

Changes in Feeder Cattle Value From 2000 to 2005

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Introduction

Animal Science and Livestock Market News conducted two studies to determine the significant factors affecting the selling price of feeder calves sold in Arkansas livestock auctions. Data were collected from January 1 to December 31 for 2000 and 2005. In 2000, data were collected on 59,934 lots consisting of 81,703 head marketed through 17 auction barns. In 2005, data were collected on 52,401 lots consisting of 105,542 head marketed through 15 auction barns. Data collection was conducted by experienced livestock market news reporters.

The average selling prices for 2000 and 2005 were \$92.91 and \$118.32 per cwt., respectively (Figure 1). Each year showed a typical seasonal price trend with the higher prices occurring in the spring and the lower prices occurring in late summer

and early fall. The total U.S. calf inventory (yearlings and calves) decreased about 5 percent (2.1 million head) from 2000 to 2005 (USDA/NASS), but the Arkansas calf inventory remained the same (approximately 860,000 head; USDA/NASS).

Arkansas cow-calf producers typically produce and sell weaned feeder cattle. In 2000 and 2005, 76 percent and 71 percent, respectively, of the calves sold weighed less than 550 pounds (Figure 2). Since 2005 was one of the driest years in Arkansas history, one might expect a greater percentage of lighter weight calves sold in 2005 as compared to 2000. In fact, the opposite was true. A greater percentage of lighter weight calves (< 500 pounds) was sold in 2000 (60.7 percent) compared to 2005 (54.3 percent). This may be attributed to improved beef cattle genetics and overall management.

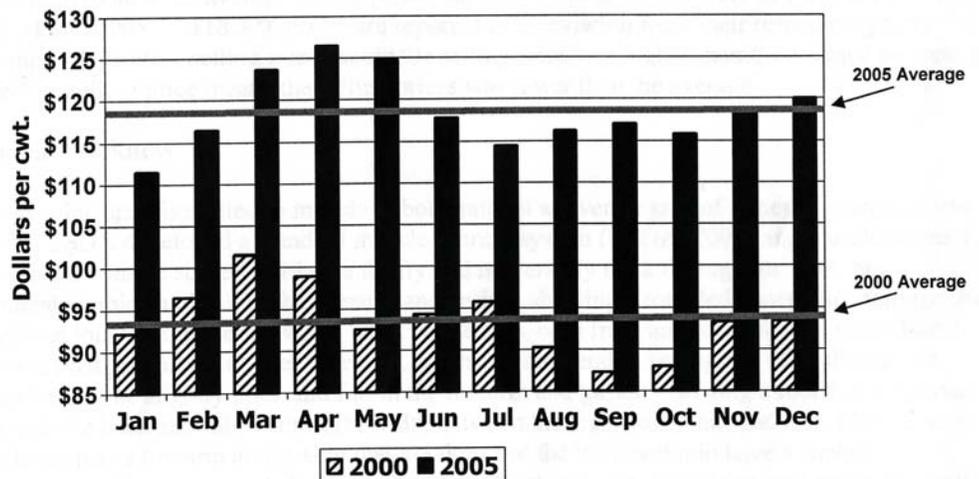


Figure 1. The average monthly and yearly selling prices for feeder cattle sold in Arkansas livestock auctions in 2000 and 2005

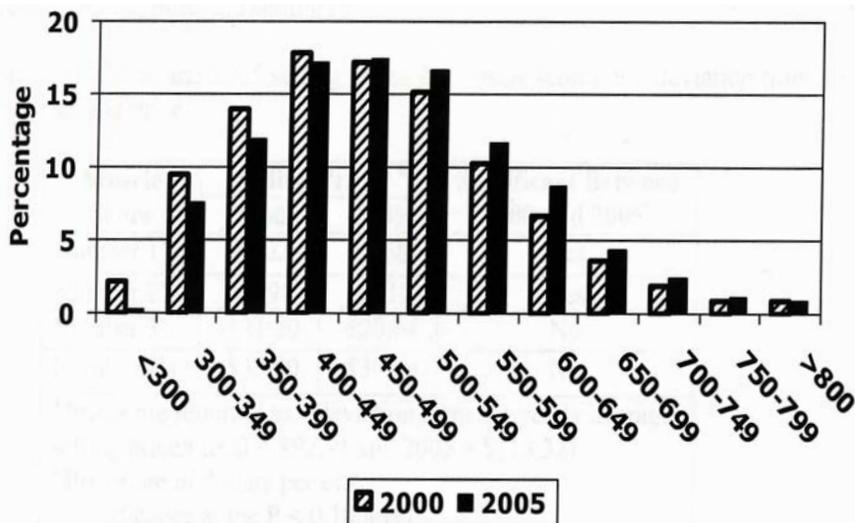


Figure 2. The percentage of calves sold by weight groups in Arkansas livestock auctions in 2000 and 2005.

The objectives of the report were 1) to determine whether the factors affecting the selling price of feeder cattle changed from 2000 to 2005 and, if so, how were they changed and 2) to examine the perception that discounts narrow or even disappear as calf supplies decrease and selling prices increase. Because the average selling prices between 2000 and 2005 were so different (2000 = \$92.91 and 2005 = \$118.32), prices are reported as a deviation from their respective yearly average. A positive selling price means the selling price was higher than the average, whereas a negative selling price means the selling price was lower than the average.

Muscle Thickness

Muscle thickness is related to muscle to bone ratio at a given degree of fatness to carcass yield grade. USDA developed a standard muscle scoring system (USDA, 2000) and muscle scores 1, 2, 3 and 4. Muscle score 1 cattle are thrifty and moderately thick throughout. They are moderately thick and full in the forearm and gaskin, showing a rounded appearance through the back and loin with moderate width between the legs, both front and rear. Muscle score 2 cattle show a high proportion of beef breeding, are thrifty and tend to be slightly thick throughout. They tend to be slightly thick and full in the forearm and gaskin, showing a rounded appearance through the back and loin with slight width between the legs, both front and rear. Muscle score 3 cattle express a forearm and gaskin that are thin, and the back and loin have a sunken appearance. The legs are set close together, both front and rear. Muscle score 4 cattle are thrifty but have less thickness than the minimum requirements specified for the Number 3 grade.

Table 1 summarizes the 2000 and 2005 selling price differences due to muscle score. Buyers paid a higher selling price for muscle score number 1's in 2005 (\$2.58) than in 2000 (\$0.02). Number 2 muscle score cattle received a lower selling price, but the discount in 2005 was less than the discount in 2000 (-\$6.12 vs. -\$8.98). The better price received in 2005 for muscle score 2 feeder cattle may have been due to smaller feeder calf supplies. There were no differences in the selling prices of Number 3 and Number 4 muscle scored calves for 2000 and 2005. Cattle buyers heavily discounted Number 3 and Number 4 calves in both years. Therefore, muscle thickness is a major attribute in determining the selling price of

Arkansas feeder cattle regardless of feeder calf supplies and selling price.

Table 1. The 2000 and 2005 Selling Prices for Muscle Scores as a Deviation From the Yearly Average Selling Price

Muscle Score	Selling Price ^{a,b}		Significant Between 2000 and 2005 ^c
	2000	2005	
Number 1's	\$0.02	\$2.58	Yes
Number 2's	-\$8.98	-\$6.12	Yes
Number 3's	-\$21.30	-\$20.04	No
Number 4's	-\$33.80	-\$30.40	No

^aPrices are reported as a deviation from the yearly average selling price (2000 = \$92.91 and 2005 = \$118.32).
^bPrices are in dollars per cwt.
^cSignificance at the P < .001 level.

Frame Score

Frame scores are determined based on the U.S. Standards for Grades of Feeder Cattle (USDA, 2000). Frame size is related to the weight at which, under normal feeding and management practices, an animal will produce a carcass that will grade USDA Choice. USDA large-framed steers and heifers are expected to weigh over 1,250 and 1,150 pounds, respectively, to grade USDA Choice. USDA medium-framed steers and heifers are expected to weigh 1,100 to 1,250 and 1,000 to 1,150 pounds, respectively, to grade USDA Choice, and USDA small-framed steers and heifers are expected to weigh less than 1,100 and 1,000 pounds, respectively. Large-framed animals require a longer time in the feedlot to reach a given grade and will weigh more than a small-framed animal would weigh at the same grade.

In the Arkansas Livestock Auction Surveys, large-framed calves received a lower selling price in 2005 (\$0.52) compared to 2000 (\$1.07; Table 2). In addition, medium-framed calves received a higher selling price in 2005 (\$0.36) compared to 2000 (-\$0.40). The two possible reasons why buyers paid less for large-framed calves and more for medium-framed calves in 2005 compared to 2000 are tighter feeder calf supplies and a trend toward a more moderately framed calf. Even with tighter feeder calf supplies, buyers discounted small-framed calves more in 2005 (-\$20.96) than in 2000 (-\$18.52). Although the selling prices between large- and medium-framed calves changed between 2000 and 2005, it appears that small-framed calves are always severely discounted.

Table 2. The 2000 and 2005 Selling Prices for Frame Score as a Deviation From the Yearly Average Selling Price

Frame Score	Selling Price ^{a,b}		Significant Between 2000 and 2005 ^c
	2000	2005	
Large	\$1.07	\$0.52	Yes
Medium	-\$0.40	\$0.36	Yes
Small	-\$18.52	-\$20.96	Yes

^aPrices are reported as a deviation from the yearly average selling price (2000 = \$92.91 and 2005 = \$118.32).
^bPrices are in dollars per cwt.
^cSignificance at the P < .01 level.

Breed Composition

It has often been stated that there is as much variation within a breed as there is across breeds. Therefore, it becomes very difficult to recommend to the commercial cow-calf producer that one breed type fits all needs and environments. When designing breeding programs, it becomes very important to truly identify those superior animals within a breed. The results of crossbreeding can have a greater impact when superior purebred animals are used. The major advantage to using superior animals in crossbreeding programs is heterosis, or “hybrid vigor,” and breed complementation.

In the Arkansas Livestock Auction Surveys, 23 breeds or breed types were analyzed. Livestock market reporters evaluated each feeder calf and determined its breed or breed type based on frame score, muscle thickness, color, breed characteristics and body structure. Therefore, breeds or breed types were based on common industry perception rather than actually knowing the breed composition.

The cattle breeds or breed types that reported higher selling price in 2005 compared to 2000 were Angus x Hereford, Angus, Angus x Charolais and

Brahman (Table 3). The cattle breeds or breed types that were similarly priced were Angus x Limousin, Hereford x Brahman x Angus, Charolais x 1/4 Brahman, Hereford x Charolais, Angus x 1/4 Brahman, 1/2 Brahman cross, Angus x Brahman, Hereford x 1/4 Brahman, Hereford x Simmental and Hereford. The breeds or breed types that received a lower selling price in 2005 compared to 2000 were Charolais x Limousin, Charolais, Hereford x Limousin, Limousin, Limousin x 1/4 Brahman, Simmental, Saler, 1/4 Brahman cross and Longhorns. Only four breeds or breed types received a selling price increase from 2000 to 2005, but 10 and 9 breeds or breed types received similar or lower selling prices, respectively.

Table 3. The 2000 and 2005 Selling Prices for Breeds or Breed Types as a Deviation From the Yearly Average Selling Price

Breeds or Breed Types	Selling Price ^{a,b}		Significant Between 2000 and 2005 ^c
	2000	2005	
Angus x Hereford	\$2.13	\$3.66	Yes
Angus	\$0.45	\$3.71	Yes
Charolais x Limousin	\$4.70	\$2.90	Yes
Angus x Limousin	\$4.32	\$3.42	No
Angus x Charolais	-\$0.30	\$2.24	Yes
Hereford x Brahman x Angus	\$1.19	\$1.80	No
Charolais	\$2.38	\$1.07	Yes
Charolais x 1/4 Brahman	\$0.51	-\$0.07	No
Hereford x Limousin	\$1.47	\$0.29	Yes
Hereford x Charolais	\$3.51	\$3.03	No
Angus x 1/4 Brahman	-\$0.09	-\$0.24	No
Limousin	\$1.70	-\$0.79	Yes
1/2 Brahman cross	-\$1.46	-\$1.84	No
Angus x Brahman	\$1.30	\$1.28	No
Limousin x 1/4 Brahman	\$0.10	-\$2.49	Yes
Hereford x 1/4 Brahman	-\$1.59	-\$2.60	No
Hereford x Simmental	-\$2.98	-\$2.61	No
Simmental	-\$2.98	-\$4.73	Yes
Saler	-\$2.98	-\$7.60	Yes
Brahman	-\$11.85	-\$9.38	Yes
Hereford	-\$9.81	-\$10.51	No
1/4 Brahman cross	-\$1.97	-\$3.47	Yes
Longhorn	-\$17.92	-\$22.35	Yes

^aPrices are reported as a deviation from the yearly average selling price (2000 = \$92.91 and 2005 = \$118.32).
^bPrices are in dollars per cwt.
^cSignificance at the P < .001 level.

Breeds or breed types do affect the selling price of feeder cattle. This is due to the perception by order buyers as to how different breeds or breed combinations perform (gain, sickness, quality grade, etc.). For many years, a perception existed that if cattle were black they had some degree of Angus breeding. Today, that may or may not be true. Many beef breeds have animals that are black such as Limousin, Simmental and Gelbvieh, to name a few. The perceptions regarding certain breeds and subsequent performance may be right or wrong, but they exist. With a high percentage of feeder cattle sold in Arkansas livestock auctions weighing less than 550 pounds, the majority of these cattle are purchased for a backgrounding grazing program. Backgrounding programs are forage based (native pasture, wheat, etc.), and buyers are looking for the breeds or breed combinations that perform best under those conditions. Cow-calf producers should be aware that the breeds or breed types that perform best under backgrounding programs might not be the breeds or breed types that make good replacements.

Color

The colors that received an increase in selling price from 2000 to 2005 were yellow-white faced, black-white faced, black, gray and gray-white faced (Table 4). White, red-white faced and red colors received a lower selling price in 2005 compared to 2000. Yellow calves and calves with spots or stripes received the same selling price in relation to the yearly average in 2000 as compared to 2005.

Table 4. The 2000 and 2005 Selling Prices Based on Calf Color as a Deviation From the Yearly Average Selling Price

Color	Selling Price ^{a,b}		Significant Between 2000 and 2005 ^c
	2000	2005	
Yellow-white faced	\$1.85	\$3.01	Yes
Yellow	\$3.03	\$2.80	No
Black-white faced	\$1.78	\$2.60	Yes
Black	\$0.78	\$1.58	Yes
Gray	-\$1.44	\$0.51	Yes
Gray-white faced	-\$2.05	-\$0.77	Yes
White	\$1.72	-\$1.84	Yes
Red-white faced	-\$1.49	-\$2.68	Yes
Red	-\$0.77	-\$3.61	Yes
Spots or stripes	-\$9.83	-\$9.42	No

^aPrices are reported as a deviation from the yearly average selling price (2000 = \$92.91 and 2005 = \$118.32).
^bPrices are in dollars per cwt.
^cSignificance at the P < .01 level.

Management Factors Affecting Market Price

Castration

Although bulls gain faster than steers (approximately 6 to 7 percent) and can have acceptable carcasses, the mainstream beef industry does not want to feed bulls. The main reason for castrating bulls is to control behavior and disposition.

The selling price of steers increased from 2000 (\$6.02) to 2005 (\$6.48). Bulls received a lower selling price in 2005 (\$0.30) compared to 2000 (\$1.68). Even with tighter calf supplies, buyers discounted bulls more in 2005 compared to 2000. With the increased steer selling price detected in 2005, the market is sending clear signals to the cow-calf producer to castrate bull calves. Heifers received a lower selling price in 2005 (-\$5.00) compared to 2000 (-\$4.68). Generally, heifer selling prices are approximately \$10.00 cwt. less than steers.

Table 5. The 2000 and 2005 Selling Prices Based on Calf Gender as a Deviation From the Yearly Average Selling Price

Gender	Selling Price ^{a,b}		Significant Between 2000 and 2005 ^c
	2000	2005	
Steers	\$6.02	\$6.48	Yes
Bulls	\$1.68	\$0.30	Yes
Heifers	-\$4.68	-\$5.00	Yes

^aPrices are reported as a deviation from the yearly average selling price (2000 = \$92.91 and 2005 = \$118.32).
^bPrices are in dollars per cwt.
^cSignificance at the P < .001 level.

Table 6. The 2000 and 2005 Selling Prices Based on Body Fill as a Deviation From the Yearly Average Selling Price

Body Fill	Selling Price ^{a,b}		Significant Between 2000 and 2005 ^c
	2000	2005	
Gaunt	\$2.83	\$1.71	Yes
Shrunk	\$2.09	\$1.82	No
Average	\$0.02	-\$0.52	Yes
Full	-\$4.15	-\$7.47	Yes
Tanked	-\$8.01	-\$23.96	Yes

^aPrices are reported as a deviation from the yearly average selling price (2000 = \$92.91 and 2005 = \$118.32).
^bPrices are in dollars per cwt.
^cSignificance at the P < .001 level.

Fill

Even with tighter feeder cattle supplies in 2005, full and tanked calves received a lower selling price in 2005 than in 2000 (Table 6). Gaunt and average fill

calves did not receive higher selling prices in 2005 as they did in 2000, and shrunk fill calves received the same selling price as a deviation of the yearly average. Due to increase in shrinkage, buyers do not want to purchase calves that appear to be full or tanked.

Body Condition

Very thin and average body condition calves received a higher selling price in 2005 compared to 2000 (Table 7). Thin, fleshy and fat calves in 2005 received a lower selling price compared to 2000. Signals from the marketplace indicate fleshy and fat calves will be severely discounted.

Table 7. The 2000 and 2005 Selling Prices Based on Body Condition as a Deviation From the Yearly Average Selling Price

Body Condition	Selling Price ^{a,b}		Significant Between 2000 and 2005 ^c
	2000	2005	
Very Thin	-\$7.06	\$1.54	Yes
Thin	\$1.67	-\$1.91	Yes
Average	\$0.41	\$0.58	Yes
Fleshy	-\$1.35	-\$5.79	Yes
Fat	-\$4.80	-\$16.48	Yes

^aPrices are reported as a deviation from the yearly average selling price (2000 = \$92.91 and 2005 = \$118.32).
^bPrices are in dollars per cwt.
^cSignificance at the P < .001 level.

Horned Cattle

Although feeder cattle supplies were tighter in 2005 compared to 2000, horned cattle received a lower selling price in 2005 (-\$2.86) compared to 2000 (-\$0.51; Table 8). Polled calves received a higher selling price in 2005 (\$0.83) than in 2000 (\$0.48), indicating the strong demand for polled calves.

Table 8. The 2000 and 2005 Selling Prices Based on Horn Status as a Deviation From the Yearly Average Selling Price

Horn Status	Selling Price ^{a,b}		Significant Between 2000 and 2005 ^c
	2000	2005	
Horns	-\$0.51	-\$2.86	Yes
Polled	\$0.48	\$0.83	Yes

^aPrices are reported as a deviation from the yearly average selling price (2000 = \$92.91 and 2005 = \$118.32).
^bPrices are in dollars per cwt.
^cSignificance at the P < .001 level.

Sick or Lamé Cattle

Unhealthy calves, except calves with bad eye(s), received lower selling prices in 2005 than in 2000

(Table 9). The selling prices for healthy cattle were not different between years, thus receiving the same price in relation to the yearly averages.

Table 9. The 2000 and 2005 Selling Prices Based on Health Status as a Deviation From the Yearly Average Selling Price

Health Status	Selling Price ^{a,b}		Significant Between 2000 and 2005 ^c
	2000	2005	
Sick	-\$25.64	-\$37.28	Yes
Lamé	-\$26.73	-\$33.78	Yes
Stale	-\$10.85	-\$16.14	Yes
Bad Eye(s)	-\$11.75	-\$12.38	No
Dead Hair	-\$9.69	-\$13.02	Yes
Healthy	\$0.57	\$0.55	No

^aPrices are reported as a deviation from the yearly average selling price (2000 = \$92.91 and 2005 = \$118.32)
^bPrices are in dollars per cwt.
^cSignificance at the P < .05 level.

Size and Uniformity

Calves sold in groups received a higher selling price in 2005 than in 2000. This is an indication that buyers prefer purchasing calves in uniform groups as compared to one head at a time.

Table 10. The 2000 and 2005 Selling Prices Based on Group Size as a Deviation From the Yearly Average Selling Price

Group Size	Selling Price ^{a,b}		Significant Between 2000 and 2005 ^c
	2000	2005	
1 head	-\$0.22	-\$0.12	No
2 to 5 head	\$2.02	\$2.78	Yes
≥ 6 head	\$4.16	\$5.32	Yes

^aPrices are reported as a deviation from the yearly average selling price (2000 = \$92.91 and 2005 = \$118.32).
^bPrices are in dollars per cwt.
^cSignificance at the P < .01 level.

Summary

Cow-calf producers can do a great deal to improve the quality and thus the selling price for feeder cattle sold through Arkansas livestock auctions. Cattle supplies and demand can affect the selling price of calves. A number of genetic and management factors affect the premiums and discounts. Those desired factors are:

- Muscle thickness – No. 1 desired
- Large- and medium-framed
- A crossbreeding system that improves hybrid vigor and takes advantage of breed complementation

- No spots or stripes
- Castrated bull calves
- Polled or dehorned
- Average fill and body condition and no full, tanked, fleshy or fat calves
- Healthy calves
- Group selling

Reference

USDA. 2000. U.S. standards for grades of feeder cattle. Agricultural Marketing Service. October 2000. AMS-586.

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