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Monthly Variations of Beef Cattle Prices in Oklahoma

Leo V. Blakley*, Odell L. Walker*, and John G. McNeely, Jr.**

Successful marketing is an important phase of beef production in Oklahoma. Physical, biological and economic factors which affect feed and animal production play an important role in cattle marketing and production. This study was made to determine and analyze seasonal price data which may be useful in deciding the best times to market cattle.

Method and Procedure

Prices of the major grades and weights for each class of cattle and calves sold at the Oklahoma City market were used for this study. The monthly data were computed from weekly data published in **Market News**, by the Livestock Division of the U.S.D.A. Consumer and Marketing Service. The combinations of grades and weights used for each series are shown in Appendix Table 1. Supplementary data on average prices received by Oklahoma farmers and on marketings were obtained from various releases of the Statistical Reporting Service of the U.S. Department of Agriculture.

The method used involved the computation in four steps of (1) centered 12-month moving averages of the prices, (2) the average price in a given month as a percent of the moving average for the month, commonly referred to as a percentage or an index, (3) the mean or average of the percentages (from step 2) for a given month in the period, (4) the standard deviations of both the percentages and the mean of the percentages for each month. The individual percentages in step 2 measured the deviations from a level which reflected the long time trend and the cycle. Thus they represented the net seasonal variation.

The basic time period of the study was 1949 through 1962. This period included approximately 1½ cycles based on cattle numbers. The number of cattle and calves on farms was at a trough on January 1, 1949, increased rapidly to a peak in 1955, decreased slowly and less than normal to a trough in 1958 and then increased gradually through the remaining years of the period to record highs.

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There is always some danger that unequal representation of the increasing and decreasing phases of the cattle cycle might distort the seasonal averages. In addition, the seasonal patterns might change over time. For these reasons, all computations were repeated for an approximation of the most recent complete cycle for which data were available, 1955 through 1962. Results from the 1955-62 period were used when they differed from the longer 1949-62 period. Otherwise, the results reported were for the 1949 through 1962 period. The seasonal price pattern data are included in Appendix Tables 2 through 5. Analyses of data for the first part of the period, 1949 through 1954, were reported in an earlier publication.*

In general, the seasonal price patterns for all grades of a given class of animals are presented on one chart followed by a separate chart for one or more grades of that class. Two ranges are included in the latter chart(s). The first is the range of indexes expected for any given month in an individual year. This is the wide band and the indexes should be included in this range in two out of three years. The second is the range of the mean index (average for a period of years) expected for a given month. This is the narrow band and the average index should be included in this range at the same confidence level. All ranges were established on the basis of the concept of repeated sampling and a probability level of 68 percent.

Seasonal Variation in Marketings and Average Prices

Historically, cattle prices in Oklahoma have reflected the production of roughage and the marketings of stocker and feeder cattle. During the 1949-62 period, monthly marketings of cattle averaged 10 to 30 percent below average in the late winter months and up to 40 percent above average in the late summer and early fall months (Figure 1). The variation was even greater for calves; marketings dropped to less than 50 percent of average during the late winter months and rose to 234 percent of average during October. With prices moving inversely with marketings, prices received by Oklahoma farmers for cattle during the same period were highest in April and May and lowest in October and November. The variation, however, was not as great for prices as for marketings. The range of prices was only about 12 percent (± 6 percent from the average).

Slaughter cattle have become more important in Oklahoma agriculture in recent years and the seasonal price patterns for the higher

*James S. Plaxico and Jackson L. James, *Beef Cattle Prices, Seasonal Movements and Price Differentials* on the Oklahoma City Market, Okla. Agri. Exp. Sta. Bul. No. B-486, February, 1957.

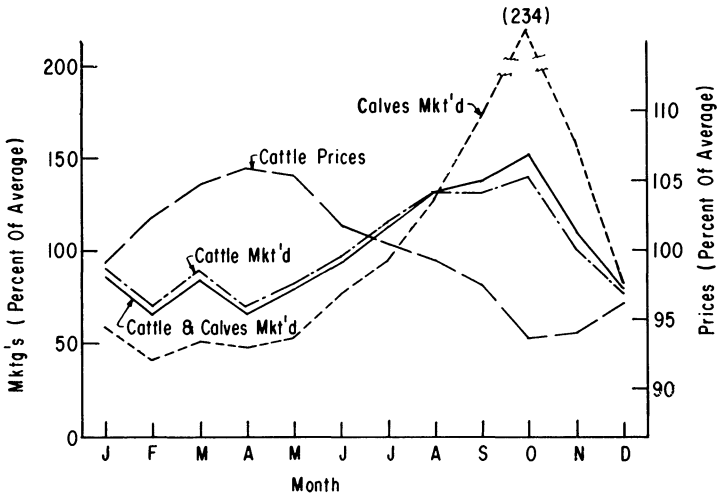


Figure 1 —Seasonal Patterns for Prices received by Oklahoma Farmers for Cattle and Salable Receipts of Cattle and Calves in the Oklahoma City Market, 1949-1962.

grades are quite different from the price patterns for stocker and feeder cattle. They are different in both the magnitude and the timing of the seasonal highs and lows. Prices of higher grades of slaughter cattle are fairly stable but tend to be lowest in the late winter when stocker and feeder cattle prices are increasing. Conversely, slaughter cattle prices are highest for the better grades when stocker and feeder prices are rapidly declining toward the seasonal lows. Therefore, any change in the relative proportions of the classes of animals marketed would be reflected in a change in the pattern of average prices even though the pattern for an individual class might not change.

Seasonal Variation in Slaughter Cattle Prices

Steers

Seasonal variation in the prices of choice grade slaughter steers, primarily 700 to 1100-pound weights, was minor and reflected only traces of the traditional winter low and September high pattern which prevailed in earlier years.* However, there was seasonal variation in the other grades of slaughter steers. In fact, the seasonal variation became more pronounced as the quality decreased.

*The traditional pattern involved prices on the Chicago market for the 1910-1941 period which were 6.4 percent below average in February and increased to 7.0 percent above average in September. These data are reported in Leo V. Blakley, "An Analysis of the Annual and Seasonal Movement of Beef Cattle Prices," unpublished M.S. thesis, Oklahoma State University, 1947.

Choice

There was no obvious seasonal pattern for prices of choice slaughter steers on the Oklahoma City market (Figure 2). However, in April and September the prices tended to be higher than average. The April high coincided with the highs for prices of stocker and feeder cattle in Oklahoma and the September high reflected the typical seasonal high for prices of choice slaughter cattle in the United States.

The variation in prices for a given month (from one year to the next) was quite wide in February, March, and April of the early part of the year and in October of the latter part of the year (Figure 3). The variation of the indexes was greater than ± 5.0 points during these months which, in turn, meant a general range of at least \$2.60 per cwt. based on the annual average of \$25.69 per cwt (Appendix Table 6). The ranges were narrower which indicated less variable prices for the other months of the year.

Good and Standard

There was a definite seasonal pattern in the prices of the combined good (primarily 700-1100 lbs.) and standard (all weights) grades, but

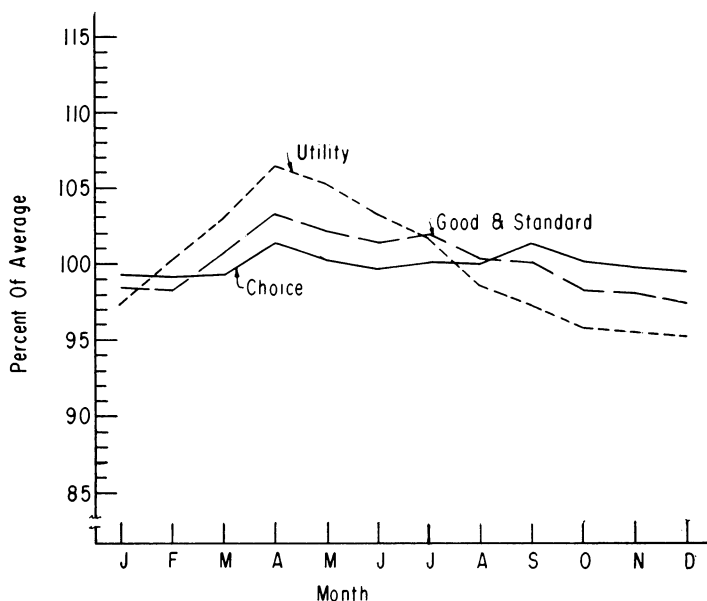


Figure 2 —Slaughter Steers: Average Seasonal Price Variation of Selected Grades, Oklahoma City Market, 1949-1962.

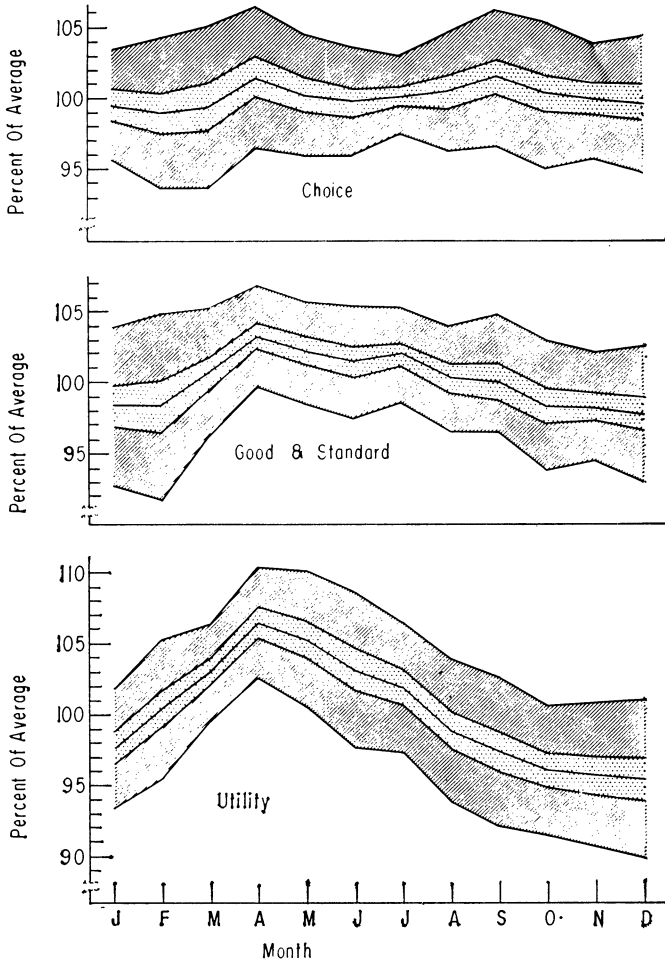


Figure 3 —Slaughter Steers: Expected Ranges for Mean and Individual Year Indexes of Seasonal Price Variation for Selected Grades, Oklahoma City Market, 1949-1962.

the magnitude of the month to month change was smaller than for many classes. Prices started the year at about 1.5 percent below the annual average, rose to 3.2 percent above the average in April, then gradually declined to 2.4 percent below the average in December. Prices were above 100 percent of average in April, May, and June and below 100 percent from October through February.

In a year to year comparison for each month, the variation in prices was less than for choice slaughter steers. Only in January and February

was the variation of the indexes greater than ± 5.0 points, or greater than \$2.20 per cwt. based on the annual average of \$22.03 for the 1949-62 period.

Utility

The seasonal price pattern for utility grade slaughter steers of all weights was quite pronounced. Prices increased from January through April when they reached a peak of 6.4 percent above average. Beginning in May and continuing throughout the remainder of the year, prices declined. By December, prices were 4.7 percent below the average, adjusted for trend and cyclical movements. This pattern was similar to the pattern for stocker and feeder animals.

The ranges for the indexes of prices were also quite wide for utility slaughter steers, particularly during the last half of the year. The range during the June through December period was ± 5.0 points, or more, for all months except two. However, the level of prices averaged lower than for the higher grades. Based on the average price of \$18.05 per cwt., the dollar range for the month of greatest variability was \$2.00 per cwt. as compared with \$3.00 per cwt. for choice slaughter steers.

Heifers

The patterns of seasonal variation in the prices of slaughter heifers were quite similar to those for slaughter steers (Figure 4). The seasonal variation was greater for the lower than the higher grades.

Choice

There was no significant seasonal movement for choice slaughter heifers. The last price quotation was for 700-1100 pound weights but during earlier years the series used in this study reflected prices for weights ranging down to 600 pounds. Prices tended to be below average during the fall and winter months. In February, for example, prices were lowest at 2.3 percent below average. Prices were relatively highest at 1.4 percent above the average in April.

Even though the averages were about the same from month to month, the variations for a given month in a year to year comparison were quite wide. The range was greater than ± 5.0 percent for February and March (Figure 5). The largest was for February, ± 6.2 percent, and was equivalent to a range of about \$3.00 per cwt. This range was much larger than that reported for the 1949-54 period. The range was narrowest in July when it decreased to about \$1.35 per cwt. for the two out of three year probability level.

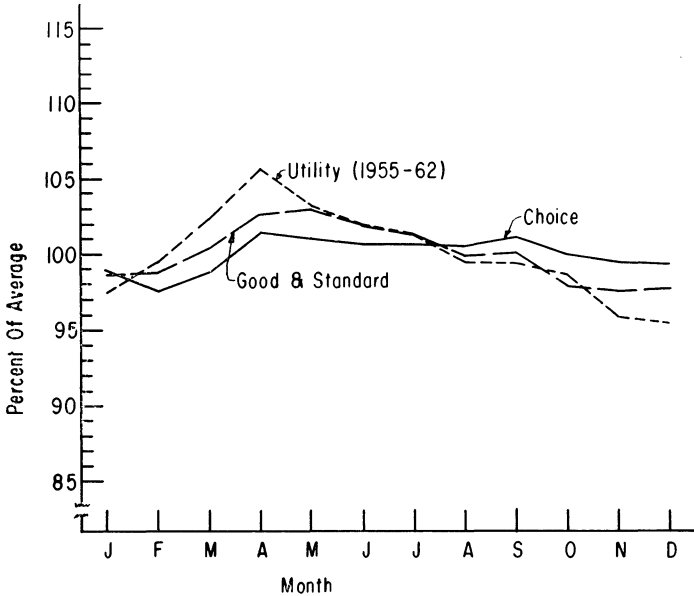


Figure 4 —Slaughter Heifers: Average Seasonal Price Variation for Selected Grades, Oklahoma City Market, 1949-1962.

Good and Standard

Prices of good (600-1,000 lbs. but primarily 500-700 lbs.) and standard (all weights) grades of slaughter heifers were combined. The combined series did not exhibit much seasonal variation. Prices tended to be higher than average from April through July and lower than average from October through December. May was highest at 3.0 percent above average and November was the lowest at 2.4 percent below average.

There was some evidence of a flattening of the average seasonal price pattern during the period 1949-62. The average for the last eight years of the period was lower in the spring and somewhat higher in the late summer and fall. The index for May declined significantly over the period.*

The range of variation of the indexes for a given month over the complete period was at least ± 5.0 points for January, February, and December. The largest was February at 5.5 points or about \$2.30 per cwt.

$$* \quad y_{\bar{5}} = 102.63 - .46x_t$$

where: $y_{\bar{5}}$ = index of price for May,
 x_t = time in years,
 x_0 = 1956.

Oklahoma Agricultural Experiment Station

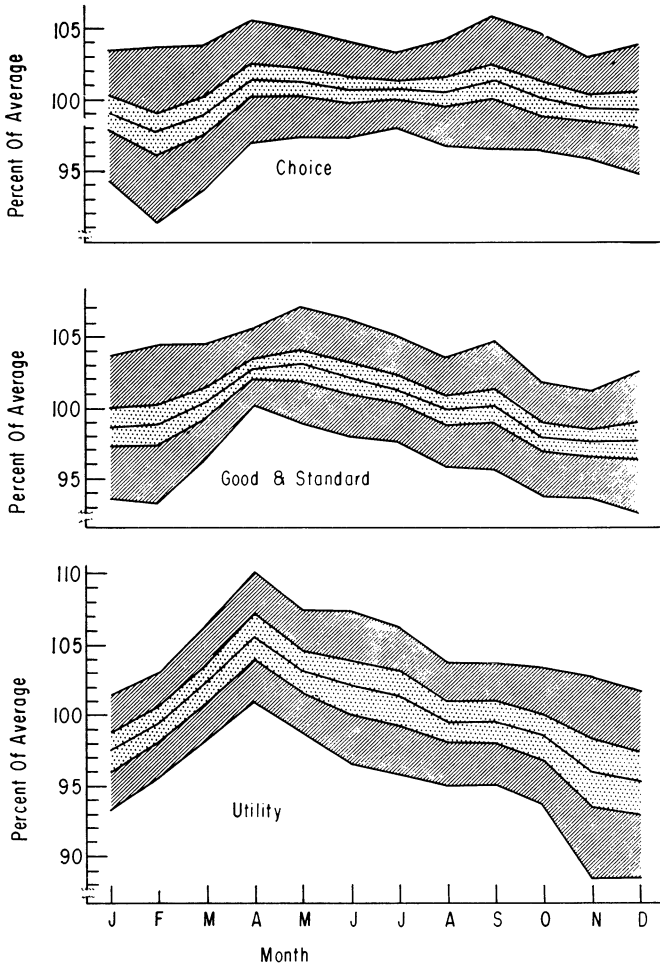


Figure 5 —Slaughter Heifers: Expected Ranges for Mean and Individual Year Indexes of Seasonal Price Variation for Selected Grades, Oklahoma City Market, 1949-1962.

In contrast, only in December of the 1955-62 period was the range greater than ± 5.0 points. However, it was large (6.1 points) and indicated significant variation in December prices.

Utility

The seasonal price pattern for utility slaughter heifers has been undergoing considerable change during recent years. Prices in the 1955-62 period started the year somewhat lower than for the complete period

(2.5 percent below average), increased to a smaller peak in April (5.6 percent above average), and remained relatively higher during the summer and early fall months. The low still occurred in December when prices dipped to 4.7 percent below average.

The variances for the two out of three year probability level were somewhat higher for the recent period than for the complete period, partially because of the smaller number of years. In spite of this, the range of variation for a given month over the period was in excess of ± 5.0 points only in the four months of June, July, November, and December. The variation was greatest in November, 7.1 points, and was equivalent to \$2.30 per cwt. based on the average for the 1955-62 period.

Cows

Prices of slaughter cows followed the spring-high and fall-low patterns characteristic of lower grades of slaughter cattle. However, there was less difference between grades for slaughter cows than for either slaughter steers or slaughter heifers (Figure 6).

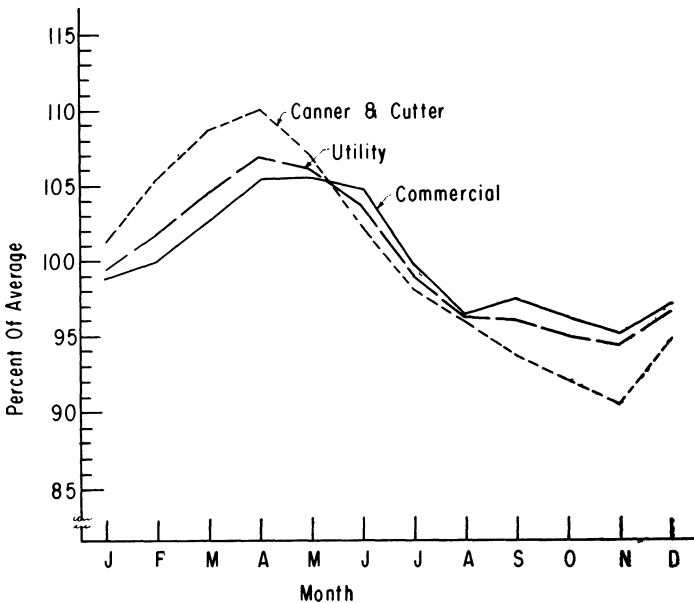


Figure 6 —Slaughter Cows: Average Seasonal Price Variation for Selected Grades, Oklahoma City Market, 1949-1962.

Commercial

Commercial cow slaughter prices began the year at 1.2 percent below the annual average and increased rapidly to reach 5.4 percent above average in April. Prices remained fairly stable at this level through June, dropped sharply in July and August, then finished the year at 2.9 to 4.0 percent below average. The lowest price usually occurred in November.

There was less variation from year to year in the seasonal indexes for commercial cows than for slaughter steers or heifers (Figure 7). No month had a range as great as ± 5.0 points. The widest range was \$1.50 per cwt. in May, for the two out of three year probability level.

Utility

The seasonal price pattern for utility slaughter cows was essentially the same as that for the commercial grade. The peak was slightly higher and occurred one month earlier (106.4 in April) while the trough in November was slightly lower. The expected year to year variation for the monthly indexes was small, less than ± 5.0 points.

Canner and Cutter

A more pronounced seasonal pattern was evident for canner and cutter grades than for the other grades of slaughter cows. Prices were 1.3 percent above average in January and rose rapidly to a peak of 10.0 percent above average in April. In May, prices began a large and consistent decline which continued until the trough was reached in November with prices at 9.6 percent below average. This was a decline of about 20 percent or \$2.40 per cwt. based on average prices.

The ranges for the indexes of prices were quite large for May and June and for September through November, more than ± 5.0 points. However, prices of canner and cutter cows were also low. Considering the price level, the ranges were smaller in terms of dollars than for many other series. The range for November of ± 7.0 points was a range of about \$1.60 per cwt., or about one half as great as the largest range for any month for choice slaughter heifers.

Bulls

The seasonal patterns for all grades of slaughter bulls were approximately the same (Figure 8). Prices were 2.0 to 3.0 percent above the annual average from January through June, turned down in July,

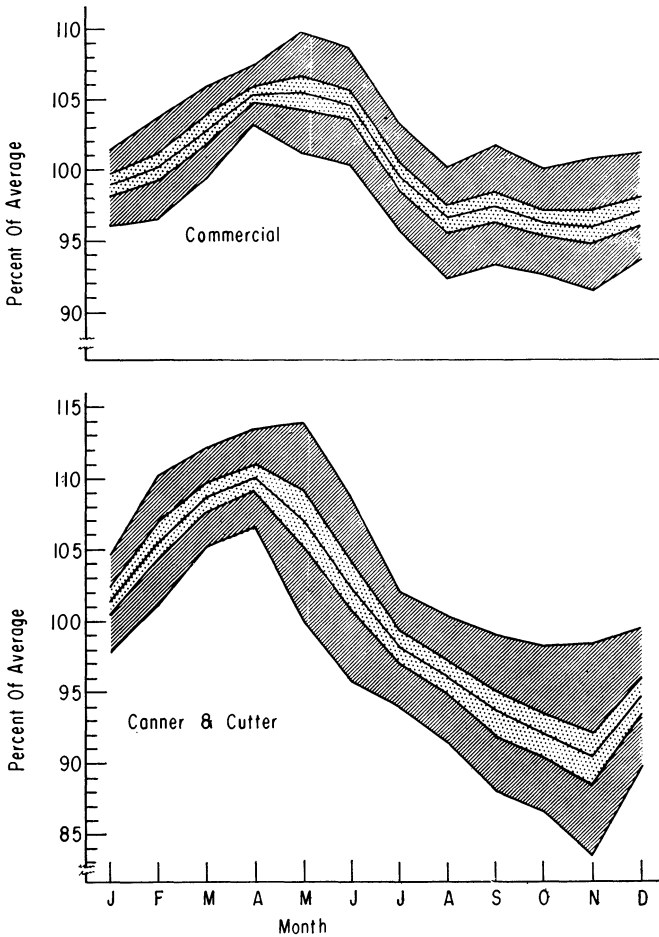


Figure 7 —Slaughter Cows: Expected Ranges for Mean and Individual Year Indexes of Seasonal Price Variation for Selected Grades, Oklahoma City Market, 1949-1962.

and finally reached 5.0 to 6.0 percent below average by November. Prices turned up in December.

This seasonal pattern was for the period 1955-62, and it was quite different in two ways from earlier patterns reported for slaughter bulls. First, the seasonal variation was significantly smaller in recent years. The familiar peak of up to 9.0 percent above average in April was cut to a plateau of 3.0 percent or less, and the trough was not as low.

Second, the range of variation of the monthly indexes was much smaller. Even for the shorter period, no month had a range for expected

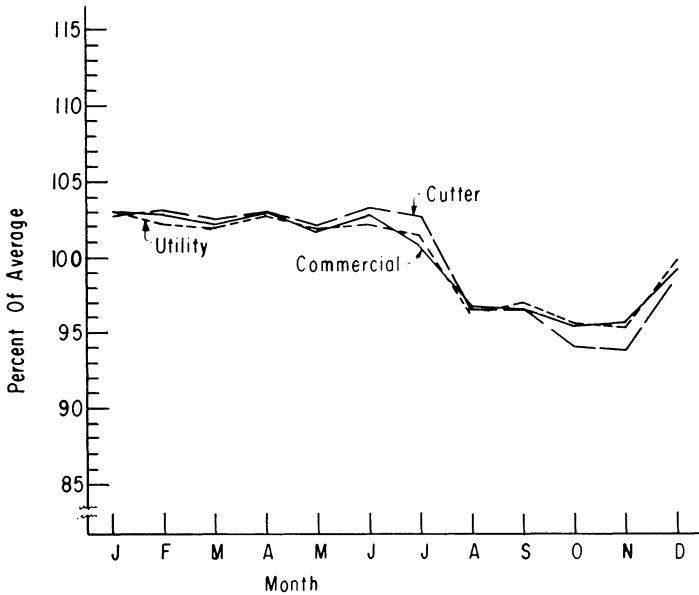


Figure 8 —Slaughter Bulls: Average Seasonal Price Variation for Selected Grades, Oklahoma City Market, 1955-1962.

prices of as much as ± 5.0 points. The largest range for commercial slaughter bulls was ± 3.7 points as compared with ± 4.1 points for utility and ± 4.4 points for cutter grades. In each case the largest range occurred in October. In 1964, the price quotations for commercial and utility bulls were combined.

Calves

Prices of slaughter calves rose to a seasonal peak in April and May of about six percent above average, then declined to a seasonal trough in October of about six percent below average (Figure 9). In contrast to slaughter steer and heifer seasonal price patterns, there was no appreciable difference between the patterns for the higher and lower grades.

There has been some decrease in the seasonal variation of slaughter calf prices. However, the change over the 1949-1962 period was not statistically significant. The range for expected prices for any given month was greater than ± 5.0 points only for the good and standard grades and then only for the months at or near the trough (October and November). The largest range was equivalent to about \$2.00 per cwt. in November.

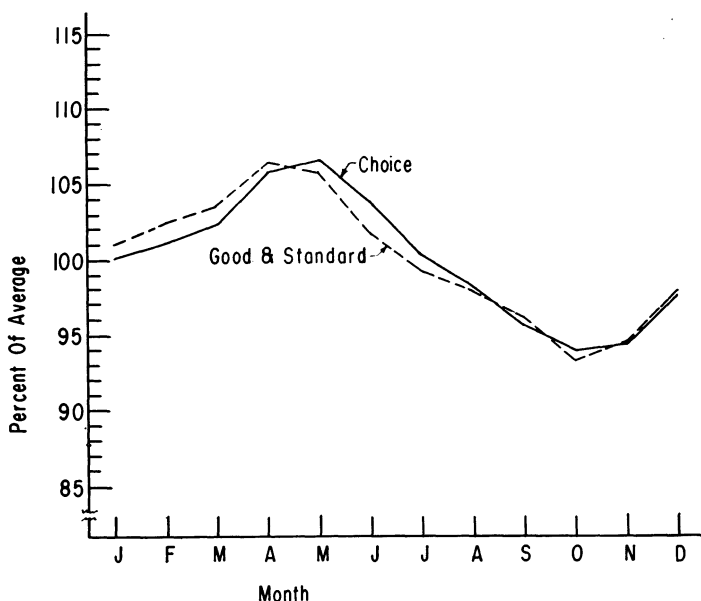


Figure 9 —Slaughter Calves: Average Seasonal Price Variation for Selected Grades, Oklahoma City Market, 1949-1962.

Seasonal Variation in Stocker and Feeder Cattle Prices

Steers

The seasonal price movements were similar for all grades and weights of stocker—feeder steers included in the study (Figure 10). Prices were close to average at the beginning of the year then increased to a peak in April. The peak prices were only about four percent above average for the good grade but were seven percent above average for the common grade. Prices of stocker—feeder steers gradually moved down from the April peak until the low was reached in October at about four to six percent below average.

For a given month in a year to year comparison, the range was widest in September (Figure 11). It was ± 5.0 points for 500-800 lb. and ± 5.6 points for 800-1,050 lb. good feeder steers. Common feeder steers had the widest ranges, over ± 5.0 points in six months with the largest of 7.3 points (\$2.30 per cwt.) occurring in September. In fact, the ranges were wide enough that an average price could be expected in all months

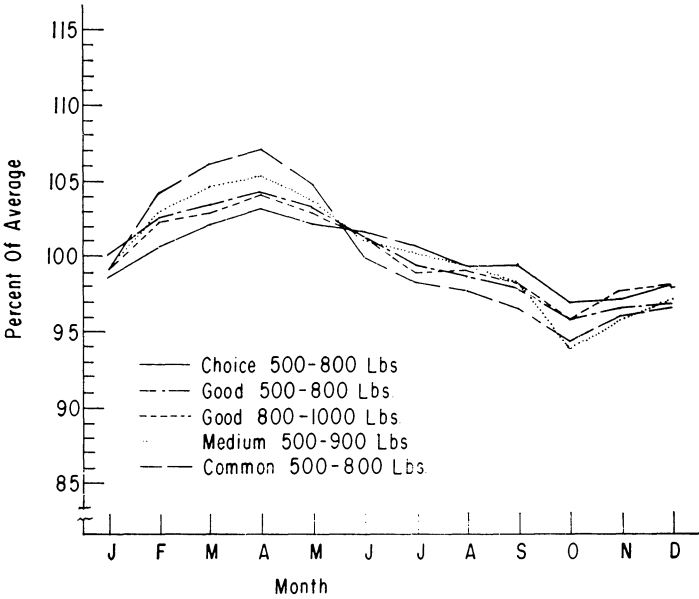


Figure 10—Stoker and Feeder Steers: Average Seasonal Price Variation for Selected Grades, Oklahoma City Market, 1949-1962.

except March and April, and a 10 percent below average price could be expected during any of the late summer or early fall months.

Heifers

Although prices averaged lower for stoker-feeder heifers than steers, the seasonal price variations were similar. Price ranges for medium and good grades of stoker-feeder heifers are shown in Figure 12. Prices were highest in April and lowest in November.

Steer Calves

The seasonal price movement for stoker-feeder steer calves was similar to that for steers (Figure 13). Prices moved up to a seasonal high in April of about five percent above average then declined through the fall months to 3.0 to 5.0 percent below average. The price movement was somewhat greater for the medium grade than for good and choice.

The seasonal patterns were relatively consistent from year to year. The range of variation for good and choice grades did not equal ± 5.0 points for any month. For the medium grade, it exceeded this level for only one month, October, with ± 5.3 points.

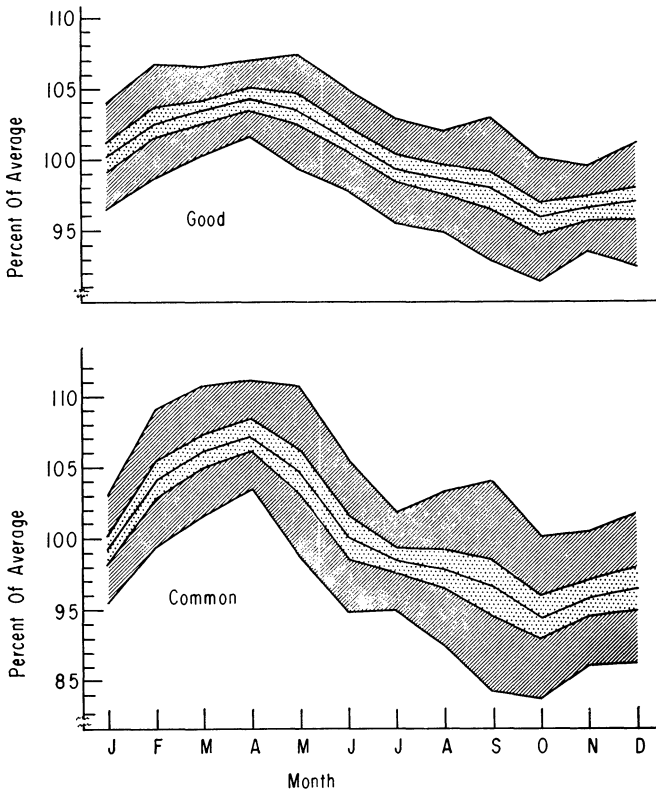


Figure 11—Stocker and Feeder Steers: Expected Ranges for Mean and Individual Year Indexes of Seasonal Price Variation for Selected Grades, Oklahoma City Market, 1949-1962.

Relationships Among the Grades of Selected Classes

Slaughter Animals

Prices and price movements for the various classes and grades of slaughter animals relative to choice slaughter steers are shown in Figure 14. The average indexes of seasonal variation for the various classes and grades were multiplied by the respective average prices for the 1949-62 period. Then, the average price for each grade during each month was expressed as a percent of the average price of choice slaughter steers for the same month.

Choice slaughter heifers exhibited only slight price seasonality relative to choice slaughter steers. Prices were relatively lowest in February at 96.6 percent and highest in May and June at 98.7 percent of choice

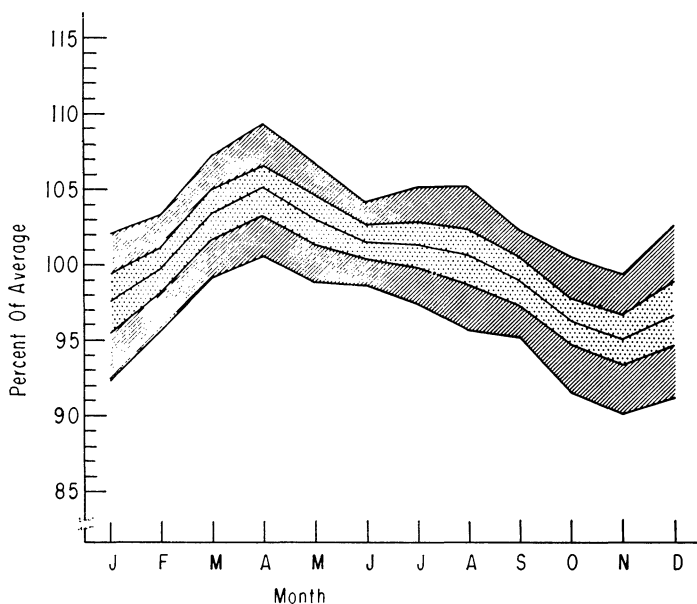


Figure 12—Stocker and Feeder Heifers: Average Seasonal Price Variation and Expected Ranges for Mean and Individual Year Indexes of Seasonal Price Variation for the combined Medium and Good Grades, Oklahoma City Market, 1949-1962.

slaughter steer prices. The average for the 1949-62 period was 97.7 percent.

Prices of good and standard grades of steers and heifers were relatively highest from March through July and lowest in the fall months. Good and standard steers, for example, moved from 84.9 percent of the price of choice slaughter steers in January to 87.4 percent in May then down to 84.0 percent in October. The pattern for heifers was about the same but at a lower price level.

Prices of utility grade slaughter steers and heifers averaged lower than higher grades of steers and had more seasonality. Prices of utility steers averaged 69.0 percent of choice in January, increased to 73.8 percent in May, then declined to 67.2 percent in October. The pattern was similar for heifers except that the decline was slightly greater, from 71.5 to 64.3 percent.

Commercial bull prices were highest in February at 75.2 percent of choice steer prices then declined irregularly through October when they reached 69.2 percent. Commercial cow prices had a different movement

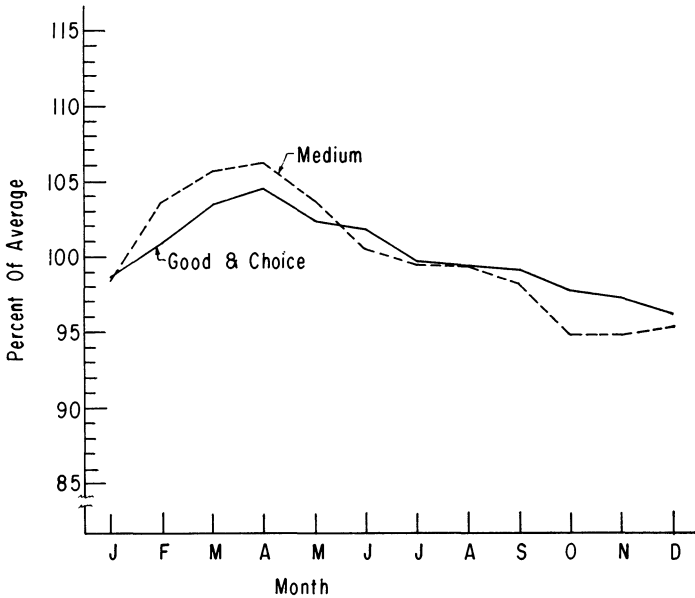


Figure 13—Stocker and Feeder Steer Calves: Average Seasonal Price Variation for Selected Grades, Oklahoma City Market, 1949-1962.

during the first three months of the year. They were 65.0 percent of the price of choice steer prices in January, moved up to reach a peak of 68.9 percent in May, then started down. However, prices of both cows and bulls tended to move together after March.

Choice slaughter calves had the greatest seasonal variation of the series shown in Figure 14. Prices moved up from 93.1 percent of choice steer prices in January to 98.2 percent in May, then declined to 86.7 percent in October. This movement reflected the predominant pattern of late winter-early spring calving in Oklahoma.

Stocker and Feeder Animals

The seasonal price patterns were about the same for all grades of stocker-feeder cattle (Figure 15). Using good 500-800 pound steers as a base, the heavier weights of good steers averaged about 5.5 percent less, and were slightly lower in the first half than in the last half of the year. The average of 5.5 percent may understate the current relationship of light and heavy steers. The average was only about three percent less in the 1949-54 period while in the more recent 1955-62 period the average was about 11 percent less. Prices of the medium grade averaged 18.2 percent below good 500-800 steers, but no particular pattern was evident.

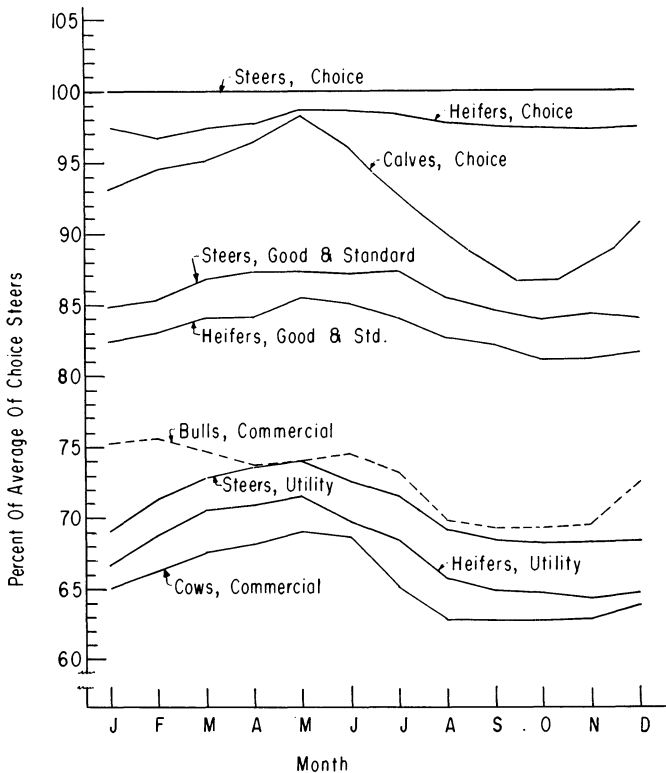


Figure 14—Relative Seasonal Price Patterns for Slaughter Animals Using Choice Steers as the Base, Oklahoma City Market.

Prices of common steers averaged lower, 25.8 percent under the prices of good light weights, but were relatively highest in the period from February through May.

Prices of stocker-feeder steer calves had about the same seasonal pattern as good lightweight steers. Prices of the medium grade averaged 7.1 percent less while prices of the choice grade averaged 12.1 percent greater than the prices of 500-800 pound good stocker-feeder steers. Moreover, there was some tendency for the prices of choice steer calves to increase relative to the base series from January through October then decline in November and December.

Price Ranges for Selected Cattle Systems

The decision to purchase feeder animals for feeding and eventual slaughter depends in part on the margin between the purchase price

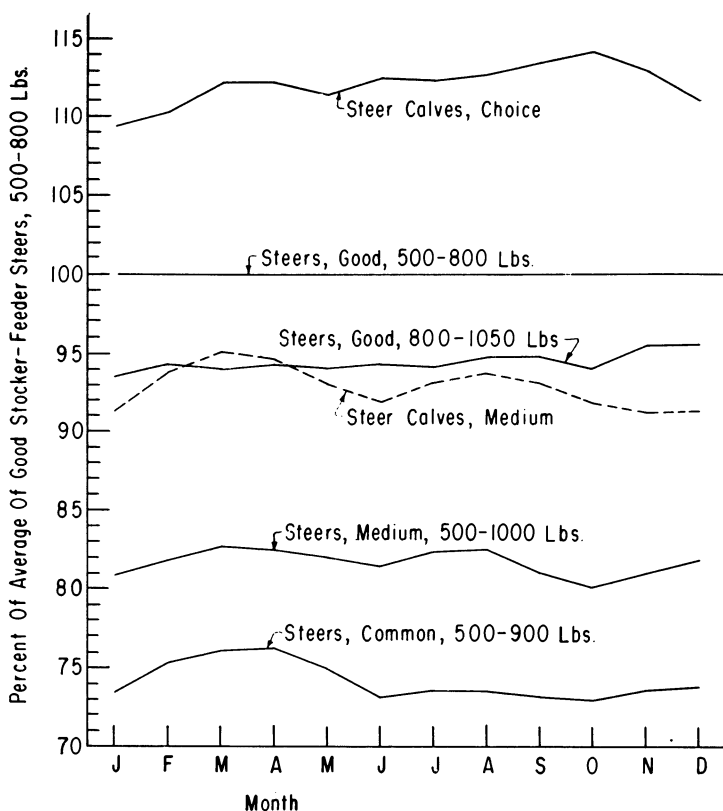


Figure 15—Relative Seasonal Price Patterns for Stocker and Feeder Animals Using Good, 500-800 lb. Steers as the Base, Oklahoma City Market.

and the expected sales price. Trends, cycles, and seasonal price variations will influence this margin. Since this study was concerned only with net seasonal price variation, the analysis in this section must be supplemented with additional information on the net effects of any trend and cyclical movements, or assume no such effects, to ascertain gross price changes during the feeding period.

The first comparison was for the purchase of good feeder steers weighing 500 to 800 pounds, a feeding period of 150 days, and the subsequent sale as good to choice slaughter steers. The margin between the prices of these two class of animals has narrowed appreciably during the 1949-62 time period and in 1963 was actually negative. To reflect this change in margins, the average prices during the five years 1959 through 1963 were used to position the price series. Prices of good to

choice slaughter steers averaged 1.5 percent higher than the prices of good 500 to 800 pound feeder steers in this period. Therefore, an average net positive margin for the year is postulated.

The range of expected selling prices relative to buying prices will reflect both the pattern and the magnitude of seasonal variation of the two price series. Even if no pattern were evident in either series, the variation in prices would still be important. Two ranges were computed and are shown in Figure 16. One range is contained within the other range.

The first range was based on the assumption that the good feeder steers are purchased at the average seasonal price for that month. They are then sold five months later in the range of prices expected to prevail at the two out of three year probability level. This range is shown as the diagonal line shaded areas of Figure 16. The results indicated that a negative margin could occur at this probability level for placements during the first 10 months of the year and was likely to occur for placements during the spring when demand for cattle to go on grass increased.

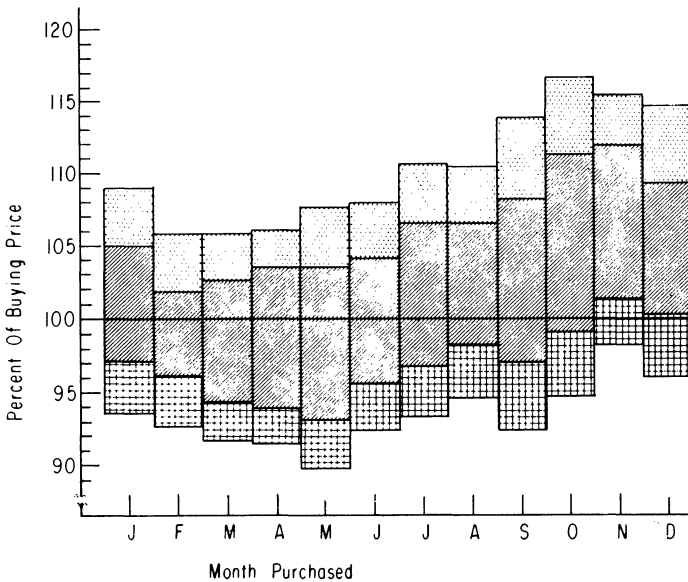


Figure 16—Range of Expected Selling Prices Five Months Later for Good, 500-800 lb. Feeder Steers, Fed 150 days, and Sold as Good to Choice Slaughter Steers.

The second range in Figure 16 was based on the assumption that the two out of three year probability level is used for both classes. The upper limit would be obtained when good feeder steers were purchased at the lowest price consistent with the probability level for this class and sold in 150 days at the highest price consistent with the probability level for the slaughter class. The lower limit would be obtained when good feeder steers were purchased at the highest price consistent with the probability level for this feeder class and sold at the lowest price consistent with the probability level for the slaughter class. The second range was quite wide and indicated that either positive or negative margins could occur with independent seasonal patterns. The extremes on the lower end were a negative 10 percent margin for placements in May to a negative two percent margin for placements in November. At the upper end, the extremes were a positive 16 percent margin for placements in October to a positive six percent margin for placements in March and April. Although negative margins may be expected more often for the late winter and spring placements, the ranges of expected prices were narrower during these months than for fall placements.

In Figure 17, the ranges of expected selling prices as percentages of the buying prices are shown for the purchase of choice feeder steer calves,

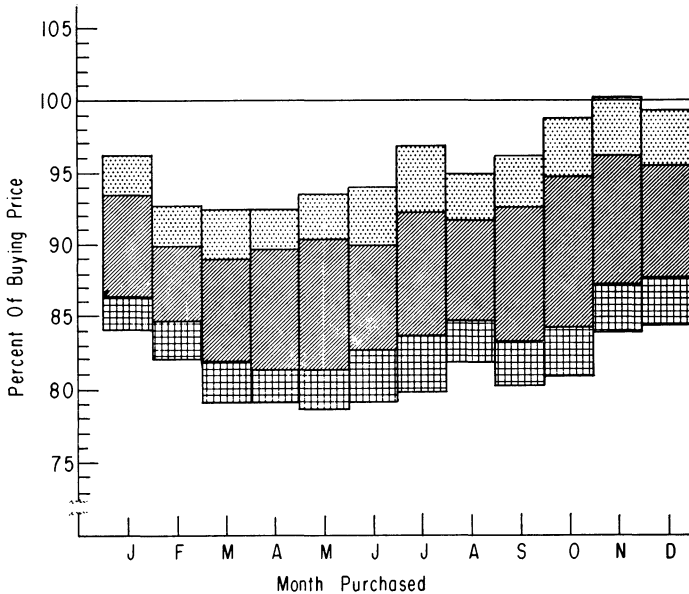


Figure 17—Range of Expected Selling Prices Five Months Later for Choice Feeder Steer Calves, Fed 150 days, and Sold as Good to Choice Slaughter Steers.

a feeding period of 150 days and the sale as good to choice slaughter steers. During the 1959-63 period the price margin was negative (-12.0 percent) for this combination. The results indicated that in some months the sales price could be as low at 80 percent of the purchase price at the two out of three year probability level. This was most likely for placements during the spring months. A sales price equal to the purchase price was consistent with the typical seasonal price relationships in only one month, November.

If good to choice stocker steer calves were purchased in October for utilizing wheat pasture or other roughage then sold as good stocker and feeder steers, the ranges of expected selling prices are shown in Figure 18. The average margin was a negative 13.3 percent, based on prices during the 1959-63 period. The dotted area is the range expected when the calves are purchased at the average level in October and sold as steers at the prices expected to prevail at the two out of three year probability level for good feeder steers in any month. The wider range is for calves purchased at either the highest or lowest level in October and sold at

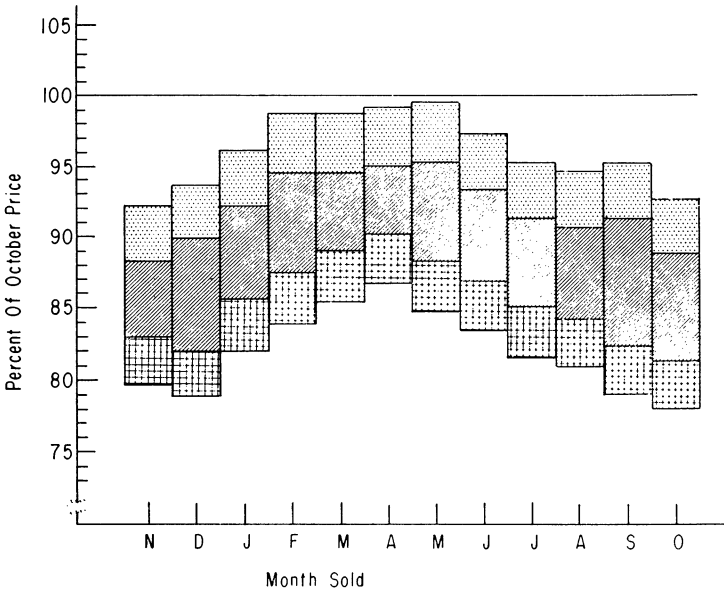


Figure 18—Range of Expected Selling Prices in month sold for Good to Choice, 500-800 lb., Stocker and Feeder Steer Calves, purchased in October, and Sold as Good to Choice, 500-800 lb., Stocker and Feeder Steers.

either the lowest or highest level, based on the two out of three year probability level. Generally, the expected selling price increases from October through April and the price discount narrows. After April, the expected selling price as a percent of the buying price gradually decreases. In no month was the expected selling price as high as the buying price.

Summary

When to market beef cattle and calves is very important to farmers and ranchers in Oklahoma. Various factors influence cattle prices and subsequently cattle production. This study was made to determine and analyze seasonal price data which would be useful in deciding the best times to market cattle in Oklahoma.

Results showed that fluctuation of year to year prices for a given month were more important than month to month variations for higher grades of slaughter cattle. Seasonal price patterns for heifers and steers were approximately the same.

Prices of the lower grades of slaughter cattle tended to reflect the same seasonal price patterns as did stocker-feeder cattle.

Seasonal price variations for bulls decreased significantly in recent years.

Prices of stocker-feeder cattle were highest in April and lowest in October. The amount of seasonal variation was greater for the lower grades of stocker-feeder cattle than the higher grades.

The ranges of expected selling prices relative to the buying prices were quite wide for higher grades of stocker-feeder cattle which were fed to good and choice slaughter grades. The relative price gain varied from month to month, but was highest for feed lot placements in the fall.

Negative price margins prevailed when good and choice stocker-feeder calves were bought in October to sell as good, stocker-feeder steers in subsequent months. The negative price margins were lowest from February through May.

APPENDIX TABLES**Appendix Table 1. Grade and Weight Classifications for 1963 and prior Years Used as Continuous Series for the Analysis.**

1964 Grade & Weight	Prior Year Grades and Weights
Steers, Slaughter Choice, 700-1300 lbs.	: 700-1100 lbs. to Jan., 1958; 500-1100 lbs. to Oct., 1959; 700-1100 lbs. to March, 1960.
Good, 700-1300 lbs.	: 700-1100 lbs. to Jan., 1958; 500-1100 lbs. to Jan., 1960; 700-1100 lbs. to March, 1960.
Standard, All Weights	: Medium, 700-1100 lbs. to Sept., 1950; Medium 900-1100 lbs. to Oct., 1950; Medium 700-1100 lbs. to Jan., 1951; Commercial, all weights to June, 1956.
Utility, All Weights	: Common 700-1000 lbs. to June, 1950; Common, 700-1100 lbs. to Jan., 1951; (Discontinued in May, 1963).
Heifers, Slaughter Choice, 700-1100 lbs.	: 600-800 lbs. to Nov., 1952; 600-1000 lbs. to Sept., 1956; 600-800 lbs. to March, 1957; 600-1000 lbs. to Jan., 1958; 500-700 lbs. to Jan., 1960; 700-900 lbs. to Feb., 1960.
Good, 600-1000 lbs.	: 600-1000 lbs. to Jan., 1951; 500-700 lbs. to Nov., 1952; 500-900 lbs. to Sept., 1958; 500-700 lbs. to Oct., 1958; 500-900 lbs. to April, 1959; 500-700 lbs. to Oct., 1959; 500-900 lbs. to Jan., 1960.
Standard, All Weights	: Medium, 500-900 lbs. to Jan., 1951; Commercial, all weights to June, 1956.
Utility, All Weights	: Common, 500-900 lbs. to Jan., 1951; (Discontinued in 1963).

Appendix Table 1 (Cont'd.)

1964 Grade & Weight	Prior Year Grades and Weights
Cows, Slaughter	
Commercial, All Weights	: Good, all weights to Jan., 1951.
Utility, All Weights	: Medium, all weights to Jan., 1951.
Canner & Cutter, All Weights	: Cutter and Common, combined with Canner, to Jan., 1950; Common combined with Canner to Jan., 1951; Canner and Cutter to Jan., 1960; Canner combined with Cutter from Jan., 1960 to date.
Bulls, Slaughter	
Commercial, All Weights	: Good to Jan., 1951; Good and Choice to Feb., 1951; (The designation was changed to Utility and Commercial in Feb., 1964).
Utility, All Weights	: Medium to Jan., 1951; Commercial to Feb., 1951; (Discontinued in Feb., 1964).
Cutter, All Weights	: Cutter and Common to Jan., 1951; Utility to Feb., 1951; Cutter to Jan., 1958; Canner and Cutter to Jan., 1960.
Calves, Slaughter	
Choice, 500 lbs. down	: Good and Choice to April, 1951; Choice and Prime to June, 1956.
Good & Standard 500 lbs. down:	Common and Medium to April, 1951; Good and commercial to June, 1956; Good combined with Commercial to Oct., 1956; Good combined with Standard from Oct., 1956 to date.
Stocker and Feeder Steers	
Choice, 500-800 lbs.	: Same in all years.
Good, 500-800 lbs.	: 500-800 lbs. to Sept., 1956; annual average to March, 1957.

Appendix Table 1 (Cont'd.)

1964 Grade & Weight	Prior Year Grades and Weights
Good, 800-1000 lbs.	: 800-1050 lbs. to Sept., 1956; 500-1050 lbs. to Mar., 1957; 800-1050 lbs. to Jan., 1958; no data to Jan., 1960; 800-1050 lbs. to Jan., 1962.
Medium, 500-900 lbs.	: 500-1000 lbs. to Oct., 1953; 500-1050 lbs. to Nov., 1953; 500-1000 lbs. to Jan., 1958; All weights to Jan., 1960; 500-1000 lbs. to Jan., 1962.
Common, 500-800 lbs.	: 500-900 lbs. to Jan., 1958; All weights to Jan., 1960; 500-900 lbs. to Jan., 1962.
Stocker & Feeder Heifers	
Medium & Good 500-750 lbs.	: Medium and Good, 500-750 lbs. to Jan., 1958; Good, 500 lbs. up combined with Medium 500 lbs. up to Jan., 1960; Medium and Good, 500-750 lbs. to Jan., 1962; Good, 500-750 lbs. combined with Medium 500-750 lbs. to Oct., 1964; Good, 500-750 lbs. combined with Standard 500-750 lbs. to date.
Stocker and Feeder Steer Calves	
Good & Choice, 300-500 lbs.	: Good and Choice, 500 lbs. down to July, 1951; Good and Choice 300-500 lbs. to Jan., 1958; Good and Choice 250-500 lbs. to Jan., 1960; Good and Choice 300-500 lbs. to Jan., 1962; Good combined with Choice, Jan., 1962 to date.
Medium, 300-500 lbs.	: Medium, 500 lbs. down to July, 1951; Medium, 300-500 lbs. to Jan., 1958; Common and Medium, 250-500 lbs. to Jan., 1960.

Appendix Table 2. Slaughter Steers and Heifers: Seasonal Price Indexes, Standard Deviations, and Standard Errors of the Means, Oklahoma City Market, 1949-1962.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Slaughter Steers												
Choice												
Index ¹	99.4	98.8	99.3	101.4	100.1	99.7	100.1	100.3	101.4	100.2	99.8	99.5
Std. Dev. ²	4.0	5.3	5.8	5.0	4.3	3.8	2.9	4.2	4.9	5.2	4.2	4.8
Std. Error ³	1.1	1.5	1.6	1.4	1.2	1.0	.8	1.1	1.3	1.4	1.1	1.3
Good & Standard												
In'cx	98.4	98.3	100.6	103.2	102.1	101.4	101.9	100.2	100.0	98.2	98.1	97.6
Std. Dev.	5.5	6.5	4.6	3.4	3.7	4.1	3.3	3.8	4.7	4.6	3.9	4.7
Std. Error	1.5	1.7	1.2	.9	1.0	1.1	.9	1.0	1.2	1.2	1.0	1.3
Utility												
Index	97.6	100.3	102.9	106.4	105.2	103.1	101.8	98.7	97.3	95.9	95.5	95.3
Std. Dev.	4.2	4.9	3.4	3.9	4.8	5.5	4.5	5.0	5.3	4.6	5.1	5.5
Std. Error	1.1	1.3	.9	1.0	1.3	1.5	1.2	1.3	1.4	1.2	1.4	1.5
Slaughter Heifers												
Choice												
Index	99.0	97.7	98.9	101.4	101.2	100.7	100.7	100.5	101.2	100.0	99.4	99.3
Std. Dev.	4.6	6.2	5.1	4.3	3.8	3.4	2.7	3.6	4.6	4.7	3.6	4.5
Std. Error	1.2	1.6	1.4	1.2	1.0	.9	.7	1.0	1.2	1.2	1.0	1.2
Good & Standard												
Index	98.6	98.8	100.3	102.8	103.0	102.1	101.3	99.8	100.1	97.9	97.6	97.7
Std. Dev.	5.1	5.5	4.1	2.8	4.2	4.2	3.7	3.8	4.4	4.0	3.8	5.0
Std. Error	1.4	1.5	1.1	.8	1.1	1.1	1.0	1.0	1.2	1.1	1.0	1.3
Utility ⁴												
Index	97.5	99.3	102.3	105.6	103.2	102.1	101.3	99.5	99.5	98.5	95.9	95.3
Std. Dev.	4.1	3.7	4.0	4.6	4.3	5.4	5.4	4.4	4.3	4.8	7.1	6.7
Std. Error	1.4	1.3	1.4	1.6	1.5	1.9	1.9	1.6	1.5	1.7	2.5	2.4

¹ Index is Percent of Moving Average
² Standard Deviation of Indexes

³ Standard Error of Mean of Indexes
⁴ 1955-62 period.

Appendix Table 3. Slaughter Cows and Bulls: Seasonal Price Indexes, Standard Deviations, and Standard Errors of the Means, Oklahoma City Market, 1949-1962.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Slaughter-Cows												
Commercial												
Index ¹	98.9	100.1	102.7	105.4	105.5	104.6	99.6	96.5	97.4	96.2	96.0	97.1
Std. Dev ²	2.8	3.6	3.4	2.1	4.3	4.2	3.7	3.7	4.2	3.8	4.6	3.8
Std. Error ³	.8	1.0	.9	.6	1.1	1.1	1.0	1.0	1.1	1.0	1.2	1.0
Utility												
Index	99.5	101.9	104.5	106.8	106.1	103.7	99.0	96.5	96.1	95.0	94.4	96.5
Std. Dev.	2.6	3.7	3.1	2.9	4.7	4.5	3.3	3.9	4.7	4.0	5.0	4.0
Std. Error	.7	1.0	.8	.8	1.3	1.2	.9	1.0	1.3	1.1	1.3	1.1
Canner-Cutter												
Index	101.3	105.5	108.6	110.0	107.1	102.3	98.2	96.1	93.7	92.1	90.4	94.7
Std. Dev.	3.6	4.6	3.6	3.5	6.8	6.4	4.0	4.3	5.5	5.3	7.0	5.0
Std. Error	1.0	1.2	1.0	.9	1.8	1.7	1.1	1.2	1.5	1.4	1.9	1.3
Slaughter-Bulls												
Commercial ¹												
Index	103.0	102.9	102.3	103.0	101.9	102.4	100.9	96.5	96.6	95.5	95.7	99.3
Std. Dev.	2.6	2.1	1.7	2.2	2.7	2.7	2.3	1.7	2.3	3.7	3.7	2.8
Std. Error	.9	.7	.6	.8	1.0	.9	.8	.6	.8	1.3	1.3	1.0
Utility ⁴												
Index	103.1	102.3	102.1	102.8	101.9	102.3	101.4	96.3	96.9	95.7	95.4	99.8
Std. Dev.	3.5	2.0	2.8	2.8	2.2	3.2	2.4	1.9	2.8	4.1	3.9	2.8
Std. Error	1.2	.7	1.0	1.0	.8	1.1	.9	.7	1.0	1.4	1.4	1.0
Cutter ⁴												
Index	102.7	103.1	102.4	102.9	102.1	103.1	102.6	97.0	96.7	94.1	94.0	99.3
Std. Dev.	3.4	2.0	4.1	4.1	2.6	3.2	3.1	1.7	3.2	4.4	3.9	3.2
Std. Error	1.2	.7	1.5	1.5	.9	1.1	1.1	.6	1.1	1.6	1.4	1.1

¹ Index is Percent of Moving Average

² Standard Deviation of Indexes

³ Standard Error of Mean of Indexes

⁴ 1955-62

Appendix Table 4. Stocker and Feeder Steers and Heifers: Seasonal Price Indexes, Standard Deviations, and Standard Errors of the Means, Oklahoma City Market, 1949-1962.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Stocker and Feeder Steers												
Choice 500-800 lbs.												
Index	98.7	100.6	102.1	103.2	102.2	101.6	100.7	99.4	99.4	97.0	97.2	97.9
Std. Dev.	3.3	3.3	3.2	2.8	2.9	2.7	3.7	3.3	4.8	2.4	3.2	4.8
Std. Error	1.2	1.2	1.2	1.1	1.1	1.0	1.4	1.2	1.8	.9	1.2	1.8
Good 500-800 lbs.												
Index ¹	100.1	102.6	103.3	104.3	103.4	101.4	99.3	98.6	97.8	95.8	96.5	96.9
Std. Dev. ²	3.7	3.9	3.1	2.7	4.0	3.6	3.6	3.6	5.0	4.3	3.0	4.4
Std. Error ³	1.0	1.0	.8	.7	1.1	1.0	1.0	1.0	1.3	1.2	.8	1.2
Good 800-1050 lbs.												
Index	99.0	102.4	102.9	104.2	102.9	101.3	98.9	99.0	98.2	95.6	97.6	98.0
Std. Dev.	4.0	3.2	2.5	2.9	4.4	4.5	2.9	3.5	5.6	4.6	3.2	5.0
Std. Error	1.2	1.0	.8	.9	1.3	1.4	.9	1.1	1.7	1.4	1.0	1.5
Medium 500-900 lbs.												
Index	99.1	102.8	104.6	105.3	103.7	101.1	100.0	99.4	97.1	94.0	95.8	97.1
Std. Dev.	3.3	4.4	3.3	2.7	4.7	4.1	3.4	4.8	6.0	4.3	3.8	4.8
Std. Error	.9	1.2	.9	.7	1.3	1.1	.9	1.3	1.6	1.2	1.0	1.3
Common 500-800 lbs.												
Index	99.1	104.1	106.1	107.1	104.6	100.0	98.3	97.8	96.5	94.3	95.7	96.4
Std. Dev.	3.8	5.0	4.6	3.9	6.0	5.4	3.4	5.3	7.3	5.7	4.8	5.3
Std. Error	1.0	1.3	1.2	1.0	1.6	1.4	.9	1.4	2.0	1.5	1.3	1.4
Stocker and Feeder Heifers												
Medium and Good 500-750 lbs.												
Index	97.6	99.8	103.5	105.2	103.2	101.6	101.4	100.6	99.0	96.3	95.0	96.8
Std. Dev.	4.7	3.8	4.1	4.4	4.2	2.8	3.9	4.8	3.8	4.1	4.4	5.7
Std. Error	1.8	1.4	1.5	1.7	1.6	1.1	1.5	1.8	1.4	1.5	1.7	2.2

¹ Index is Percent of Moving Average

² Standard Deviation of Indexes

³ Standard Error of Mean of Indexes

Appendix Table 5. Slaughter Calves and Stocker and Feeder Steer Calves: Seasonal Price Indexes, Standard Deviations, and Standard Errors of the Means, Oklahoma City Market, 1949-1962.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Slaughter Calves												
Choice												
Index ¹	100.1	101.1	102.3	105.8	106.5	103.8	100.3	98.2	95.8	94.0	94.4	97.7
Std. Dev. ²	3.3	3.4	2.4	2.9	4.0	2.9	2.9	2.6	3.9	3.9	3.6	3.5
Std. Error ³	.9	.9	.6	.8	1.1	.8	.8	.7	1.0	1.0	1.0	.9
Good and Standard												
Index	101.1	102.5	103.5	106.2	105.9	101.8	99.2	98.0	96.2	93.4	94.5	97.7
Std. Dev.	3.0	3.0	2.4	3.7	4.2	4.6	3.7	2.7	4.3	5.2	5.4	4.0
Std. Error	.8	.8	.6	1.0	1.1	1.2	1.0	.7	1.1	1.4	1.4	1.1
Good and Choice												
Index	97.6	100.9	103.4	104.4	102.8	101.8	99.6	99.3	99.0	97.7	97.3	96.2
Std. Dev.	2.8	3.2	3.8	3.1	3.6	4.4	4.8	3.4	3.7	4.1	3.8	3.7
Std. Error	.8	.9	1.0	.8	1.0	1.2	1.3	.9	1.0	1.1	1.0	1.0
Stocker and Feeder Steer Calves												
Medium												
Index	98.4	103.5	105.7	106.2	103.6	100.5	99.5	99.5	98.1	94.9	94.8	95.3
Std. Dev.	3.5	3.1	3.3	3.1	4.9	4.8	4.4	3.2	4.8	5.3	4.4	4.6
Std. Error	.9	.8	.9	.8	1.3	1.3	1.2	.8	1.3	1.4	1.2	1.2

¹ Index is Percent of Moving Average
² Standard Deviation of Indexes

³ Standard Error of Mean of Indexes

Appendix Table 6. Average Prices of Cattle and Calves, by Class and Grade, Oklahoma City Market, Selected Years.

	Average Prices	
	1949-62	1955-62
Slaughter	\$ (per cwt.)	
Steers		
Choice	25.69	24.38
Good & Standard	22.03	21.16
Good	23.73	22.42
Standard	20.84	19.91
Utility	18.05	17.44
Heifers		
Choice	25.10	23.97
Good & Standard	21.35	20.71
Good	23.12	22.02
Standard	20.12	19.43
Utility	17.32	16.99
Cows		
Commercial	16.80	15.59
Utility	15.25	14.29
Canner & Cutter	12.71	12.02
Bulls		
Commercial	18.64	17.67
Utility	17.50	16.89
Cutter	15.89	15.52
Calves		
Choice	23.73	22.87
Good & Standard	20.77	20.42
Stocker and Feeder		
Steers		
Choice, 500-800 lb.	24.43 ¹	23.75 ¹
Good, 500-800 lb.	22.81	22.18
Good, 800-1000 lb.	21.55	19.99
Medium, 500-900 lb.	18.65	18.43
Common, 500-800 lb.	16.92	16.61
Heifers		
Medium and Good 500-700 lb.	19.08 ²	18.85 ²
Steer Calves		
Good & Choice	25.58	25.19
Medium	21.19	20.67
Heifer Calves		
Good & Choice	23.00 ³	22.65 ³
Medium	19.64 ⁴	19.16 ⁴

¹Estimated at 107.1 percent of prices of Good S&F Steers, 500-800#, the average percentage for the 1959-63 period.

²Estimated at 102.3 percent of prices of Medium S&F Steers, 500-900#, the average percentage for the 1959-63 period.

³Estimated at 89.9 percent of prices of Good & Choice S&F Steer Calves, the average percentage for the 1959-63 period.

⁴Estimated at 92.7 percent of prices of Medium S&F Steer Calves, the average percentage for the 1959-63 period.

Appendix Table 7. Indexes of Seasonal Variation in Marketings of Cattle and Calves on the Oklahoma City Market and Prices Received by Oklahoma Farmers for All Cattle, 1949-1962.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total Cattle Marketed												
Index ¹	90.8	70.7	89.6	70.3	83.1	96.8	115.8	132.0	132.0	140.0	101.5	77.4
Std. Dev. ²	12.3	9.9	19.2	7.8	20.3	21.9	19.2	16.4	18.5	18.7	15.3	13.0
Total Calves Marketed												
Index	59.8	41.8	52.0	48.5	53.4	75.6	93.6	127.2	172.8	234.1	159.4	81.8
Std. Dev.	11.1	6.2	8.1	11.4	17.3	35.1	26.1	31.9	36.5	43.8	38.8	13.3
Total Cattle and Calves Marketed												
Index	86.6	66.7	84.6	67.4	79.3	93.8	112.8	131.6	137.6	152.5	109.2	77.9
Std. Dev.	11.8	9.1	17.2	6.6	18.9	23.1	19.6	18.1	19.7	20.4	16.4	11.0
Price Received by Oklahoma Farmers for All Cattle												
Index	99.0	102.3	104.7	105.9	105.3	101.9	100.4	99.3	97.5	93.6	94.0	96.1
Std. Dv.	2.5	3.9	2.8	2.5	3.8	4.5	2.6	3.0	3.7	5.3	3.4	3.9

¹ Index is Percent of Moving Average

² Standard Deviation of Indexes