38	71.47	75.79	77.93	81.57	80.45	79.71	77.34	78.12	77.94	\$75.48
1998	77.45	76.09	75.27	76.35	75.65	73.73	70.51	68.58	67.80	69.80	70.13	68.76	\$72.51
1999	72.62	73.90	72.17	71.96	71.06	76.94	76.87	77.22	79.17	80.83	82.58	84.60	\$76.66
2000	85.78	83.65	83.78	84.28	83.45	85.90	87.32	86.22	85.43	87.13	88.67	90.92	\$86.04
2001	88.88	86.66	86.34	87.63	88.35	91.74	90.11	89.61	89.86	87.77	84.51	84.12	\$87.97
2002	83.84	82.80	80.48	75.54	75.74	76.43	77.10	78.41	80.41	81.08	83.31	83.79	\$79.91

contracts are traded for the months of January, March, April, May, August, September, October, and November. For all months in which there is no contract traded, July for example, table values are taken from the next month, August, for which a contract is traded. Trade terminology refers to this as the nearby contract.

Data in Tables 2 through 5 were obtained by averaging weekly prices of Billings area livestock auction markets. Prices listed are not adjusted for inflation. Billings market prices are quoted in 50-pound increments, but those price data were averaged to 100-pound increments in Tables

2 through 5. Billings cash prices are reported weekly by the USDA Agricultural Marketing Service (AMS). In addition to listing the simple average cash prices by weights, Tables 2 through 5 also contain average cash prices and standard deviations of cash prices for two different time periods. The first time period is from 1983 through 2002 and the second is from 1995 through 2002.

In Tables 6 through 9, basis is calculated by subtracting the average monthly feeder futures price from the average monthly cash price for each weight of heifer and from the same period, cash minus futures.

### **Basis**

Basis can be used to predict future cash prices. For example, assume that in April the current October feeder cattle futures contract is trading at \$80 per cwt. Also assume you market 500 to 600 pound calves in October. For the period from 1995 through 2002, the average difference in cash and futures prices has been -\$1.01, (see the "Average Basis 95-02" row of Table 7). If this average basis occurs, the cash price in October will be \$78.99 (\$80 + -\$1.01). However, basis does vary through time.

**Table 2. Heifers 400 -500 medium/large frame # 1 – Average monthly Billings cash price**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Simple Avg.
1983	61.75	65.63	67.99	66.12	65.63	65.80	---	---	---	52.94	55.51	60.16	\$62.39
1984	60.89	62.34	61.62	61.81	61.05	62.56	---	61.38	59.27	57.52	57.44	60.29	\$60.56
1985	62.31	63.94	64.39	66.22	66.20	63.67	60.00	61.38	57.31	57.46	57.78	56.34	\$61.42
1986	58.83	59.76	61.90	58.50	61.62	---	---	58.91	61.80	60.85	60.15	62.75	\$60.51
1987	66.93	69.42	70.99	74.45	71.58	73.45	75.17	78.07	85.92	74.82	82.93	84.27	\$75.67
1988	88.13	88.69	89.65	87.02	85.47	82.56	80.81	86.24	87.93	86.92	84.76	84.61	\$86.07
1989	88.58	87.68	86.67	83.50	83.83	88.00	86.69	89.64	85.52	84.13	84.95	84.39	\$86.13
1990	88.81	88.94	90.41	93.28	93.84	96.63	95.33	92.52	91.41	90.88	95.07	98.20	\$92.94
1991	98.30	102.57	106.28	104.37	103.03	100.13	94.50	93.63	91.79	89.61	89.44	85.68	\$96.61
1992	86.88	91.86	92.19	89.45	85.75	---	85.13	86.32	88.10	86.28	85.72	90.94	\$88.06
1993	94.35	93.95	98.75	95.46	94.25	96.21	---	---	93.55	90.59	90.02	90.21	\$93.73
1994	92.77	94.96	98.22	90.97	81.86	85.12	---	75.00	75.31	73.01	73.78	75.05	\$83.28
1995	78.65	81.73	76.63	73.88	71.59	70.64	---	61.94	63.29	60.31	59.50	59.53	\$68.88
1996	58.32	59.16	57.90	55.21	51.42	57.00	54.80	53.50	55.55	55.86	57.93	59.23	\$56.32
1997	66.53	72.69	76.90	79.70	83.51	81.00	---	---	80.94	81.79	81.57	83.60	\$78.82
1998	88.95	88.15	88.63	87.25	82.47	74.58	71.87	---	70.43	72.07	73.77	74.70	\$79.35
1999	80.86	83.26	83.23	84.97	82.86	---	---	84.00	89.34	88.01	88.54	93.15	\$85.82
2000	101.34	102.23	103.02	100.90	96.22	94.89	---	98.05	96.13	97.90	96.93	100.37	\$98.91
2001	103.32	104.90	102.91	102.08	100.58	106.17	104.38	103.64	96.94	92.26	89.90	94.16	\$100.10
2002	98.27	101.69	98.99	95.02	92.08	86.89	---	85.25	79.70	80.45	86.26	93.20	\$90.71
Average (83 - 02)	81.24	83.18	83.86	82.51	80.74	81.49	80.87	79.34	79.49	76.68	77.60	79.54	
Standard Dev (83-02)	15.62	15.44	15.58	14.94	14.34	14.62	15.73	15.56	14.03	14.45	14.27	14.80	
Average (95 - 02)	84.53	86.73	86.03	84.88	82.59	81.59	77.02	81.06	79.04	78.58	79.30	82.24	
Stand Dev. (95 - 02)	16.49	15.99	15.67	15.53	15.55	16.24	25.18	19.75	15.10	14.91	14.35	16.10	

### Standard deviation

Standard deviation is a statistical measure used to provide some sense of the variability of data. Standard deviation is stated in the same units as futures and cash prices, dollars per cwt. For example, using data from Table 3, average monthly cash price for 500 to 600 pound calves from 1995 to 2002 for October ranged from \$56.90 in 1996 to \$93.02 in 2000, a range of \$36.12. The standard deviation of cash prices for October is \$13.15 for the 95-02 time period. The range of basis values for 500 to 600 pound calves, Table 7, is \$12.30 = (-\$6.41 in 1995 to +\$5.89 in 2000). Standard deviation for the

October basis for the same weight of animals, Table 7, is \$4.72/cwt. for the 1995 to 2002 period. The price and basis ranges and standard deviation measures indicate the basis in October is approximately one-third less variable than October cash prices. Basis is generally less variable than cash price. This result helps producers manage price risk by shifting the risk of price movements from cash prices to basis. A complete discussion of price risk management tools is beyond the scope of this paper but the relatively stable nature of basis is a critical element of many price risk management strategies such as hedging, use of options and basis

contracts.

Standard deviations also indicate the probability that prices or basis will fall within a certain range. Statistically, the price or basis will be within one standard deviation of the average value of cash price or the average basis 68 percent of the time. Ninety-five percent of the time, price or basis will be within two standard deviations of their average value and 99 percent of the time, price or basis will be within three standard deviations of the average value. Using the basis information in Table 7, the average basis for 500 to 600 pound heifers in the 1995 to 2002 time period is -\$1.01 for October. Sixty-eight

**Table 3. Heifers 500 - 600 medium/large frame # 1—Average monthly Billings cash price**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Simple Avg.
1983	60.78	63.88	66.22	64.81	63.56	62.32	58.06	54.30	52.46	52.08	54.21	58.77	\$59.29
1984	59.75	61.56	61.28	59.81	59.30	59.75	59.62	61.15	58.04	56.66	56.96	59.97	\$59.49
1985	62.23	63.16	62.74	63.44	62.80	60.81	56.65	57.44	54.75	56.16	56.32	55.20	\$59.31
1986	56.35	58.05	58.24	55.45	57.94	58.28	55.76	58.53	59.10	58.24	59.06	60.92	\$57.99
1987	63.96	67.36	68.61	69.38	69.67	70.99	70.80	73.22	76.29	70.79	78.42	78.48	\$71.50
1988	82.43	83.67	83.51	82.06	81.49	80.75	72.36	79.04	80.74	84.05	81.89	81.16	\$81.10
1989	84.17	82.51	82.01	79.66	79.33	84.11	86.52	83.19	79.88	81.28	82.94	82.41	\$82.33
1990	84.10	84.29	85.10	87.94	88.04	89.97	90.53	87.10	85.63	87.82	90.50	91.24	\$87.69
1991	92.29	96.48	99.82	99.13	99.88	97.69	89.81	83.02	87.85	87.70	86.24	82.52	\$91.87
1992	84.45	87.13	86.28	84.99	80.92	81.92	---	83.85	84.22	83.51	83.44	86.75	\$84.31
1993	89.70	89.50	93.76	90.40	94.25	92.83	90.25	83.27	87.13	87.59	86.40	85.32	\$89.20
1994	87.00	86.20	89.74	88.60	83.33	79.30	77.59	74.88	73.32	71.05	72.19	72.67	\$79.66
1995	74.82	75.53	72.10	71.38	69.70	70.38	62.45	62.04	61.31	58.92	57.69	58.27	\$66.22
1996	55.99	56.17	57.85	56.45	54.99	55.42	55.20	55.25	55.76	56.90	57.77	58.23	\$56.33
1997	65.36	72.00	77.33	78.26	83.37	79.83	79.00	80.90	82.14	80.46	78.29	79.50	\$78.04
1998	82.60	82.23	82.97	86.10	78.71	77.63	70.50	65.75	65.61	67.95	69.29	70.65	\$75.00
1999	75.28	79.30	77.65	79.80	75.22	80.71	---	79.00	82.89	84.19	85.46	89.43	\$80.81
2000	93.35	94.63	95.95	96.86	89.39	89.28	84.90	91.01	92.69	93.02	90.40	90.53	\$91.83
2001	93.59	97.54	95.78	97.80	98.67	103.34	86.57	95.13	90.50	86.69	82.72	83.08	\$92.62
2002	88.17	91.77	89.56	88.19	86.33	86.62	78.17	78.15	77.53	76.17	80.16	84.44	\$83.77
Average (83 - 02)	76.82	78.65	79.32	79.03	77.84	78.10	73.60	74.31	74.39	74.06	74.52	75.48	
Standard Dev( 83-02)	13.26	13.17	13.30	13.74	13.41	13.66	13.02	12.57	13.26	13.39	12.83	12.47	
Average (95 - 02)	78.64	81.15	81.15	81.85	79.55	80.40	73.83	75.90	76.05	75.54	75.22	76.77	
Stand Dev. (95 - 02)	13.42	13.66	12.86	13.68	13.32	14.02	11.68	13.93	13.68	13.15	12.38	12.98	

percent of the time, the basis will fall within the range of  $-\$5.73 = (-\$1.01 - \$4.72)$  and  $\$3.71 = (-\$1.01 + \$4.72)$ , the mean plus and minus one standard deviation. While this range,  $\$9.44$ , may seem large, it is much smaller than the 68 percent range for cash prices of  $\$26.30$ , Table 3.

Ninety-five percent of the time the basis for this period and weight of heifer calves will fall in the range of  $-\$10.46$  and  $\$8.43$ , Table 7. Ninety-nine percent of the time, the basis for this period and group of animals will fall in the range of  $-\$15.17$  and  $\$13.15$ , Table 7.

**Table 4. Heifers 600 - 700 medium/large frame # 1—Average monthly Billings cash price**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Simple Avg.
1983	59.56	62.31	64.27	63.19	62.13	60.55	56.44	53.05	51.29	51.50	53.01	57.42	\$57.89
1984	59.34	60.69	60.38	58.69	57.70	58.81	58.75	59.75	57.27	56.00	56.44	59.30	\$58.59
1985	61.65	62.62	61.69	61.69	61.25	59.38	55.60	57.06	53.50	55.26	55.13	54.47	\$58.28
1986	55.23	56.95	56.43	53.15	54.88	54.77	54.39	57.35	57.81	56.22	56.29	56.71	\$55.85
1987	61.83	65.49	65.92	66.60	67.27	67.36	67.69	69.89	72.42	71.11	71.42	72.58	\$68.30
1988	76.84	77.93	77.00	76.43	76.83	76.27	70.73	75.96	76.60	78.52	78.43	78.32	\$76.66
1989	79.87	77.74	76.79	74.79	75.50	78.35	79.11	80.40	77.44	77.98	78.67	80.28	\$78.08
1990	80.63	78.56	79.76	80.76	82.51	84.11	84.69	84.12	83.72	83.52	85.04	87.34	\$82.90
1991	86.41	89.65	91.05	91.06	92.73	90.54	86.22	81.64	82.53	81.97	83.17	78.48	\$86.29
1992	78.70	81.95	82.78	78.67	78.87	79.75	79.25	80.70	81.53	80.28	80.61	82.38	\$80.46
1993	86.37	83.34	86.85	84.52	88.04	87.00	88.22	85.67	86.01	82.09	81.36	80.59	\$85.01
1994	82.17	80.47	83.94	82.63	78.44	75.39	73.96	74.69	70.94	68.26	69.87	70.06	\$75.90
1995	72.64	70.86	67.60	67.22	66.22	66.15	60.05	61.30	63.30	60.52	58.18	59.10	\$64.43
1996	53.72	53.60	53.11	52.62	52.69	54.71	57.20	57.98	57.49	58.21	57.12	56.97	\$55.45
1997	63.96	67.56	72.03	75.27	79.62	78.45	74.75	77.29	74.78	75.85	73.94	74.40	\$73.99
1998	75.16	75.80	77.52	80.42	74.07	73.38	71.51	65.05	65.15	65.67	66.78	66.87	\$71.45
1999	70.70	74.15	73.90	73.01	73.86	74.14	74.84	76.80	75.27	81.18	81.25	83.28	\$76.03
2000	84.37	84.79	86.15	88.26	85.12	87.23	84.09	82.05	84.58	85.39	84.65	85.53	\$85.18
2001	85.20	85.48	86.53	88.10	90.11	98.45	86.18	91.20	88.44	85.69	79.87	78.68	\$86.99
2002	80.45	82.36	79.54	82.39	79.80	77.22	76.38	74.37	77.85	76.47	76.87	79.29	\$78.58
Average (83 - 02)	72.74	73.61	74.16	73.97	73.88	74.10	72.00	72.32	71.90	71.58	71.41	72.10	
Standard Dev (83-02)	11.07	10.46	11.04	11.61	11.74	12.31	11.46	11.31	11.68	11.57	11.35	11.05	
Average (95 - 02)	73.28	74.32	74.55	75.91	75.19	76.22	73.12	73.26	73.36	73.62	72.33	73.01	
Stand Dev. (95 - 02)	10.67	10.61	10.87	11.89	11.66	13.08	10.24	11.17	10.69	10.87	10.51	10.85	

**Table 5. Heifers 700 - 800 medium/large frame # 1—Average monthly Billings cash price**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Simple Avg.
1992	74.05	77.50	76.81	75.18	74.92	76.82	---	77.06	79.42	79.57	76.66	79.27	\$77.02
1993	81.11	81.76	81.21	81.08	82.78	82.77	83.24	83.90	81.33	80.24	78.59	78.70	\$81.39
1994	78.16	78.51	77.86	75.53	72.00	69.96	72.70	72.68	69.92	68.39	68.22	70.18	\$72.84
1995	72.60	69.32	64.57	62.10	59.15	63.91	59.22	61.54	63.33	61.91	59.22	58.93	\$62.98
1996	53.48	52.71	52.42	47.82	48.70	54.00	58.00	58.04	58.95	58.50	60.08	58.07	\$55.06
1997	63.41	64.65	66.82	69.61	71.71	74.31	---	76.36	73.91	72.25	71.45	72.35	\$70.62
1998	71.78	70.85	72.40	73.69	70.26	68.67	67.32	63.88	63.38	65.03	63.43	63.59	\$67.86
1999	67.23	69.22	69.41	69.37	66.97	69.35	71.90	72.86	74.29	74.51	75.05	77.38	\$71.46
2000	80.18	78.60	78.27	78.64	80.40	81.34	82.43	79.48	82.09	83.32	81.12	81.41	\$80.61
2001	81.78	79.22	80.65	80.57	83.02	85.02	82.98	84.00	86.16	81.20	74.38	75.67	\$81.22
2002	76.52	76.69	74.58	74.80	72.10	74.93	72.67	73.13	75.64	76.33	77.05	79.98	\$75.37
Average (92 - 02)	72.75	72.64	72.27	71.67	71.09	72.82	72.27	72.99	73.49	72.84	71.38	72.32	
Stand. Dev (92-02)	8.61	8.50	8.57	9.63	10.22	9.02	9.60	8.65	8.75	8.37	7.60	8.55	
Average (98 - 02)	75.50	74.92	75.06	75.41	74.55	75.86	75.46	74.67	76.31	76.08	74.20	75.60	
Stand Dev. (98 - 02)	6.01	4.59	4.49	4.38	6.85	7.23	6.93	7.62	8.69	7.13	6.57	7.08	

**Table 6. Average Monthly Basis, dollars per cwt., 400 - 500 lb heifers using Billings cash prices and nearby feeder futures.**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly-Average
1983	-7.42	-5.49	-2.82	-2.55	-0.15	1.34	---	---	---	-6.91	-7.79	-8.34	-\$4.46
1984	-8.78	-7.63	-7.80	-5.12	-3.03	-3.18	---	-4.80	-5.88	-8.72	-11.37	-10.86	-\$7.02
1985	-10.10	-8.11	-3.65	0.12	0.03	-3.40	-2.93	-2.87	-3.20	-7.43	-7.26	-9.57	-\$4.86
1986	-6.67	-4.94	0.92	2.58	4.74	---	---	-6.24	-0.99	-0.39	-2.39	0.90	-\$1.25
1987	2.58	1.15	3.15	4.84	2.47	3.58	3.71	2.53	7.13	-1.50	8.51	9.58	\$3.98
1988	7.80	6.83	7.90	7.28	5.50	9.18	4.70	5.34	7.77	4.96	2.98	1.06	\$5.94
1989	4.24	4.23	5.47	6.74	6.90	7.64	4.08	5.42	2.66	1.19	1.69	0.56	\$4.24
1990	4.79	7.31	8.22	9.74	9.46	11.76	8.52	3.32	3.05	3.45	7.24	9.46	\$7.19
1991	9.15	13.82	16.15	14.42	14.07	12.05	5.37	7.86	6.20	3.97	5.85	6.55	\$9.62
1992	6.84	12.76	12.34	10.12	7.50	---	3.71	1.14	4.01	2.25	1.68	5.49	\$6.17
1993	6.58	9.22	13.20	9.87	8.18	8.99	---	---	6.71	5.45	6.30	7.59	\$8.21
1994	9.47	13.59	16.54	10.63	6.45	12.06	---	-3.31	1.63	0.33	-0.49	0.50	\$6.13
1995	2.82	10.02	8.27	7.99	7.04	4.67	---	-4.41	-1.85	-5.02	-5.66	-4.25	\$1.78
1996	-1.05	1.52	1.19	2.78	-3.71	-3.12	-6.68	-9.80	-8.22	-7.26	-7.18	-7.34	-\$4.07
1997	-2.34	4.46	8.52	8.23	7.72	3.07	---	---	1.23	4.45	3.45	5.66	\$4.45
1998	11.50	12.06	13.36	10.90	6.82	0.85	1.36	---	2.63	2.27	3.64	5.94	\$6.48
1999	8.24	9.36	11.06	13.01	11.80	---	---	6.78	10.17	7.18	5.96	8.55	\$9.21
2000	15.56	18.58	19.24	16.62	12.77	8.98	---	11.84	10.71	10.76	8.27	9.45	\$12.98
2001	14.44	18.24	16.57	14.45	12.23	14.43	---	14.03	7.08	4.49	5.39	10.03	\$11.94
2002	14.43	18.89	18.51	19.47	16.34	10.46	---	6.83	-0.71	-0.64	2.95	9.41	\$10.54
Average Basis 83-02	4.10	6.79	8.32	8.11	6.66	5.84	2.43	2.10	2.64	0.64	1.09	2.52	
Standard Dev(83-02)	7.90	8.55	7.82	6.30	5.48	5.85	4.61	6.80	5.23	5.39	6.02	7.10	
Average Basis 95-02	7.95	11.64	12.09	11.68	8.88	5.62	-2.66	4.21	2.63	2.03	2.10	4.68	
Standard Dev (95-02)	7.25	6.61	6.11	5.34	6.07	6.04	5.68	9.37	6.47	6.07	5.54	6.71	
Plus 2 STD (95-02)	22.45	24.87	24.30	22.37	21.02	17.70	8.71	22.95	15.57	14.17	13.19	18.11	
Minus 2 STD (95-02)	-6.55	-1.59	-0.13	0.99	-3.27	-6.46	-14.03	-14.52	-10.31	-10.11	-8.98	-8.75	

**Table 7. Average Monthly Basis, dollars per cwt., 500 - 600 lb heifers using Billings cash prices and nearby feeder futures.**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly Average
1983	-8.39	-7.24	-4.59	-3.86	-2.22	-2.14	-4.80	-6.81	-6.29	-7.77	-9.09	-9.73	-\$6.08
1984	-9.92	-8.41	-8.14	-7.12	-4.78	-5.99	-7.36	-5.03	-7.11	-9.58	-11.85	-11.18	-\$8.04
1985	-10.18	-8.89	-5.30	-2.66	-3.37	-6.26	-6.28	-6.81	-5.76	-8.73	-8.72	-10.71	-\$6.97
1986	-9.15	-6.65	-2.74	-0.47	1.06	-0.40	-8.65	-6.62	-3.69	-3.00	-3.48	-0.93	-\$3.73
1987	-0.39	-0.91	0.77	-0.23	0.56	1.12	-0.66	-2.32	-2.50	-5.53	4.00	3.79	-\$0.19
1988	2.10	1.81	1.76	2.32	1.52	7.37	-3.75	-1.86	0.58	2.09	0.11	-2.39	\$0.97
1989	-0.17	-0.94	0.81	2.90	2.40	3.75	3.91	-1.03	-2.98	-1.66	-0.32	-1.42	\$0.44
1990	0.08	2.66	2.91	4.40	3.66	5.10	3.72	-2.10	-2.73	0.39	2.67	2.50	\$1.94
1991	3.14	7.73	9.69	9.18	10.92	9.61	0.68	-2.75	2.26	2.06	2.65	3.39	\$4.88
1992	4.41	8.03	6.43	5.66	2.67	4.31	---	-1.33	0.13	-0.52	-0.60	1.30	\$2.77
1993	1.93	4.77	8.21	4.81	8.18	5.61	3.42	-4.77	0.29	2.45	2.68	2.70	\$3.36
1994	3.70	4.83	8.06	8.26	7.92	6.24	-0.55	-3.43	-0.36	-1.63	-2.08	-1.88	\$2.42
1995	-1.01	3.82	3.74	5.49	5.15	4.41	-3.68	-4.31	-3.83	-6.41	-7.47	-5.51	-\$0.80
1996	-3.38	-1.47	1.14	4.02	-0.14	-4.70	-6.28	-8.05	-8.01	-6.22	-7.34	-8.34	-\$4.06
1997	-3.51	3.77	8.95	6.79	7.58	1.90	-2.57	0.45	2.43	3.12	0.17	1.56	\$2.55
1998	5.15	6.14	7.70	9.75	3.06	3.90	-0.01	-2.83	-2.19	-1.85	-0.84	1.89	\$2.49
1999	2.66	5.40	5.48	7.84	4.16	3.77	---	1.78	3.73	3.36	2.88	4.83	\$4.17
2000	7.58	10.97	12.17	12.58	5.94	3.38	-2.41	4.79	7.27	5.89	1.73	-0.39	\$5.79
2001	4.71	10.88	9.44	10.17	10.32	11.60	-3.54	5.51	0.65	-1.08	-1.79	-1.04	\$4.65
2002	4.33	8.97	9.08	12.65	10.59	10.19	1.07	-0.26	-2.88	-4.92	-3.15	0.65	\$3.86
Average Basis 83-02	-0.32	2.26	3.78	4.62	3.76	3.14	-2.10	-2.39	-1.55	-1.98	-1.99	-1.55	
Standard Dev(83-02)	5.44	6.26	5.72	5.41	4.59	5.05	3.82	3.66	3.85	4.44	4.64	4.98	
Average Basis 95-02	2.06	6.06	7.21	8.66	5.83	4.31	-2.49	-0.36	-0.36	-1.01	-1.98	-0.79	
Standard Dev (95-02)	4.18	4.20	3.55	3.17	3.63	5.02	2.44	4.58	4.84	4.72	3.85	4.24	
Plus 2 STD (95-02)	10.43	14.45	14.31	15.01	13.10	14.34	2.39	8.80	9.32	8.43	5.72	7.69	
Minus 2 STD (95-02)	-6.30	-2.33	0.11	2.31	-1.44	-5.72	-7.37	-9.53	-10.03	-10.46	-9.67	-9.27	

**Table 8. Average Monthly Basis, dollars per cwt., 600 - 700 lb heifers using Billings cash prices and nearby feeder futures.**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly Average
1983	-9.61	-8.81	-6.54	-5.48	-3.65	-3.91	-6.42	-8.06	-7.46	-8.35	-10.29	-11.08	-\$7.47
1984	-10.33	-9.28	-9.04	-8.24	-6.38	-6.93	-8.23	-6.43	-7.88	-10.24	-12.37	-11.85	-\$8.93
1985	-10.76	-9.43	-6.35	-4.41	-4.92	-7.69	-7.33	-7.19	-7.01	-9.63	-9.91	-11.44	-\$8.01
1986	-10.27	-7.75	-4.55	-2.77	-2.00	-3.91	-10.02	-7.80	-4.98	-5.02	-6.25	-5.14	-\$5.87
1987	-2.52	-2.78	-1.92	-3.01	-1.84	-2.51	-3.77	-5.65	-6.37	-5.21	-3.00	-2.11	-\$3.39
1988	-3.49	-3.93	-4.75	-3.31	-3.14	2.89	-5.38	-4.94	-3.56	-3.44	-3.35	-5.23	-\$3.47
1989	-4.47	-5.71	-4.41	-1.97	-1.43	-2.01	-3.50	-3.82	-5.42	-4.96	-4.59	-3.55	-\$3.82
1990	-3.39	-3.07	-2.43	-2.78	-1.87	-0.76	-2.12	-5.08	-4.64	-3.91	-2.79	-1.40	-\$2.85
1991	-2.74	0.90	0.92	1.11	3.77	2.46	-2.91	-4.13	-3.06	-3.67	-0.42	-0.65	-\$0.70
1992	-1.34	2.85	2.93	-0.66	0.62	2.14	-2.17	-4.48	-2.56	-3.75	-3.43	-3.07	-\$1.08
1993	-1.40	-1.39	1.30	-1.07	1.97	-0.22	1.39	-2.37	-0.83	-3.05	-2.36	-2.03	-\$0.84
1994	-1.13	-0.90	2.26	2.29	3.03	2.33	-4.18	-3.62	-2.74	-4.42	-4.40	-4.49	-\$1.33
1995	-3.19	-0.85	-0.76	1.33	1.67	0.18	-6.08	-5.05	-1.84	-4.81	-6.98	-4.68	-\$2.59
1996	-5.65	-4.04	-3.60	0.19	-2.44	-5.41	-4.28	-5.32	-6.28	-4.91	-7.99	-9.60	-\$4.94
1997	-4.91	-0.67	3.65	3.80	3.83	0.52	-6.82	-3.16	-4.93	-1.49	-4.18	-3.54	-\$1.49
1998	-2.29	-0.29	2.25	4.07	-1.58	-0.35	1.00	-3.53	-2.65	-4.13	-3.35	-1.89	-\$1.06
1999	-1.92	0.25	1.73	1.05	2.80	-2.80	-2.03	-0.42	-3.90	0.35	-1.33	-1.32	-\$0.63
2000	-1.41	1.13	2.37	3.98	1.67	1.32	-3.23	-4.16	-0.84	-1.74	-4.01	-5.39	-\$0.86
2001	-3.68	-1.18	0.19	0.47	1.76	6.71	-3.94	1.58	-1.42	-2.08	-4.63	-5.44	-\$0.97
2002	-3.39	-0.45	-0.94	6.84	4.06	0.79	-0.72	-4.04	-2.56	-4.62	-6.44	-4.50	-\$1.33
Average Basis 83-02	-4.39	-2.77	-1.38	-0.43	-0.20	-0.86	-4.04	-4.38	-4.05	-4.45	-5.10	-4.92	
Standard Dev(83-02)	3.23	3.68	3.67	3.68	3.11	3.58	2.93	2.29	2.19	2.58	3.11	3.46	
Average Basis 95-02	-3.30	-0.76	0.61	2.72	1.47	0.12	-3.26	-3.01	-3.05	-2.93	-4.86	-4.54	
Standard Dev (95-02)	1.45	1.51	2.34	2.32	2.35	3.48	2.62	2.39	1.85	1.95	2.16	2.55	
Plus 2 STD (95-02)	-0.40	2.25	5.30	7.36	6.18	7.08	1.98	1.77	0.66	0.98	-0.54	0.56	
Minus 2 STD (95-02)	-6.21	-3.77	-4.08	-1.93	-3.24	-6.84	-8.51	-7.79	-6.76	-6.84	-9.19	-9.64	

**Table 9. Average Monthly Basis, dollars per cwt., 700 - 800 lb heifers using Billings cash prices and nearby feeder futures.**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly Average
1992	-5.99	-1.60	-3.04	-4.15	-3.33	-0.80	---	-8.13	-4.67	-4.46	-7.38	-6.18	-\$4.52
1993	-6.66	-2.97	-4.34	-4.51	-3.29	-4.45	-3.59	-4.14	-5.51	-4.90	-5.13	-3.93	-\$4.45
1994	-5.14	-2.86	-3.82	-4.81	-3.41	-3.10	-5.44	-5.63	-3.76	-4.29	-6.05	-4.38	-\$4.39
1995	-3.23	-2.39	-3.79	-3.79	-5.40	-2.07	-6.91	-4.81	-1.81	-3.42	-5.94	-4.86	-\$4.03
1996	-5.89	-4.93	-4.29	-4.61	-6.43	-6.12	-3.48	-5.27	-4.82	-4.62	-5.03	-8.50	-\$5.33
1997	-5.46	-3.58	-1.56	-1.86	-4.08	-3.63	---	-4.09	-5.80	-5.09	-6.67	-5.59	-\$4.31
1998	-5.67	-5.24	-2.87	-2.66	-5.39	-5.06	-3.19	-4.70	-4.42	-4.77	-6.70	-5.17	-\$4.65
1999	-5.39	-4.68	-2.76	-2.59	-4.09	-7.59	-4.98	-4.36	-4.88	-6.32	-7.53	-7.23	-\$5.20
2000	-5.60	-5.05	-5.51	-5.63	-3.05	-4.56	-4.89	-6.73	-3.34	-3.81	-7.55	-9.51	-\$5.44
2001	-7.10	-7.44	-5.69	-7.06	-5.34	-6.72	-7.13	-5.61	-3.70	-6.57	-10.13	-8.46	-\$6.75
2002	-7.32	-6.12	-5.90	-0.74	-3.64	-1.50	-4.43	-5.28	-4.77	-4.75	-6.26	-3.81	-\$4.54
Average Basis 92-02	-5.77	-4.26	-3.96	-3.86	-4.31	-4.14	-4.89	-5.34	-4.32	-4.82	-6.76	-6.14	
Standard Dev(92-02)	1.10	1.74	1.37	1.79	1.13	2.18	1.42	1.21	1.12	0.94	1.42	2.00	
Plus 2 STD (92-02)	-3.56	-0.77	-1.23	-0.27	-2.05	0.21	-2.05	-2.93	-2.08	-2.94	-3.93	-2.15	
Minus 2 STD (92-02)	-7.97	-7.75	-6.69	-7.44	-6.58	-8.50	-7.74	-7.75	-6.55	-6.70	-9.59	-10.14	

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