



# Extension Extra

ExEx 5038  
January 2002  
Economics

COLLEGE OF AGRICULTURE & BIOLOGICAL SCIENCES / SOUTH DAKOTA STATE UNIVERSITY / USDA

## South Dakota Stocker Cattle Prices

by Matthew A. Diersen  
Risk and Business Management Specialist  
SDSU Economics Department

Producers are concerned about the general price level of stocker cattle, weaned calves weighing about 550 pounds. Producers observe a wide range of reported prices for any given sale. Aggregating prices usually just compounds the problem as an even wider range may be observed across sales. For example, for the week ending November 1, 2001, the price range for 550-599 pound Medium and Large Frame #1 steers across various South Dakota sales was \$87-100 per cwt. While knowledge of the price level is necessary for making marketing decisions, producers also desire relative prices to sort out sale-day and quality effects.

While the Chicago Mercantile Exchange (CME) listed stocker cattle contracts in recent years, the contracts were not widely used. Without stocker contracts, hedgers either need to forward contract or cross-hedge to offset price risk. Cross-hedging would involve using feeder cattle contracts and adjusting for the basis, or price differential, that normally exists between cattle of different weights.

The purpose of this report is to describe a price series for South Dakota stocker cattle. Producers can use the prices to compute the basis on their stocker cattle. Historic basis levels are also provided as a benchmark for producers that want to hedge stocker cattle against feeder cattle contracts.

### Computing a Weighted Average Price

When the CME delisted the stocker contracts they also stopped reporting the CME Stocker Cattle Index™. That index price was based on data from the U.S. Department of Agriculture's Agricultural Marketing Service (USDA-AMS), which routinely covers various livestock sales in South Dakota. As a replacement for the CME's price, Extension Economics is calculating a weighted average price for South Dakota stocker cattle. It follows a procedure similar to that used by CME, except that it only includes South Dakota locations<sup>1</sup>. The eleven auction markets and the direct sales reports used from USDA-AMS are listed in table 1. The auction markets are a cross-section of the larger markets in South Dakota, but are not all-encompassing.

USDA-AMS breaks down their reporting into multiple classes and weights. For any given sale day or report, data for Medium Frame #1 and Medium and Large Frame #1 steers weighing 500-599 pounds are collected for the four categories shown in table 2. The majority of South Dakota cattle are sold in the Medium & Large #1 class for both 500-549 and 550-599 pound weight categories. Multiple sales (and reports) by location are common, especially during the fall, and all reports are used in the tally. USDA-AMS gives the number of head, average weight, and average price for each sale or report. The sum of the

Table 1. USDA-AMS Reports Containing South Dakota Stocker Cattle Prices

- |  |  |
|--|--|
| • Bales Continental Commission Co. (Huron) | • Philip Livestock Auction                 |
| • Faith Livestock Commission Company       | • Presho Livestock Auction                 |
| • Ft. Pierre Livestock Auction             | • Sioux Falls Feeder Cattle                |
| • Herreid Livestock Market                 | • South Dakota Livestock Sales (Watertown) |
| • Highmore Auction Barn                    | • St. Onge Livestock Company Ltd.          |
| • Mitchell Livestock Auction Co.           | • S.D. Direct Feeder Cattle Summary        |

<sup>1</sup> For details on the CME indexes and how they are calculated, see the 2000 edition of Historical Live Cattle/Feeder Cattle Report by Moore Research Center, Inc.

Table 2. Number of Head Cross-tabulated by Weights and Classes for 2001

Class Category		Weight Category		
		500-549#	550-599#	Total
	Medium #1	317	252	569
	Medium & Large #1	40,726	49,594	90,320
	Total	41,043	49,846	90,889

product of the number of head and average weight across categories gives the total weight for each report. Similarly, the sum of the product of the number of head and average price across categories gives the total price for each report. The weighted average price is then computed as the total price divided by the total weight for that report.

### Weekly and Monthly Prices

To smooth out the effects of any one sale, location, or report, a weekly average is computed from Friday through Thursday. This span allows market participants to incorporate available information from the cash and futures markets for live and feeder cattle. It also facilitates the assembly and reporting of a weighted average price. For each week, the total price and total weight, by report, are totaled across reports. The weekly price is then computed as the total price divided by the total weight.

This gives a single price for a week that can be tracked for trends and be used as a benchmark. As shown in figure 1, there is substantial weekly price variability, and during the summer, there are weeks without any head sold in the given categories (and thus no prices). Seasonally, there is a relatively large number of calves sold during October and the volume declines until

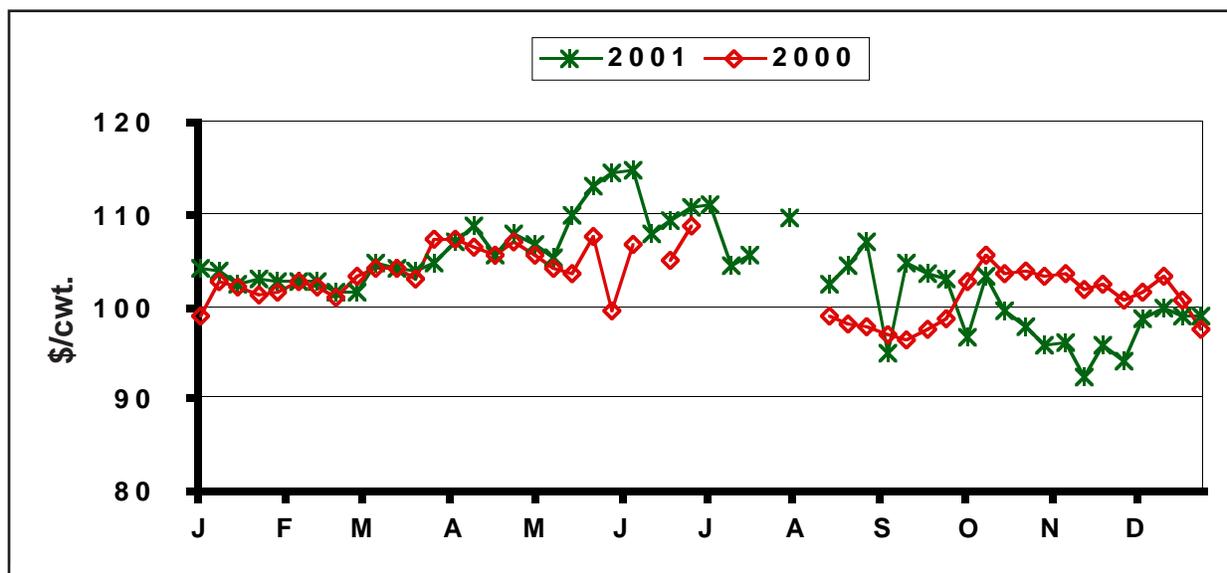
August. By comparison, for the week ending November 1, 2001, the weighted average price was \$95.97, which is more precise than the \$14 range given above.

While the weekly average is useful to gauge short-run trends in the market, a monthly average is probably more useful when discerning longer trends and for calculating basis. Weekly variability and effects of weather, holidays, and seasonal sales patterns further suggest the relevance of a monthly price. A weighted average price was computed using all reports in a calendar month (table 3). The total weight and total price were calculated across all reports for a given month, and then a weighted average price was computed by dividing the total price by the total weight.

### Computing Basis

Another use of the monthly price is to compare sales of similar cattle, finding a producer's own basis. That is, how did the price received compare to the price for other cattle. This would give producers a signal as to the effective value of their calves. If significant input costs are expended in an effort to produce and market high-value calves, then knowing the relative price received would indicate the success of the production strategy.

Figure 1. Weekly South Dakota Stoker Cattle Prices



Sources: USDA-AMS and SDSU

Table 3. Monthly South Dakota Stocker Cattle Prices

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	\$/cwt.											
1993	99.80	98.51	100.94	103.06	105.29	108.14	99.62	100.55	95.75	97.68	95.53	94.67
1994	94.44	94.84	96.92	98.58	89.67	85.86	86.90	87.34	80.65	80.90	80.94	81.61
1995	85.59	84.21	81.42	79.93	77.74	78.37	77.48	73.50	69.83	67.98	66.69	67.08
1996	64.08	63.35	62.38	60.33	64.23	65.60	64.46	63.36	67.15	67.39	68.68	68.17
1997	74.43	79.22	83.10	89.70	92.56	92.66	93.95	89.14	87.73	88.82	87.82	90.36
1998	92.03	90.91	92.10	93.72	91.40	85.85	74.81	76.83	73.28	80.72	78.21	79.04
1999	85.19	86.71	86.44	86.99	86.36	91.90	89.01	92.17	91.47	93.90	93.96	98.77
2000	101.87	102.07	104.90	106.47	104.45	106.78	na	98.52	100.96	103.82	102.41	102.30
2001	103.27	102.15	104.69	107.30	106.73	113.00	108.55	105.39	100.24	98.46	95.10	99.25

Sources: USDA-AMS and SDSU. Note: "na" means that a price was not available.

Basis can be computed for specific locations, for example to compare different sales locations. However, one must remember to account for any marketing costs (e.g., transportation and shrink) when comparing across locations, as basis alone will not reflect the net price received.

An example of calculating a producer's basis is shown in table 4. Consider a producer who sells 550 pound calves during November. Calf sales from two years are shown in table 4 and compared to the corresponding monthly price from table 3. The basis in the example is \$2.11/cwt. for 2000 and -\$2.10 for 2001. Thus, it is reasonable to conclude that the producer has calves of average value. As more producer-specific basis observations are collected, conclusions can start to be drawn concerning the effectiveness of production and marketing strategies. For example, if above-average bulls are used in a breeding program, the value should be reflected in above-average prices received for the calves.

### Cross-Hedging Basis

Producers considering hedging possibilities for stocker cattle can consider cross-hedging using feeder cattle contracts. However,

producers need to adjust the planning price to account for the relative price differential of different weight calves than the feeder cattle contracts represent.

A cross-hedging basis can be found by comparing the monthly South Dakota stocker price relative to the CME Feeder Cattle Index™, which is a national weighted average price of 700-850 pound steers (Figure 2). The basis has been positive for the last few years and shows a seasonal trend that is relatively high in late spring and relatively low in late fall.

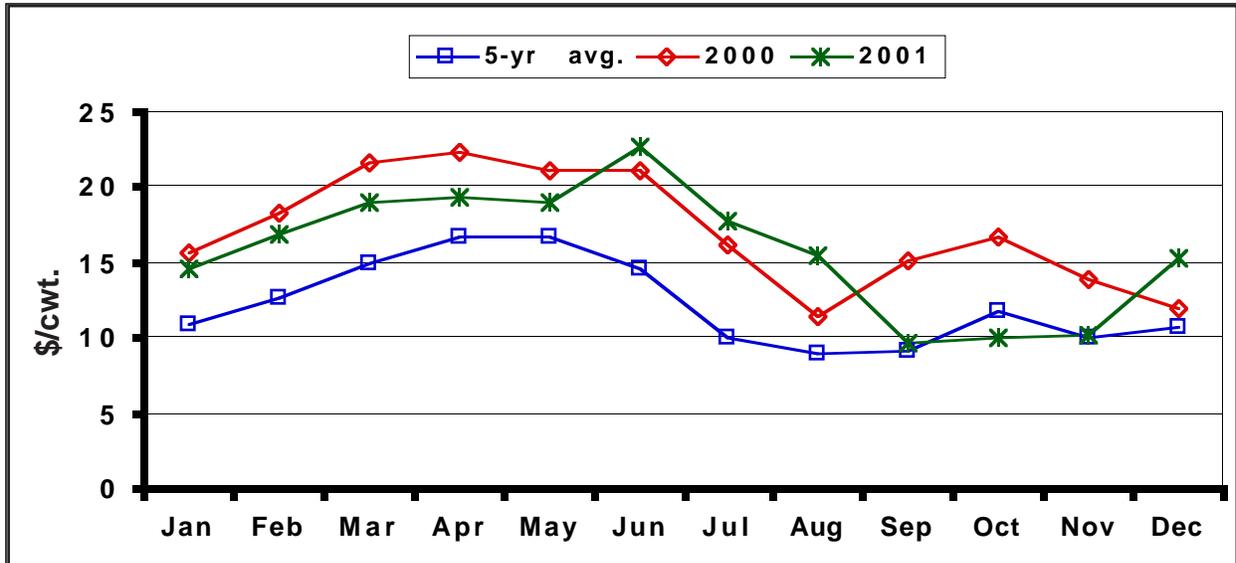
A look at a longer historical pattern of the location basis reveals that a large basis is not a sure thing. As shown in table 5, the basis was quite low from late 1995 to early 1997, a time when feed prices were historically high. Cross-hedging exposes the stocker producer to basis risk. Regardless, basis risk is usually preferable to price risk. By comparing the current situation to similar years for feed prices and points in the cattle cycle, a producer can estimate a basis to use when cross-hedging.

The South Dakota stocker cattle price series is a tool producers can use for planning purposes. Producers can track basis to assess the relative value of their cattle and use the cross-hedging basis to manage stocker price risk.

Table 4. Computing Location Basis on Marketed Calves

	Example		Actual Basis		
Date	Nov. '00	Nov. '01			
Cash	104.50	93.00			
- Benchmark	-102.41	-95.10			
Basis	2.11	-2.10			

Figure 2. Monthly South Dakota Stocker Cattle Basis Behavior



Sources: CME, USDA-AMS, and SDSU. Note: The basis is relative to the monthly average of the CME Feeder Cattle Index™.

Table 5. Monthly South Dakota Stocker Cattle Basis

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	\$/cwt.											
1993	12.71	13.13	16.01	17.92	19.46	21.00	11.75	12.81	8.94	12.44	11.39	11.25
1994	11.10	13.03	15.41	18.58	14.53	12.30	10.94	9.43	6.66	8.55	6.60	6.19
1995	9.36	11.15	13.32	14.94	13.92	12.98	11.38	7.53	4.43	1.77	1.36	1.65
1996	3.94	5.92	6.25	7.50	10.60	6.46	3.02	0.62	3.21	4.14	4.12	2.99
1997	5.90	10.00	14.27	18.84	17.51	15.10	12.77	8.37	8.36	11.74	11.14	12.53
1998	15.05	14.84	17.47	18.59	17.04	13.20	4.89	8.96	6.25	12.14	9.34	12.07
1999	13.67	13.98	15.09	16.51	17.02	16.94	13.36	15.74	12.83	13.90	12.11	14.04
2000	15.64	18.34	21.63	22.28	21.08	21.11	na	11.46	15.16	16.76	13.90	11.96
2001	14.66	16.95	19.04	19.45	19.07	22.67	17.71	15.47	9.64	10.05	10.14	15.23

Sources: CME, USDA-AMS, and SDSU. Notes: "na" means that a price was not available. The basis is relative to the monthly average of the CME Feeder Cattle Index™.

**This publication and others can be accessed electronically from the SDSU College of Agriculture & Biological Sciences publications page, which is at <http://agbiopubs.sdstate.edu/articles/ExEx5038.pdf>**



Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the USDA. Larry Tidemann, Director of Extension, Associate Dean, College of Agriculture & Biological Sciences, South Dakota State University, Brookings. SDSU is an Affirmative Action/Equal Opportunity Employer (Male/Female) and offers all benefits, services, and educational and employment opportunities without regard for ancestry, age, race, citizenship, color, creed, religion, gender, disability, national origin, sexual preference, or Vietnam Era veteran status.

ExEx 5038 - 250 copies printed by CES at a cost of 13 cents each. January 2002.