

# CATTLE CYCLE

*Basis Estimates and Monthly Average Prices  
for Various Livestock Classes*





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*by Dan Childs, Jeri Donnell, Kristen Greer and Job Springer*

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# CATTLE CYCLE

By Dan Childs, Jeri Donnell, Kristen Greer and Job Springer

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## INTRODUCTION

A cattle cycle exists because of the accumulation and liquidation of cattle inventory. Accumulation is a period of increasing cattle numbers, while liquidation is a period of decreasing cattle numbers. Cattle producers expand and contract their herd size in response to cattle prices or profits. As prices increase and more profits are made, producers begin to increase their herd size. This causes the total cattle inventory to increase, creating an excess supply, and prices begin to drop. When prices decrease, cattle producers reduce their herd size. With smaller herd sizes, there is a shortage of beef, or an excess demand, which causes prices to start increasing, thus creating a cattle cycle. Cattle cycles are typically about 10 years in length with a six- to eight-year accumulation period and a three- to four-year liquidation period. The cattle cycle that lasted from 1990-2004 was longer than normal. The accumulation phase lasted six years while the liquidation phase lasted eight years. A possible reason for the extended liquidation period is the drought during the late 1990s and early 2000s. With limited forage availability, producers could not react to the increasing prices as quickly as usual. Instead of increasing herd sizes, producers continued to decrease inventory. The cattle cycle is measured over several years, but, within each year, there are seasonal price patterns that must be considered. A seasonal price pattern is a pattern that is

completed and repeats itself once every 12 months. By looking at and understanding cattle inventory and price cycles, a producer can plan for the future of his or her operation.

Historical basis calculations can also help a producer plan for the future. A basis is the difference between the local cash price and a nearby (closest to expiration) futures contract price:  $\text{basis} = \text{cash price} - \text{futures price}$ . A basis exists because the futures and the cash price on a given date differ due to location, quality or time of delivery. Basis is much easier to predict than the average price level. This is because factors that affect commodity cash prices simultaneously affect the futures price in approximately a one-to-one ratio. If the futures prices historically increase by \$1 in a given month, it is likely that cash prices will also increase by \$1 during that month. If the equation for basis is rearranged, the following relationship is discovered:  $\text{cash price} = \text{basis} + \text{futures price}$ . This is a tool that hedgers can use to predict an expected sale price (short hedger) or an expected buy price (long hedger) for a group of cattle. The hedger would simply add the current live cattle futures contract he or she wishes to sell to the historical basis estimate for that same time period.

So the question that remains is how a cattle producer can use the information provided by the cattle price cycle graphs and historical basis calculation tables to make

decisions about his or her operation's future. The answer is that it depends on the type of cattle operation he or she is managing. Whether it is a cow-calf, stocker or feedlot operation, the process of using these tools for planning is similar, but, for each operation, a different price cycle and set of basis calculations is considered.

## COW-CALF OPERATION

A cow-calf operation must be aware of several sets of price cycles. It is important to know price trends for calves in the weight classes which would be marketed. This most likely would include 300- to 400-, 400- to 500- and 500- to 600-pound feeder steers and heifers, since most six- to seven-month-old freshly weaned calves are in these weight ranges. The producer would also want to know price trends on slaughter cows. Although more calves are sold than cows, roughly 30 percent of a cow-calf producer's income is from cull cows. Therefore, it is essential to be aware of when to market cull cows so that higher revenues may be achieved.

Not only is it important to know which price cycles to refer to, but it is equally important to be familiar with their general trends. In the case of analyzing cattle price cycles, it is preferable to look at the 10-year average. For 300- to 600-pound feeder calves, the trends for steers and heifers are similar. A cow-calf operation has two calving

season choices: spring calving or fall calving.

Spring calving operations usually wean 300- to 600-pound calves in October. Looking at the 10-year average on price cycle graphs for 300- to 400-, 400- to 500- and 500- to 600-pound feeder steers and heifers, one can see that October tends to have lower prices than either month around it. Since late fall is when a producer would typically want to sell, it might be best to look at other options like early weaning or preconditioning to avoid October prices.

Weaning about a month earlier will increase the price per pound that a producer will receive, but it is important to remember that calves are sold per pound. The higher prices paired with lower weights on the younger calves would not increase revenues significantly. When choosing between early weaning and preconditioning, the better choice is to precondition the calves.

Weaning and feeding the calves for another month will cost more money, but selling at a higher price per pound and at a heavier weight would increase revenues significantly. In fact, preconditioning for a longer period of time could increase revenues even more since cattle prices in December are at a peak. For example, the 10-year average price for 400- to 500-pound steers is \$110.39 per hundredweight (cwt) in October. If, instead of selling in October, the rancher chose to precondition for two months and sell in December, the 10-year

average price increases to \$116.12 per cwt. This is a 5.2 percent increase in price per cwt, assuming the cattle remain in the same weight class.

Fall calving operations typically wean 300- to 600-pound calves in June. When looking at the price cycles for steers and heifers in this weight range, one can see that June prices are usually lower than prices in the months before and after June. Just like with spring calving, there are other options to consider such as weaning the calves early or preconditioning them. Again, the preconditioning option is more likely to significantly increase revenue on the calves since both price per pound and number of pounds sold will increase. In the case of fall calves, it might be best to only precondition for one month to catch the higher July prices, rather than waiting until August when prices are more likely to begin decreasing.

Prices for slaughter cows are also a concern for a cow-calf operation. Spring calving operations make culling decisions in October or November, so this is when a producer would cull cows that breed back slow, are too old or consistently have small calves. When taking a look at the price cycle graph for slaughter cows, one can see that prices reach a seasonal low in the months of October and November. Revenues for the cull cows would increase by waiting until February or March to sell. Unfortunately, this waiting period is during winter feeding, so,

depending on costs of feeding the cows, the increased revenue from waiting might not increase profits. Fall calving operations, on the other hand, make culling decisions in June or July. Again looking at the price cycle graph for slaughter cows, one can see that prices peak during June and July. A producer in this situation would want to go ahead and sell the cull cows rather than wait a few months. This would allow for the highest possible revenues for cull cows. For example, the 10-year average price for slaughter cows in November is \$37.83 per cwt. If the producer waited until February to sell the cows, the 10-year average price increases to \$41.71 per cwt. That means there is about a 10.3 percent increase in price per cwt. The increase in price means that there is also an increase in revenue, which affects the bottom line.

A cow-calf producer might be interested in hedging a group of feeder steers on the futures market. It is possible to use the historical basis calculations to predict expected sale price for the calves at a future time. For example, suppose that in April a cow-calf producer decides to hedge a group of 500- to 600-pound feeder steers and wants to know the expected sale price in November. Assume the November feeder cattle contract is currently trading at \$110 per cwt. Looking at the average basis calculation table, one can see that the 500- to 600-pound feeder steer basis in November is about \$13 per cwt. The

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expected sale price in November is then \$110 + 13 = \$123 per cwt. Note that this is only an expected sale price and not the actual sale price. Difference between the two prices can be credited to the difference between actual and expected basis. Also be aware that feeder steer and heifer basis for all weight classes are computed using the same futures contract, but cash prices will vary among different sexes and weights. So it is important to look at the data for the appropriate group that a producer wishes to hedge.

### STOCKER OPERATION

A stocker operation needs to know price information on both small and large feeder calves. This is because the stocker operator buys 400 to 600-pound calves from the cow-calf producer, feeds them for five to six months and sells 700 to 800-pound yearlings. The operator will want to purchase the calves at a low price and sell at a high price, so the price cycle graphs must be analyzed carefully for seasonal highs and lows within the respective weight classes. A stocker operation can either feed winter or summer stockers. Winter stockers are typically grazed on winter wheat pastures while summer stockers are grazed on native or introduced warm-season grasses.

A winter stocker operation typically has a grazing period between Nov. 15 and May 15. Four hundred-to 600-pound feeder calf prices are typically lower in October than in

November. Therefore, the best time to buy the calves is a few weeks earlier than the typical grazing period to take advantage of lower purchase prices. After the six-month grazing period, the stocker operator has 600- to 800-pound yearlings to sell. Looking at the 600- to 700- and 700- to 800-pound feeder calf price cycles, one can see that May prices are historically lower than June prices. In this case, the stocker operator would be able to increase revenues by keeping the cattle a few weeks longer than the typical grazing period. The 10-year average price in November for 400- to 500-pound steers is \$112.41 per cwt. If the stocker operator bought in October at \$110.39 per cwt, there is a 1.8 percent decrease in purchase prices. If the operator sold 700- to 800-pound feeder steers in May, the price is \$88.38, but, if he or she sold in June, the sale price increases by 3.7 percent to \$91.62 per cwt. The decreased purchase price and increased sale price lead to over a 5 percent increase in revenues. But, with winter stockers, it is important to be aware that temperature conditions make death loss and medical expenses higher for cattle that are not preconditioned.

Summer stocker operations buy 400- to 600-pound calves in the spring, graze them on summer pastures, and sell 600- to 800-pound yearlings in the fall. A typical grazing period for summer stockers begins in mid-March and ends somewhere between July and September depending on available graz-

ing land. Looking at the price cycle graph for 400- to 600-pound feeder calves, one can see that February tends to have lower historical prices than March, so an operator might want to purchase in February at the lower price. After grazing the calves through the summer, the stocker operator is ready to sell 600- to 800-pound yearlings. Looking at the respective price cycles for steers and heifers, one can see that there is very little price difference between July and September, so it would be acceptable for the operator to sell the yearlings at any point during this time. Although selling calves in the early portion of this acceptable window will not increase the stocker operator's revenues, it could eliminate one month's costs and increase profit, but it is important to keep in mind that the yearlings may have smaller weights. Another option with summer stockers is to retain ownership through the feedyard until the cattle are slaughtered. Summer stockers that enter a feedlot in August will generally be slaughtered four months later in December. When taking a look at the slaughter steer price cycle, one can see that prices peak in December. This might be an option to take into consideration, but it would be important to determine a breakeven price for the cattle before making any decisions.

A stocker operation manager, like a cow-calf producer, may want to short hedge or sell a futures contract on a group of cattle. But there is also the possibility for a stocker

operation to hedge long or buy a futures contract. For example, assume that it is August and a farmer is preparing to plant winter wheat. He or she wants to purchase a group of stocker cattle to graze the wheat from mid-November to mid-May. So the appropriate action is to hedge long (purchase a futures contract) on a November feeder cattle contract. Suppose it is currently trading at \$110 per cwt. Looking at the basis table, the November basis for 500- to 600-pound feeder calves is about \$13 per cwt. So the expected buy price for the cattle is  $\$110 + 13 = \$123$ . Notice that this price is the same as the expected sell price computed for the cow-calf producer. This is because the cow-calf producer is theoretically selling to the stocker operator, so prices computed are for the same transaction.

### FEEDLOT OPERATION

A feedlot operation has two options for buying calves: buy young, freshly weaned feeder calves (500- to 600-pounds) or buy larger feeder yearlings (600- to 800-pounds). The feedlot then feeds out the calves and sells a 1,100- to 1,300-pound animal to a nearby slaughter facility. The feedlot manager is interested in low purchase prices for feeder calves and high sale prices of slaughter steers or heifers. The weight of the calves purchased determines the cattle price cycle on which the feedlot will focus.

A feedlot that is buying calves that have

just been weaned would be interested in looking at the 500- to 600-pound feeder steer and heifer price cycles. When looking at these graphs, one can see that the lowest priced months to purchase cattle based on 10-year averages are January and October-November depending on sex classifications. Since the calves are young, they usually have a feeding period of 180 to 220 days. The January calves would be slaughtered in July or August. Looking at the slaughter steer price cycle graph, July prices are the lowest of the year. It would be advisable to feed the cattle an extra month to catch the higher August prices and increase revenues. If the calves entered the feedlot in October, they would be slaughtered in April or May.

Feedlot operations also can buy larger calves that have been previously owned by a stocker operation. These calves are bought at 600- to 800-pounds. The price cycles for those weight classes show that the lowest and best purchase prices range from January to March depending on weight classifications. These larger calves have a feeding period of 120 to 140 days and are sold and slaughtered from May to June. Referring to the slaughter steer price cycle graph, prices rapidly drop from May to July. In this case, it would probably be best to sell the cattle in May before prices began to drop.

A feedlot manager might be interested in short hedging (selling a futures contract) a group of steers that will be sold in the future.

For example, assume that it is January and the feedlot has just bought a group of steers to feed until May. The manager would want to look at the June live cattle futures because it is the nearest contract, but not before when the cattle would finish in May. Suppose the contract is currently trading at \$88 per cwt and the basis for May slaughter steers for Texas-Oklahoma is \$3.66 per cwt. The expected sale price for the group of steers in May is  $\$88 + 3.66 = \$91.66$  per cwt. This process helps to give the manager an idea of what the cattle will sell for in May.

### SUMMARY

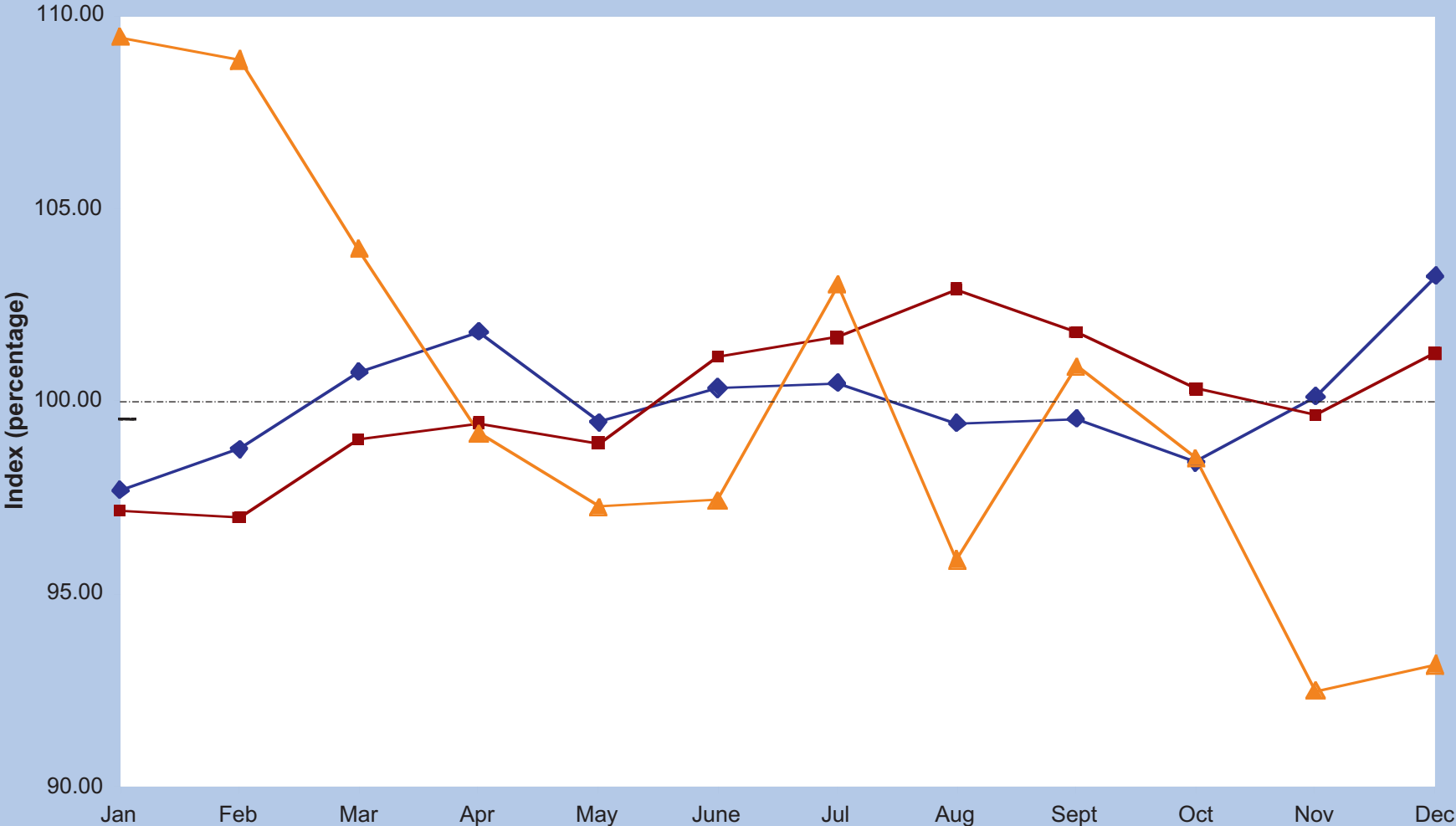
Examining the cattle price cycle and basis calculations can be beneficial for decision making within many types of cattle operations. By looking at the seasonal highs and lows and trends for the price cycles, one can determine the best times to market cattle. This can help an operation increase revenues significantly, but it is important to remember that increasing profits is the main goal of a business, so costs must also be accounted for. If a cattle producer is interested in hedging cattle on the futures market, he or she can compute the expected sale price on the group of cattle by using the correct futures contract and the appropriate average basis calculation. Both of these tools enable cattle producers to better prepare for the future of his or her operation.

# STEERS

*No. 1 medium frame*

# Steers No. 1 Med. Frame 300-400 LBS.

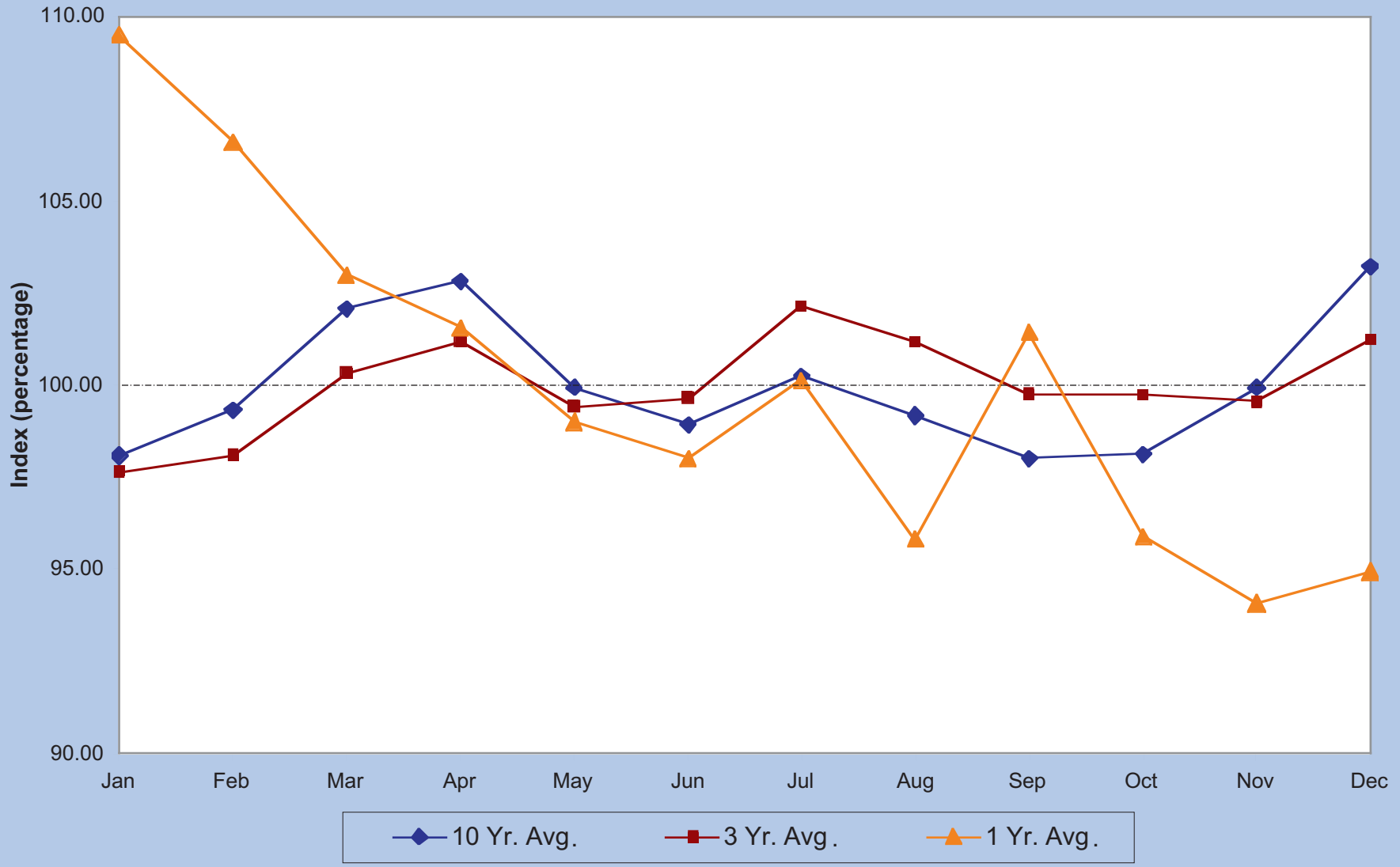
Oklahoma City Prices



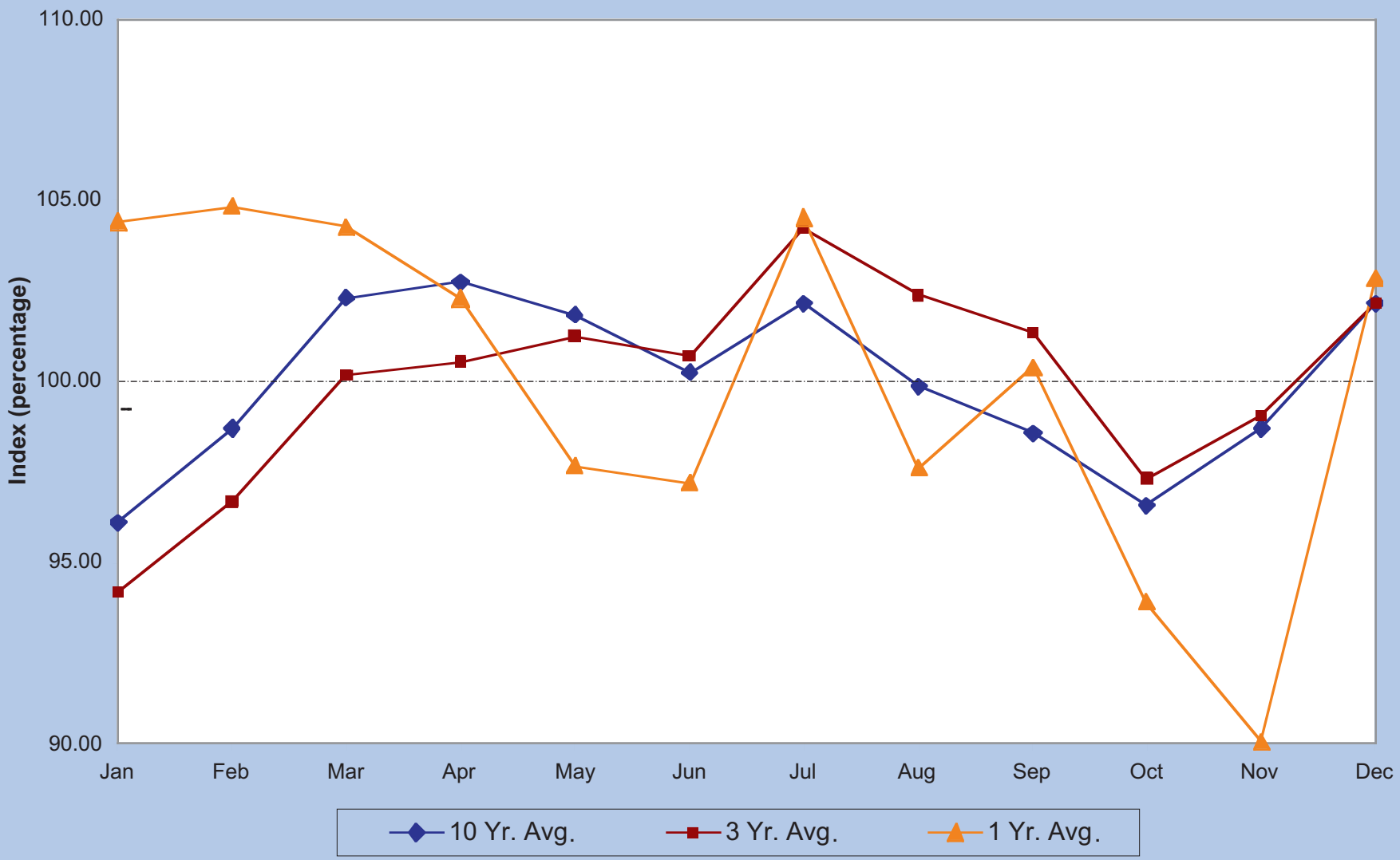
◆ 10 Yr. Avg.    ■ 3 Yr. Avg.    ▲ 1 Yr. Avg.

# Steers No. 1 Med. Frame 400-500 LBS.

Oklahoma City Prices

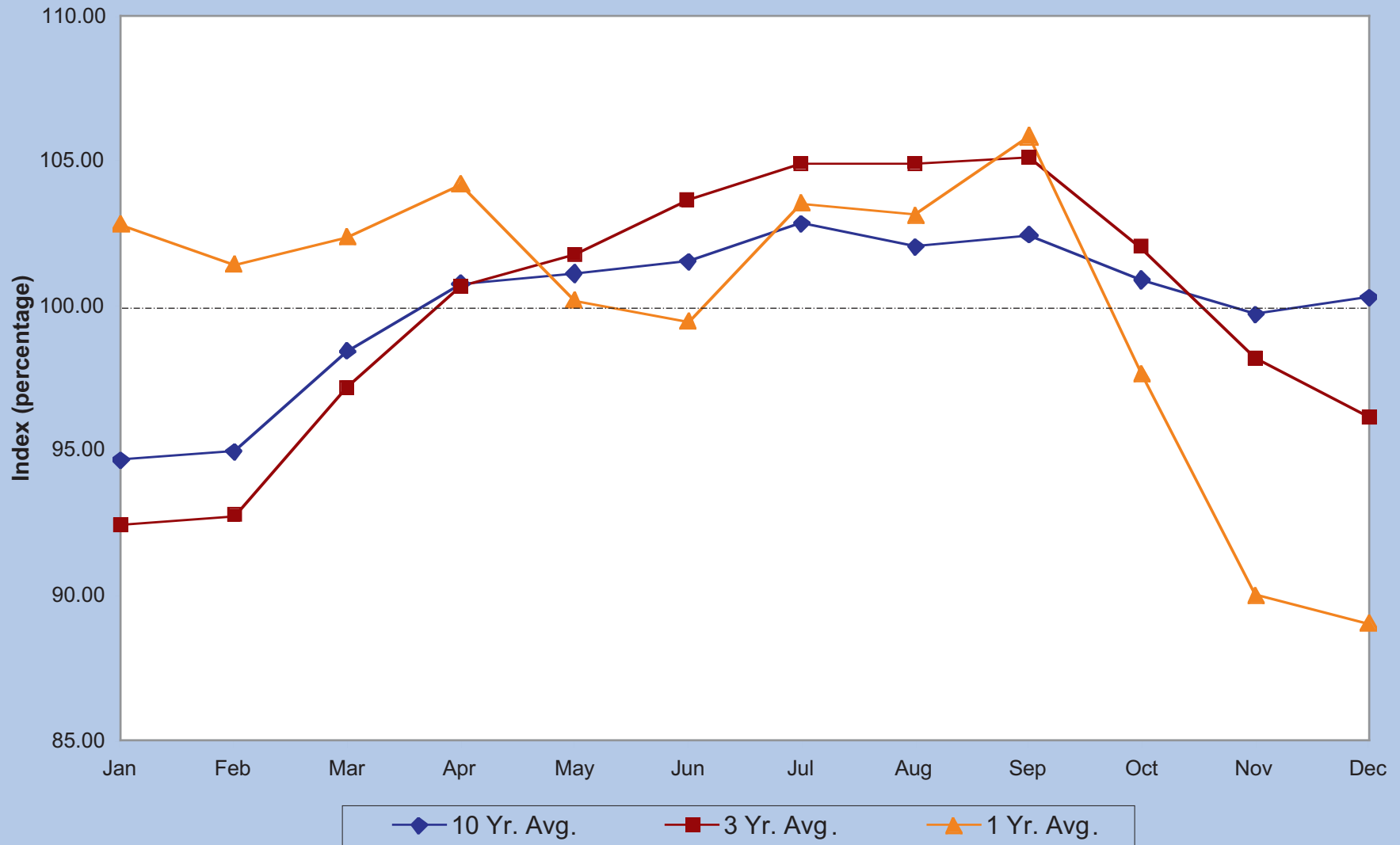


**Steers No. 1 Med. Frame 500-600 LBS.**  
*Oklahoma City Prices*

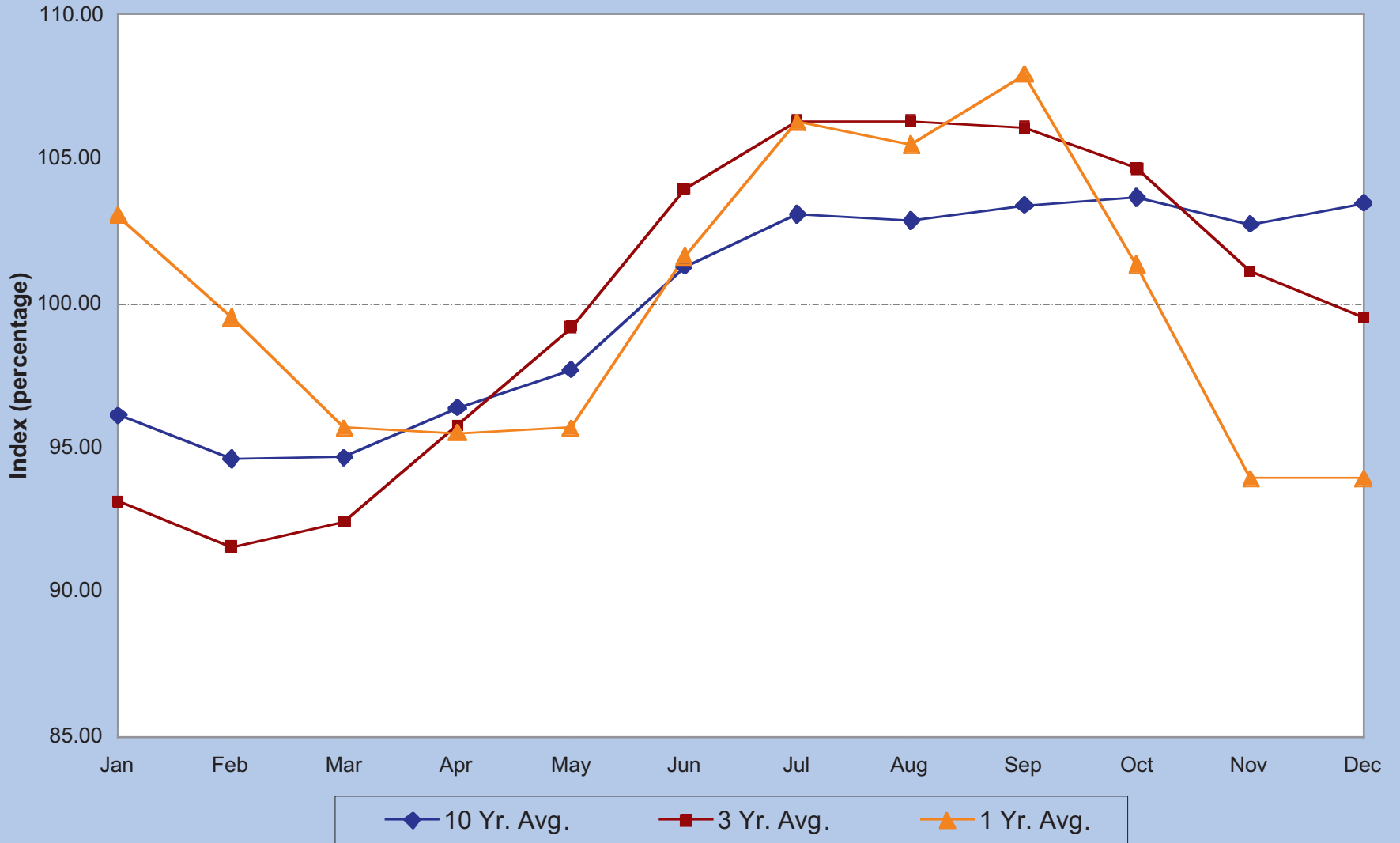


# Steers No. 1 Med. Frame 600-700 LBS.

Oklahoma City Prices



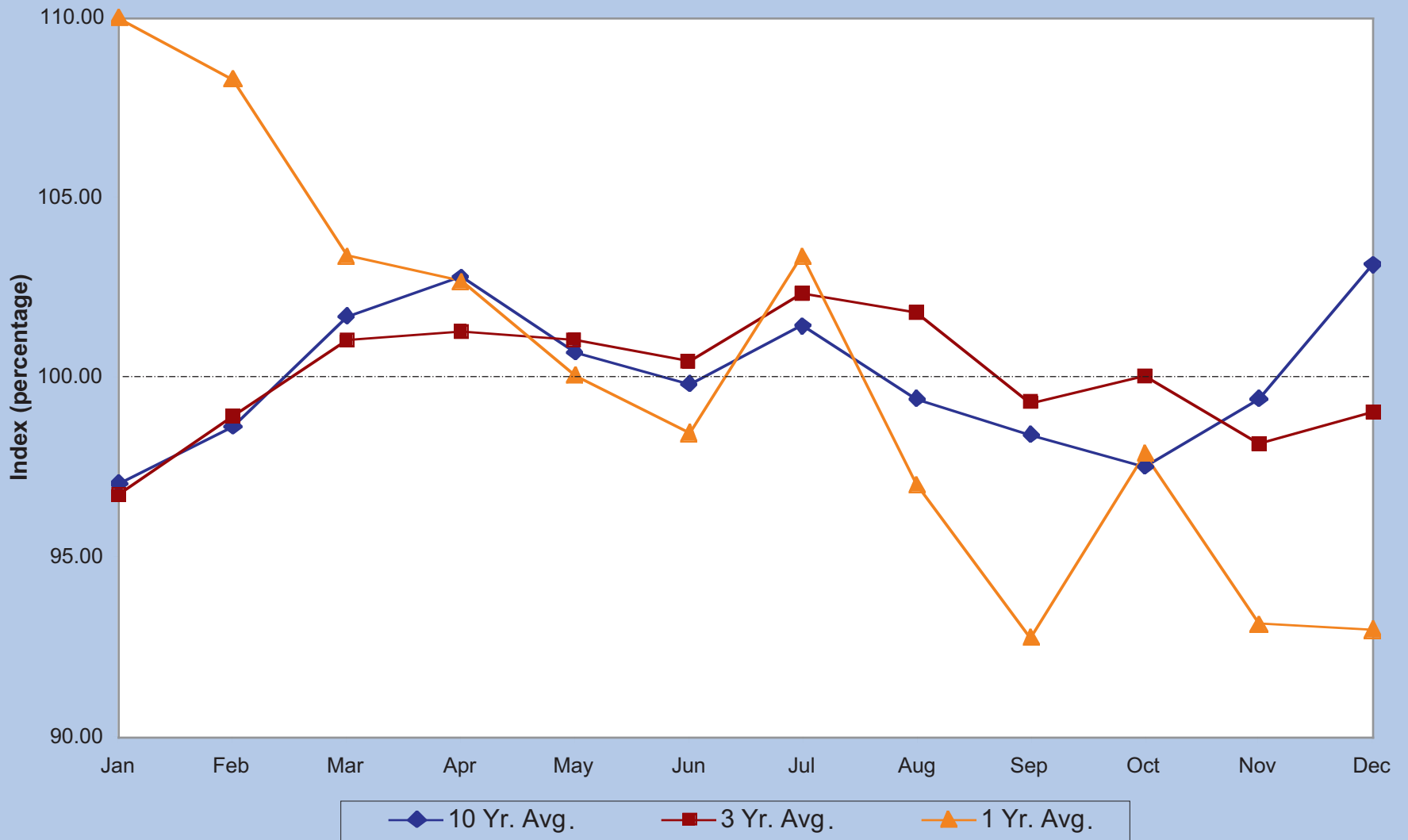
**Steers No. 1 Med Frame 700-800 LBS.**  
*Oklahoma City Prices*



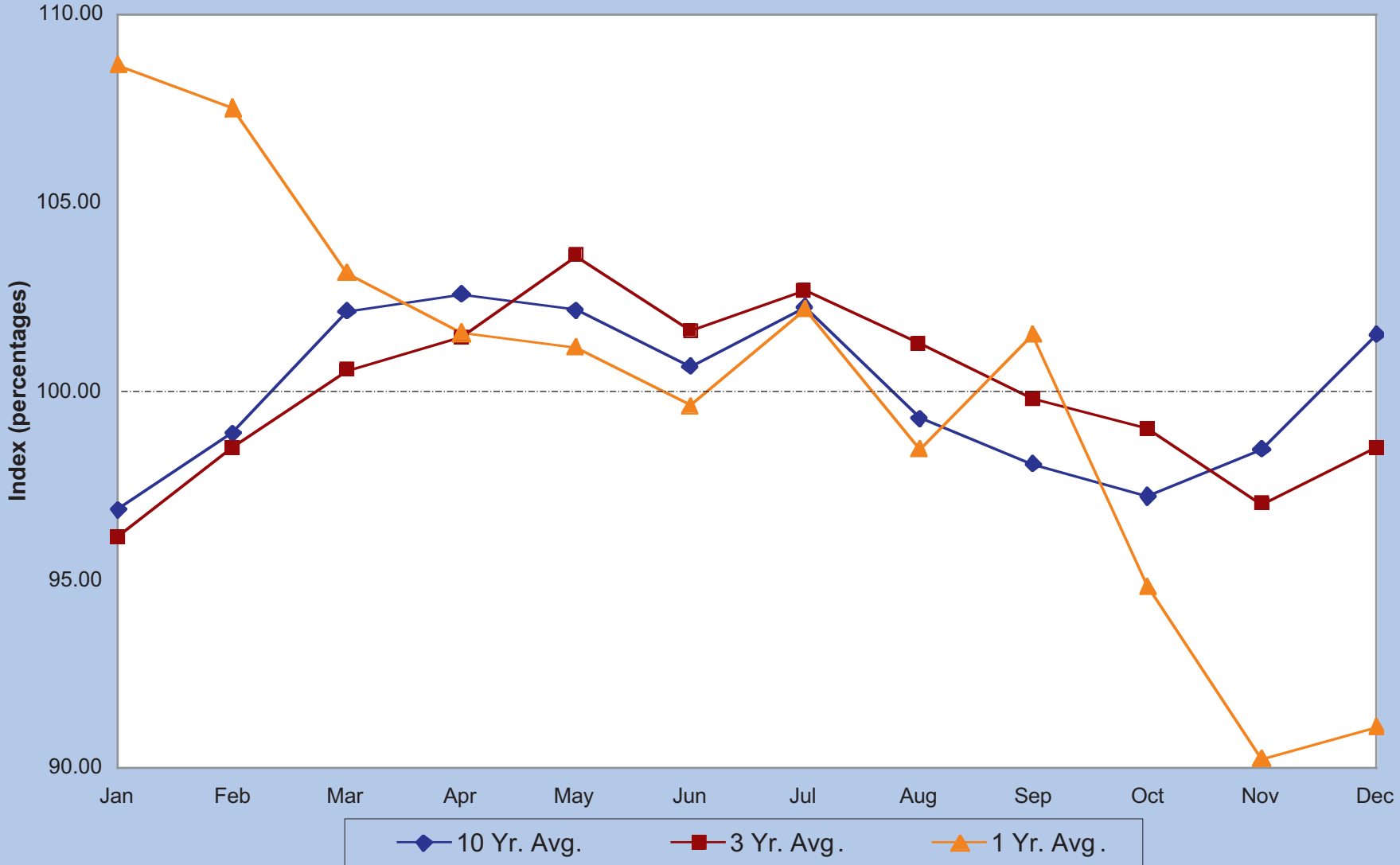
HEIFERS

*No. 1 medium frame*

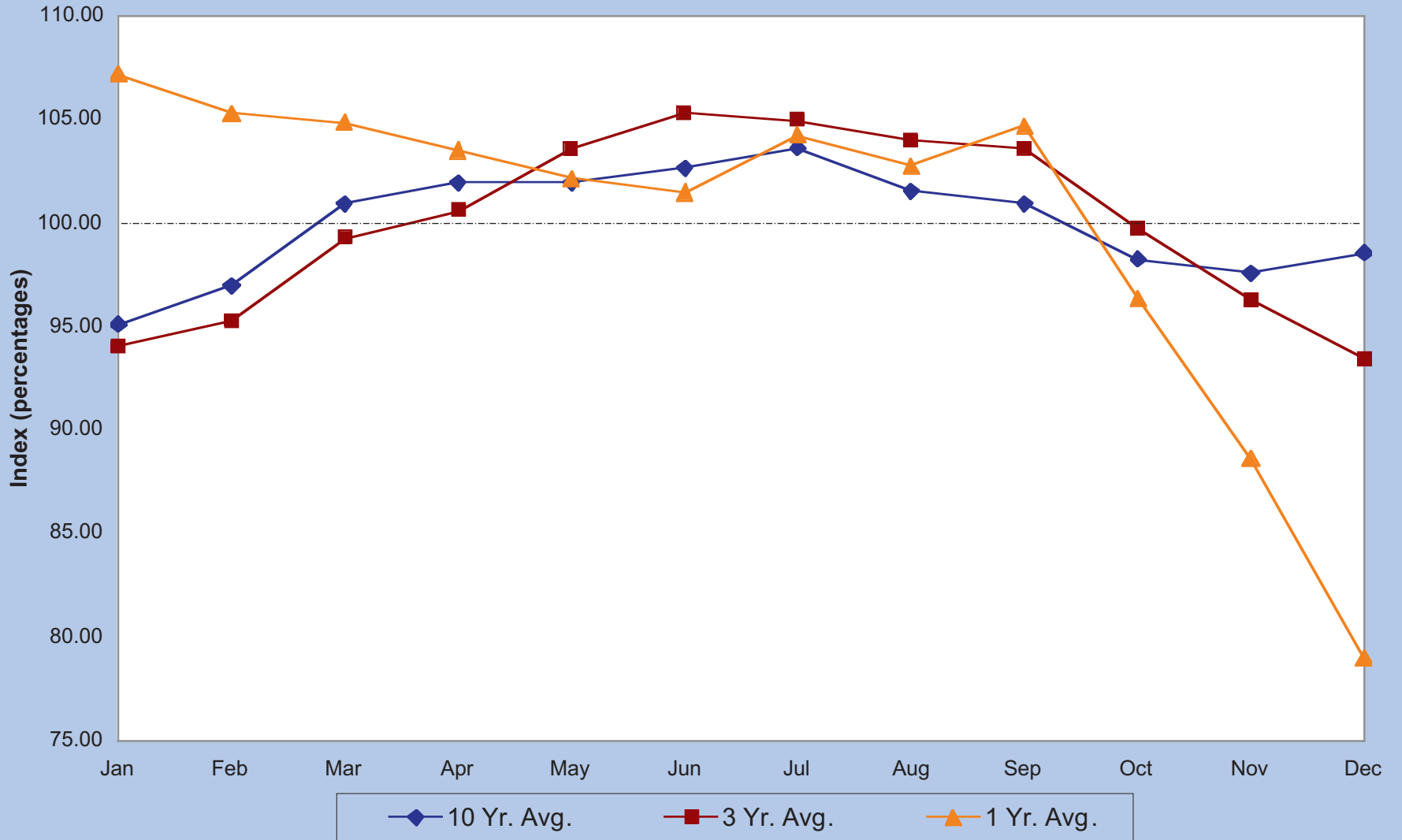
## Heifers No. 1 Med. Frame 300-400 LBS. Oklahoma City Prices



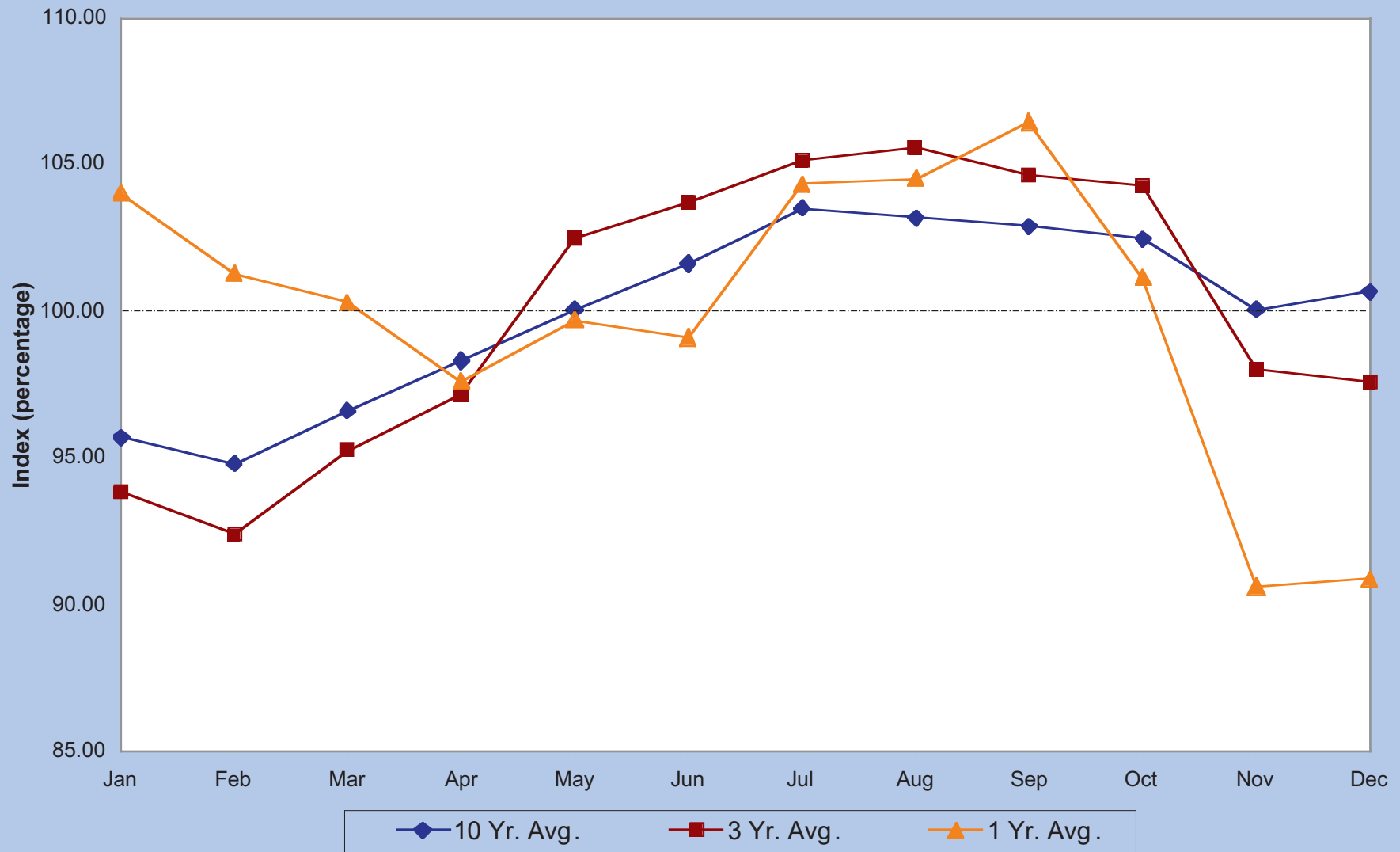
**Heifers No. 1 Med. Frame 400-500 LBS.**  
*Oklahoma City Prices*



**Heifers No. 1 Med. Frame 500-600 LBS.**  
*Oklahoma City Prices*

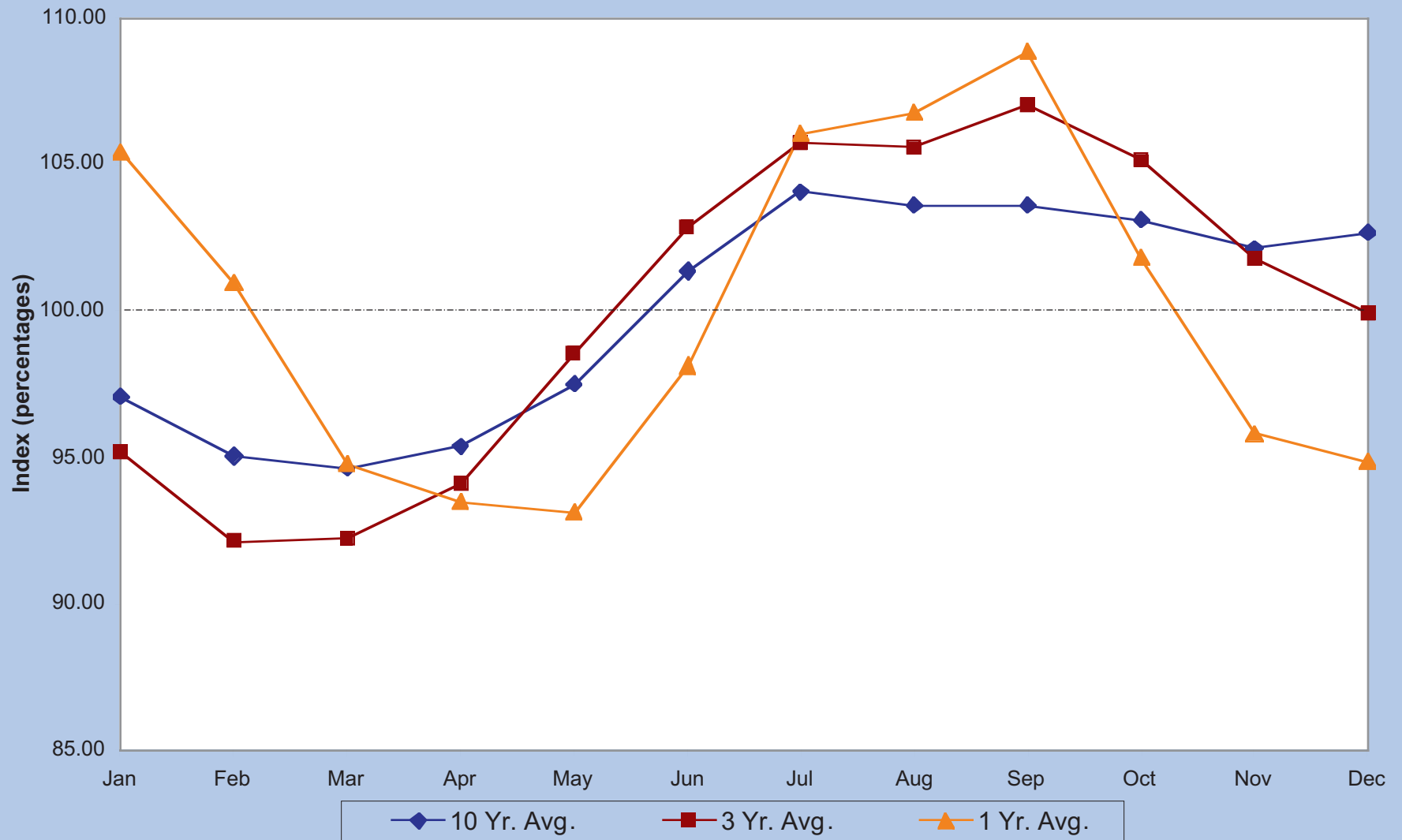


## Heifers No. 1 Med. Frame 600-700 LBS. Oklahoma City Prices



# Heifers No. 1 Med. Frame 700-800 LBS.

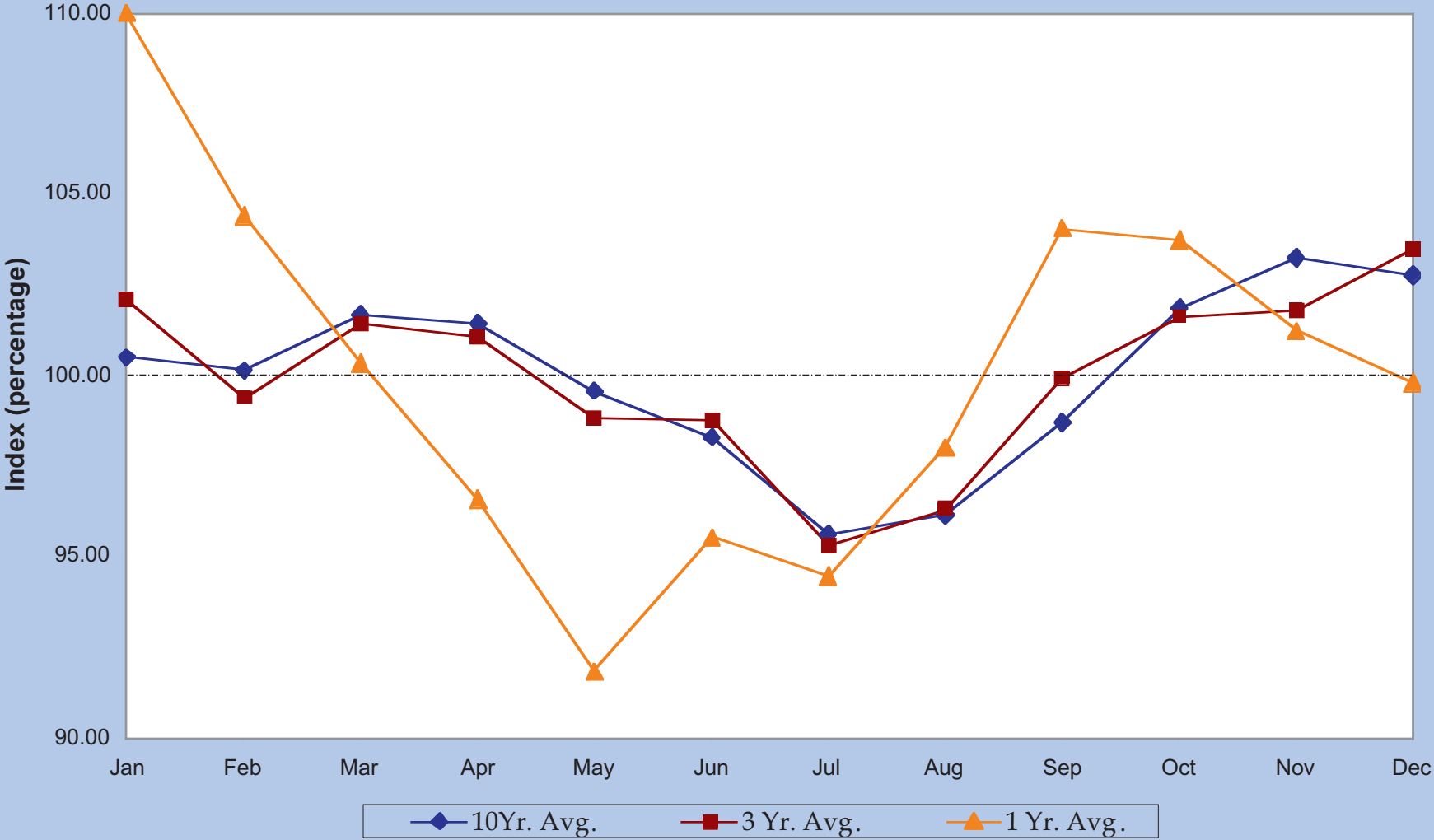
Oklahoma City Prices



# SLAUGHTER STEERS

*Choice 2-3*

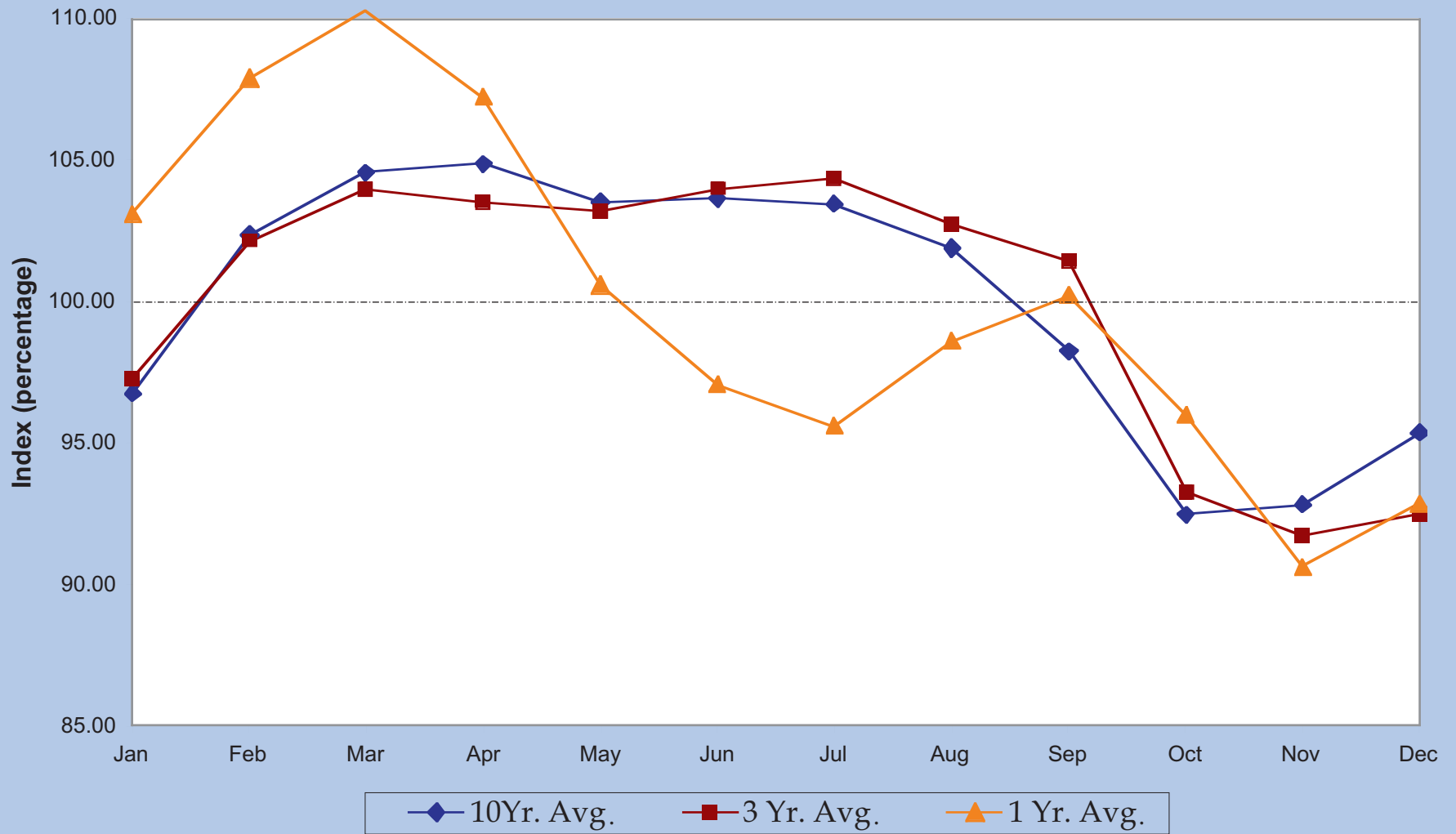
**Slaughter Steers Choice 35%-65%**  
*1100-1300 LBS. Texas District*



# COWS-CUTTER

*No. 1-2 all weights*

## Cows-Cutter No.1-2 All Weights Oklahoma City Prices



# MONTHLY AVERAGE BASIS

*Calculations 2001-2005*

## SLAUGHTER CATTLE: 2002-2006 MONTHLY AVERAGE BASIS CALCULATIONS

	January	February	March	April	May	June	July	August	September	October	November	December
<b>TX-OK-NM</b>	-1.39	-0.71	2.57	1.72	3.77	1.61	-0.27	-1.12	-1.47	-1.25	-0.08	-0.09
<b>Kansas</b>	-0.92	-0.64	2.57	3.04	3.76	1.18	-0.60	-0.60	-0.64	-0.74	0.33	-1.53

## 2002-2006 OKLAHOMA CITY MONTHLY AVERAGE BASIS CALCULATIONS

### Feeder Steers

	January	February	March	April	May	June	July	August	September	October	November	December
<b>300-400 lb.</b>	40.32	43.37	45.43	44.24	38.66	38.76	36.96	34.74	33.24	33.24	37.52	42.35
<b>400-500 lb.</b>	29.24	33.39	34.25	34.58	28.41	24.65	25.25	21.87	18.52	19.97	24.84	29.73
<b>500-600 lb.</b>	15.07	21.70	23.57	22.82	19.93	15.21	16.13	12.05	9.48	7.11	13.33	18.49
<b>600-700 lb.</b>	5.05	9.16	11.93	13.84	11.41	9.02	8.68	7.23	6.72	4.73	6.04	6.67
<b>700-800 lb.</b>	0.54	2.72	2.02	3.22	2.23	2.87	3.43	2.17	1.56	1.32	3.31	4.35
<b>800-900 lb.</b>	-2.65	-1.63	-3.87	-3.56	-3.54	-2.28	-2.71	-3.40	-2.45	-3.39	-0.98	1.20

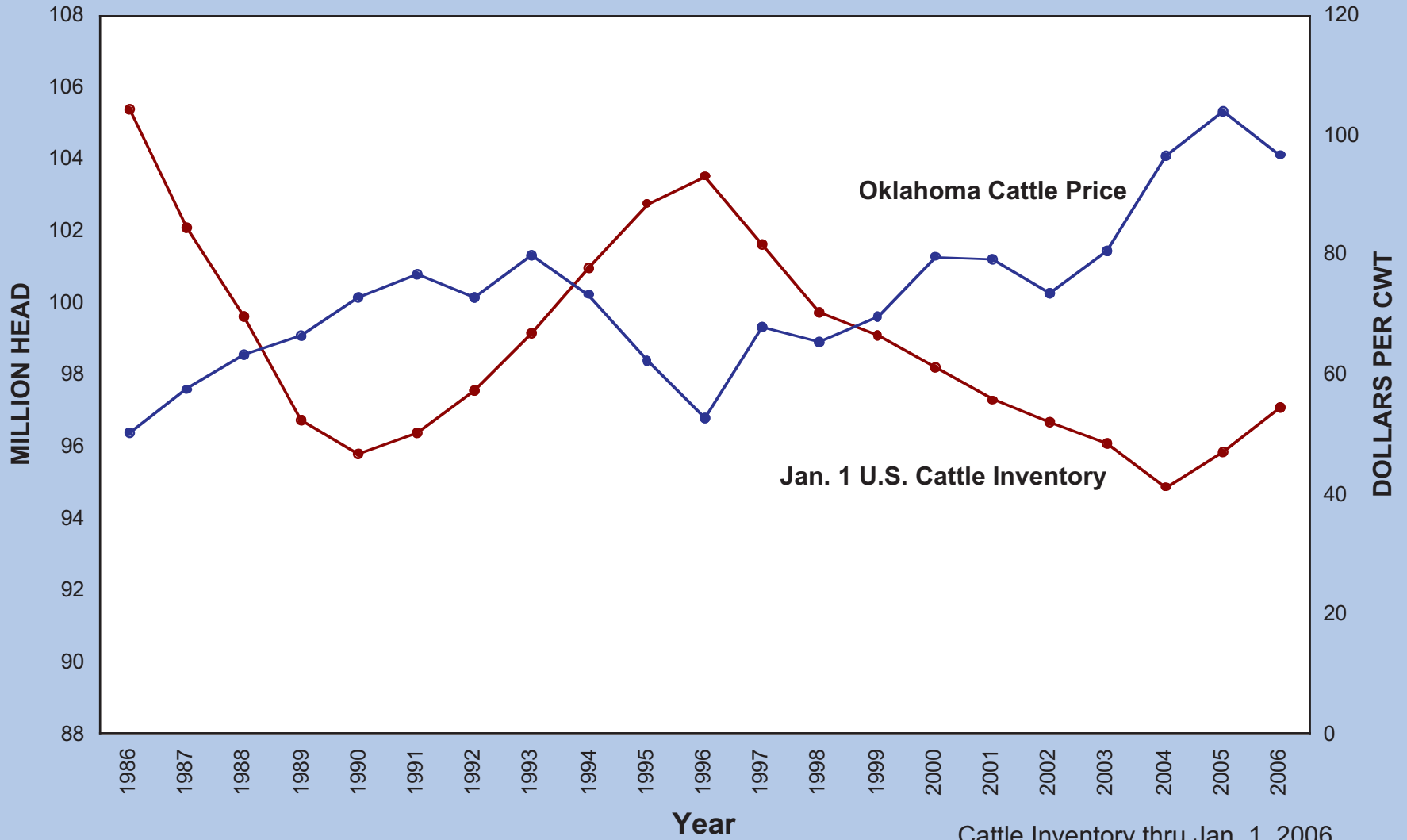
### Feeder Heifers

	January	February	March	April	May	June	July	August	September	October	November	December
<b>300-400 lb.</b>	24.07	29.00	30.06	29.58	24.69	21.52	20.57	16.94	14.38	15.07	17.78	22.94
<b>400-500 lb.</b>	13.85	19.72	20.35	19.88	17.82	11.77	11.22	7.36	5.11	5.11	8.47	12.42
<b>500-600 lb.</b>	4.41	9.69	11.10	11.42	9.82	7.41	6.40	2.66	1.37	-1.03	1.01	2.15
<b>600-700 lb.</b>	-0.79	1.68	2.10	2.73	3.29	0.92	0.84	-0.54	-1.87	-1.79	-1.58	0.17
<b>700-800 lb.</b>	-4.07	-2.74	-4.98	-5.06	-4.80	-4.54	-3.62	-5.17	-5.44	-6.01	-3.86	-2.31

# CATTLE INVENTORY

*and price cycle*

### Cattle Cycle & Price Cycle 1986-2006



Cattle Inventory thru Jan. 1, 2006  
Oklahoma Cattle Prices thru 2005

The Samuel Roberts Noble Foundation, Inc.  
2510 Sam Noble Parkway • Ardmore, Oklahoma 73401  
(580) 223-5810 • [www.noble.org](http://www.noble.org)

Authors: Dan Childs and Job Springer