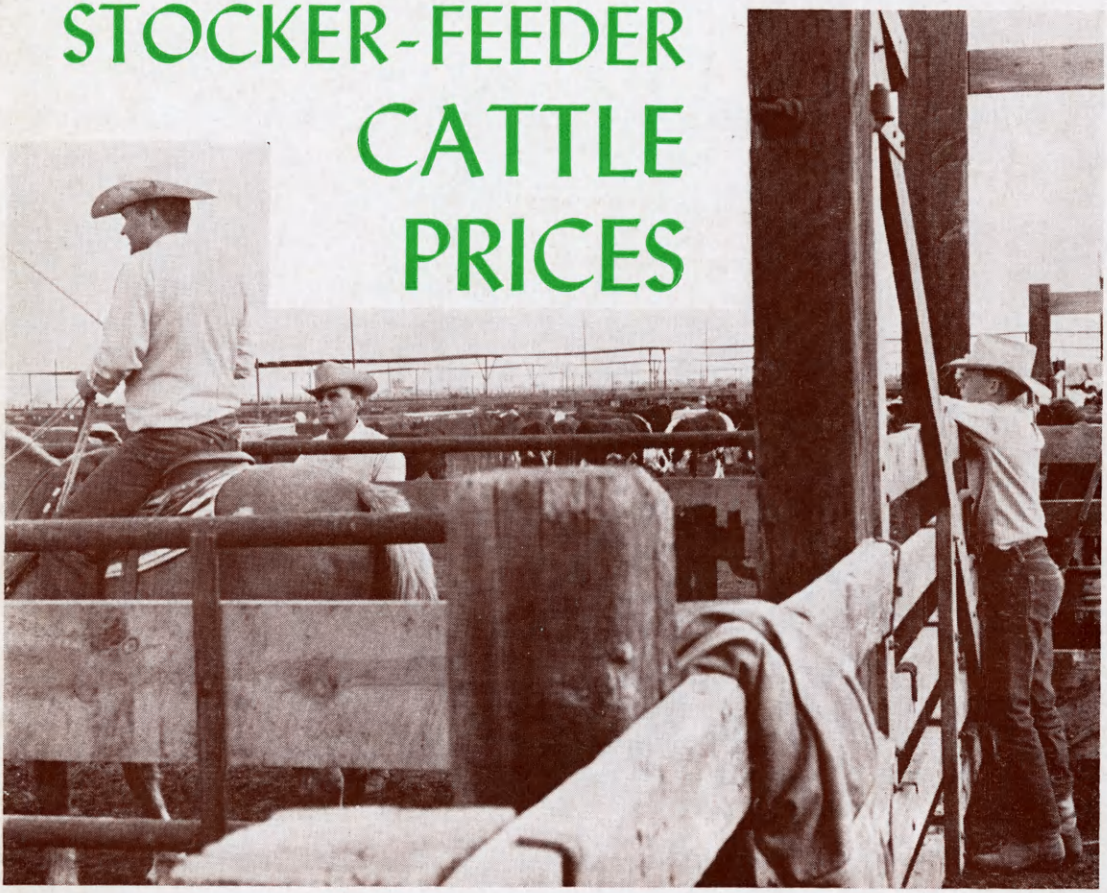
Technical Bulletin 172 March 1966

STOCKER-FEEDER CATTLE PRICES



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An Analysis Of Prices For Stocker-Feeder Cattle At Selected Markets In The United States, 1957-1961

by

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Summary and Conclusions

This study had two objectives: (1) to compare the prices received for stocker-feeder cattle at 11 markets in the western United States, including Omaha and Kansas City, and (2) to try to explain the reasons for the difference in the prices received.[1]

The nine categories of stocker-feeder cattle prices analyzed were Choice 500-800 pound stocker-feeder steers, Good 500-800 pound stocker-feeder steers, Medium 500-1,000 pound stocker-feeder steers, Choice 500-750 pound stocker-feeder heifers, Good 500-750 pound stocker-feeder heifers, Good and Choice 250-500 pound stocker-feeder steer calves, Medium 250-500 pound stocker-feeder steer calves, Good and Choice 250-500 pound stocker-feeder heifer calves, and Medium 250-500 pound stocker-feeder heifer calves. These price data were based on the grade standards suggested by W. O. Fraser, United States Department of Agriculture, in 1938 and revised in 1942. These suggested grade standards emphasized conformation as well as fleshing.

Prior to World War II, a major portion of the cattle marketed for beef in the United States were slaughtered off native grass or pasture without being fed for any length of time. This changed rapidly after 1945, and by 1963, 57 percent of the cattle slaughtered were marketed out of feedlots. Development of the large single enterprise commercial feedlots in Arizona, California, Colorado and Texas accompanied the increase in the slaughter of fed cattle. Feeders in these states found it profitable to feed the crossbreed type cattle called "Okies" which are produced in Texas, Oklahoma, Arkansas and Louisiana.

Results of this analysis show that those markets nearest to the Corn Belt paid the highest prices, on the average, for Choice and Good grade feeder steers and steer calves. The supply of these grades and weights of stocker-feeder cattle in the 11 western states was greater than needed to meet demands of the feeders in these states.

Los Angeles, Omaha, Kansas City and San Antonio had the highest average prices for Medium 500-1,000 pound stocker-feeder steers. These markets are adjacent to feeding areas. San Antonio is one of the higher priced markets for slaughter calves

[1] The term "stocker-feeder cattle" is used in this publication to refer to cattle and calves which may be used for breeding, further growth or feeding.

and Standard grade slaughter steers. Some of the cattle which would have been graded as Medium grade stocker-feeder steers were fat enough for slaughter, and part of these were young enough to meet the standards for slaughter calves. In addition, there is considerable feeding of this category of cattle in the south Texas area.

Phoenix, Ogden and Billings had the lowest average price. Phoenix's position is inconsistent with the fact that large numbers of this category of stocker-feeder cattle are brought into the state for feeders. Apparently, there was not enough of this kind of cattle offered for sale to make it economical for the feeders to sort them into uniform lots (approximately same weight and age) of 50 head or more.

Choice 500-700 pound stocker-feeder heifers sold for the highest average price at Omaha. The second highest markets were widely scattered geographically—Fort Worth, Kansas City, Denver and Ogden. The higher price at Ogden, Denver and Fort Worth is due to local preference for small carcasses and local feeding of heifers to meet this preference. Kansas City's location near the Corn Belt accounts for its price position.

Prices received for Good 500-700 pound stocker-feeder heifers also indicate the preference in certain areas for lighter-weight carcasses, i.e., Denver, Amarillo, Fort Worth and San Antonio. In the case of San Antonio, part of the cattle that qualify for this category of stocker-feeder cattle also qualify as slaughter calves. This resulted in San Antonio having the highest average price.

The price patterns for Choice 250-500 pound stocker-feeder steer calves were similar to those for Choice 500-750 pound stocker-feeder steers.

Stockton, Calif. and Billings, Mont. had the highest average prices for Medium 250-500 pound stocker-feeder steers. The average prices received at the other western markets for this category of stocker-feeder cattle is consistent with the kind of cattle fed in the western states. Billings' position may appear to be incongruous. However, this can be explained by the demand for thin-fleshed stocker-calves to stock ranges and wheat pastures in winter wheat producing areas.

The prices paid for Good and Choice 250-500 pound stocker-feeder heifer calves reflect the preference for smaller carcass in the Ogden, Omaha and Kansas City areas and the demand for replacement heifers in these, as well as the Billings and Amarillo, marketing areas.

In the case of Medium 250-500 pound stocker-feeder heifer calves, Billings' position again appears to be somewhat incon-

sistent. It had the highest average price. Again, the demand for thin-fleshed stocker-calves probably accounts for this. Phoenix was the second highest market. Feeder cattle of this category are fed both for slaughter as calves and as cattle in the Phoenix area.

Results of these analyses are consistent with the movement patterns of stocker-feeder cattle. The Corn Belt is the major market for Good and Choice grade stocker-feeder steers and calves. The higher prices for stocker-feeder heifers were paid in areas where there was a demand for stocker-heifers and where smaller carcasses are desired. The major area for Medium grade stocker-feeder cattle is the southwestern United States.

The San Antonio area was unique in that it was the highest priced market for Good grade stocker-feeder heifers. Also, it was one of the highest priced markets for Medium grade stocker-feeder steers. These prices reflect the relative damand for lower quality beef and slaughter calves in this market, and the use of these categories of stocker-feeder cattle for feeding in the south Texas area.

An Analysis Of Prices For Stocker-Feeder Cattle At Selected Markets In The United States, 1957-1961[2 3]

by

Thomas M. Stubblefield[4]

Introduction

Previous to World War II most of the beef consumed in the United States was slaughtered directly off grass or pastures.[5] This picture changed rather rapidly after the end of the war. It is estimated that 28 percent of the cattle marketed in 1948 were fed.[6] By 1963 the number of cattle marketed out of feedlots had increased to 57 percent of all cattle slaughtered.

There are several factors which caused this increase in the feeding of cattle: increased disposable income, self-service meat cases that need high quality beef, improved transportation both for cattle and calves, increased efficiency in production of grain and roughages, and also increased efficiency in the feeding of cattle.

It would appear logical that feeder cattle produced in an area would be fed in that same area, in order to keep transportation costs at a minimum. This assumption was made by the Western Livestock Marketing Research Committee in its analysis of the expected shifts in the trade in western slaughter cattle.[7] Committee members thought southern California packers would have to go as far as Nebraska, Kansas, Oklahoma and northern Texas for their slaughter cattle. This committee felt that, "It is doubtful whether more cattle and calves will be taken away from southern Texas in competition with San Antonio and Houston, where population has also increased sharply."

Committee members, as well as others, underestimated the potential

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[2] This publication presents results from research conducted under Western Regional Project WM-39, "An Economic Analysis of Alternative Marketing Methods of Cattle and Sheep in the West."

[3] The term "cattle" includes bovine animals of all ages.

[4] Agricultural Economist, Department of Agricultural Economics, The University of Arizona, Tucson, Arizona.

[5] Cattle that are produced primarily on native and cultivated pasture are referred to as being slaughtered off grass or pasture. Cattle that are fed in feedlots prior to slaughtering are referred to as fed cattle.

[6] Breimyer, Harold F., *Demand and Prices for Meat Factors Influencing Their Historical Development*, U. S. Department of Agriculture Tech. Bul. No. 253, Washington, D.C., December 1961, p. 37.

[7] Western Livestock Marketing Research Technical Committee, *Shifts in the Trade in Western Slaughter Livestock*, Agriculture Information Bulletin No. 14, U.S. Department of Agriculture, Washington, D.C., 1950, pp. 43-45.

TABLE 1. Estimated Total Marketings—Inshipments and Outshipments of Stocker-Feeder Cattle, Western States, 1962.

State	*Estimated Total of Stocker-Feeder Cattle Outshipments*	*Estimated Total of Stocker-Feeder Cattle Inshipments*	*Different Column 1-2*
	(000 Head)	(000 Head)	(000 Head)
Arizona	339	772	-433
California	206	1,830	-1,624
Colorado	698	1,011	-313
Idaho	160	130	30
Montana	683	113	570
Nevada	129	9	120
New Mexico	685	365	320
Oregon	370	99	271
Utah	157	50	107
Washington	24	47	-23
Wyoming	417	139	278
Kansas	1,751	1,466	285
Nebraska	353	1,330	-977
North Dakota	423	92	331
South Dakota	794	342	452
Oklahoma	1,293	453	840
Texas	2,300	1,393	907
Total — Region	10,782	9,641	+1,141

Source: Abel, Harold, and William Capener, *Shifts in Movements of Western Stocker-Feeder Cattle,* Washington Agricultural Experiment Station Bulletin 667, College of Agriculture, Washington State University, Pullman, November 1965.

of the large single enterprise commercial feedlots which were being developed in Arizona and southern California.[8]

As these large feedlots were constructed, feeders began to look for a year-round supply of feeder cattle. They found such a supply in east and north Texas, southern Oklahoma, Arkansas, and Louisiana. Normally, these calves were slaughtered as "milk fat." Arizona and California feeders found they could bid successfully for these animals to use as feeders. In addition, they found that the "Okies"[9] and Brahman crosses performed well in their feedlots.

In fact, the Arizona feeders found the performance of these cattle in relation to their cost was such that approximately two-thirds of the cattle fed in the state were Okies, crossbred Brahmans, and mixed breeds from Mexico. It is doubtful if more than half of the "white faced" Herefords fed in Arizona are produced as feeder cattle and calves in the state.

In recent years, cattle feeders in Colorado, Texas, New Mexico and Oklahoma, as well as Arizona and California, are feeding these crossbreed

[8] *Ibid.* p. 45.

[9] The term "Okie" refers to a type of cattle of mixed breeding including both beef and dairy breeds. Most of these cattle originate in Texas, Oklahoma, Arkansas and Louisiana, and are often produced on small farms.

cattle. The result of this is that several states in the west ship cattle out of the state for growing and feeding, while they bring lower grade cattle into the state for growing and feeding. The extent of this is shown in Table 1. This movement of stocker-feeder cattle has raised several questions about the relative prices paid for stocker-feeder cattle at the different markets.

Also, there is some concern about the consistency of the grading of stocker-feeder cattle for the purpose of price reporting. There were no official standards for grading feeder cattle until September 1964. However, the U. S. Department of Agriculture used suggested standards for stocker and feeder cattle. The condition of the feeder animal had more weight under the old suggested standard as compared to the official standards adopted in 1964. It has been suggested by some that there has been a tendency for market news reporters to grade "harder" in markets where the stocker-feeder cattle were predominantely Choice grade as compared to another market where most of the feeder cattle were of the Medium grade. Another factor which would contribute to such a discrepancy would be that of the market news reporter being located in an area where the cattle feeders were feeding the lower quality crossbreed animals to Low Choice slaughter grade, as was the case in the southwestern United States.[10]

Objectives of the Study

There are two objectives of the study: (1) to compare the prices received for stocker-feeder cattle at the selected markets in the west, including Omaha and Kansas City, as reported by the U. S. Department of Agriculture, and (2) to try to explain the reasons for the difference in prices received.

Source of Data

Price data used in this study are those reported by the U. S. Department of Agriculture, Agricultural Marketing Service, Market News Branch, Livestock Division. They were taken from LS 214 Forms, and *Livestock, Meat and Wool Markets Weekly Summary and Statistics,* U. S. Department of Agriculture. These data were then averaged to obtain the monthly price. The data are for years 1957 through 1961. There are two reasons for confining the study to this time period. First, part of the markets were not reported until the last half of 1956. Second, the U. S. Department of Agriculture began revising its grading of feeder cattle at the beginning of 1962.

Markets Included in This Study

There are 11 markets included in this study. Part of these are designated as "country" markets. "Country" markets are those markets where there is no organized terminal market. Sales data for stocker-feeder cattle for "country" markets during 1957-1961 are from auctions. "Direct country" sales of stocker-feeder cattle were not recorded on the LS 214 Forms because these sales were seasonal and, therefore, the data discontinuous.

The "country" markets in this study are Phoenix, Ariz.; Amarillo, Texas; and Billings, Mont. The terminal markets are Stockton, Calif.; Ogden, Utah; Denver, Colo.; Omaha, Nebr.; Kansas City, Mo.; and Fort Worth

[10] A study conducted by the Agricultural Experiment Station at Iowa State University indicated that feeder cattle could be improved by two grades after a 160-day feeding period—Barrows, Wise, and Ralph Yoder, *Feedlot Performance, Slaughter Grades and Financial Returns from Different Grades of Yearling Feeder Cattle Fed a Full Feed of Corn for 160 Days,* Iowa State University of Science and Technology, Agr. Exp. Sta. and Coop. Ext. Serv. A. S. Leaflet R48, Ames, Iowa, April 1963, p. 5.

and San Antonio, Texas. There is one market which falls in between. Part of the time Los Angeles, Calif. had an organized terminal market. Since 1960 this market has been a "country" market, because the terminal market was closed. Some market categories of stocker-feeder cattle are not sold on all the markets throughout the year. In cases where there are not adequate sales to supply continuous data, these markets were omitted for this particular category of stocker-feeder cattle.

Analysis of the Prices Received at the Eleven Different Markets

There are nine categories of stocker-feeder cattle included in this study:

Choice grade 500-800 pound stocker-feeder steers
Good grade 500-800 pound stocker-feeder steers
Medium grade 500-1,000 pound stocker-feeder steers
Choice grade 500-750 pound stocker-feeder heifers
Good grade 500-750 pound stocker-feeder heifers
Good and Choice grade 250-500 pound stocker-feeder steer calves
Medium grade 250-500 pound stocker-feeder steer calves
Good and Choice grade 250-500 pound stocker-feeder heifer calves
Medium grade 250-500 pound stocker-feeder heifer calves.

The average monthly prices for each category received at each of the 11 markets were analyzed statistically.[11] Results of the statistical analysis are shown in Appendix Tables 1 through 18. Appendix Tables 19 through 27 give the average monthly prices received at each of the markets for each category of stocker-feeder cattle.

Choice 500-800 Pound Stocker-Feeder Steers

There were eight markets which had sufficient data for price analysis for this category of feeder animal; Amarillo, Billings, Denver, Fort Worth, Kansas City, Ogden, Omaha and Stockton. Prices received at some of the eight different markets were significantly different.[12] The results are shown in Figure 1. Prices in the Midwest markets were the highest for this category of stocker-feeder cattle. This is consistent with results obtained by Abel and Capener in studying the movement of cattle in the 17 western states.[13] There were and are large movements of stocker-feeder cattle from the Western Range States to the Corn Belt.

The supply of Choice grade 500-800 pound Hereford and Angus steers was more than enough to meet the demand for this category of feeder cattle in the 11 western states. Prices at the different markets were determined to a large extent by the price offered in the midwest, minus freight.

There are two possible explanations why prices received at Fort Worth were significantly different from those at Amarillo. Amarillo is in the center of a large area that produces primarily stocker-feeder cattle of English breeding. Fort Worth is on the eastern edge of this area. There the price has to be high enough to attract this grade and weight of stocker-feeder cattle to Fort Worth.

At least a third of the steers and heifers slaughtered in Texas were

[11] The monthly prices were tested by analysis of variance and the "Multiple Range and Multiple F. Test," Duncan, David, Biometrics, Vol. 11, No. 1, March 1955, pp. 1-42.

[12] Statistical results of the analysis are given in Appendix Tables 1 and 10.

[13] Abel, Harold and William Capener, *Shifts in Movements of Western Stocker-Feeder Cattle,* Washington Agricultural Experiment Station Bulletin 667, College of Agriculture, Washington State University, Pullman, November 1965.

nonfed cattle.[14] Some of the cattle quoted are likely to be "two-way" cattle which could be either fed or slaughtered, depending upon the relative demand at the time. The Dallas-Fort Worth area is one of the largest slaughter areas in Texas.

Figure 2 presents the average monthly prices received at Amarillo, Texas; Billings, Mont.; Denver, Colo.; and Stockton, Calif. The seasonal variations shown by these average monthly prices are similar.[15] [16] The average monthly prices for all eight markets is given in Appendix Table 19.

Good 500-800 Pound Stocker-Feeder Steers

Data for this category of stocker-feeder cattle were available for all 11 markets. Figure 3 shows the average price received at each of the 11 markets.[17] The prices received at these markets fall into three groups. Phoenix was the lowest market, and significantly different from all the rest. The middle group was Ogden, Fort Worth, San Antonio, Stockton, Amarillo, and Los Angeles. The highest group was Denver, Billings, Omaha, and Kansas City. Again, the highest markets for this category of stocker-feeder cattle were located nearest to the Corn Belt.

English breeds of stocker-feeder beef cattle produced in Arizona and Utah are sold primarily in the fall of the year and are moved both east and west. California range cattle producers stock the coastal ranges in the fall of the year and sell them off these ranges in the spring. This works very well, because the feeders in the southern San Joaquin and Sacramento Valleys prefer to place cattle on feed in May and June and sell them before the late winter and early spring rains.

Prices in the California markets are high enough to attract enough "native" cattle (English breeds) to meet the needs of the California ranchers and feeders. However, since there are more than enough "native" cattle in the adjacent states to meet California's needs, the stocker-feeder cattle move east out of these states.

Figure 4 gives the average monthly prices received at Kansas City, Billings, Stockton, San Antonio, and Phoenix. They have similar seasonal patterns. Billings and Phoenix had a greater decline on the average than did San Antonio and Stockton. For example, it was profitable to move Good stocker-feeder steers from the Phoenix area to the Stockton area in the fall of the year but not in the spring.[18]

Most of the difference in seasonal patterns can be explained by the availability of grass or pasture. Markets in the Great Plains, Rocky Moun-

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[14] The U. S. Department of Agriculture estimated that 403,000 head of cattle were marketed out of feedlots in 1959 in Texas. Dietrich, Raymond A., *et al.*, reported that Texas packers purchased 675,000 steers and heifers produced in Texas for slaughter in 1959. Ref., Deitrich, Raymond A., *et al.*, *The Texas-Oklahoma Meat Industry, Structure and Marketing Practices,* Agricultural Economics Report No. 39, U. S. Department of Agriculture, Economic Research Service, Washington, D. C., July 1963, pp. 33, 36.

[15] The markets times years, markets times months, and months times years interaction were all significant at the one-percent level. This indicates that the relative position of markets change both yearly as well as seasonally.

[16] The difference between the average December price and the average January price for each market can be attributed to the general rising price for stocker-feeder cattle during the period, 1957-1960.

[17] See Appendix Tables 2 and 11.

[18] Average monthly prices received at each of the 11 markets is given in Appendix Table 20.

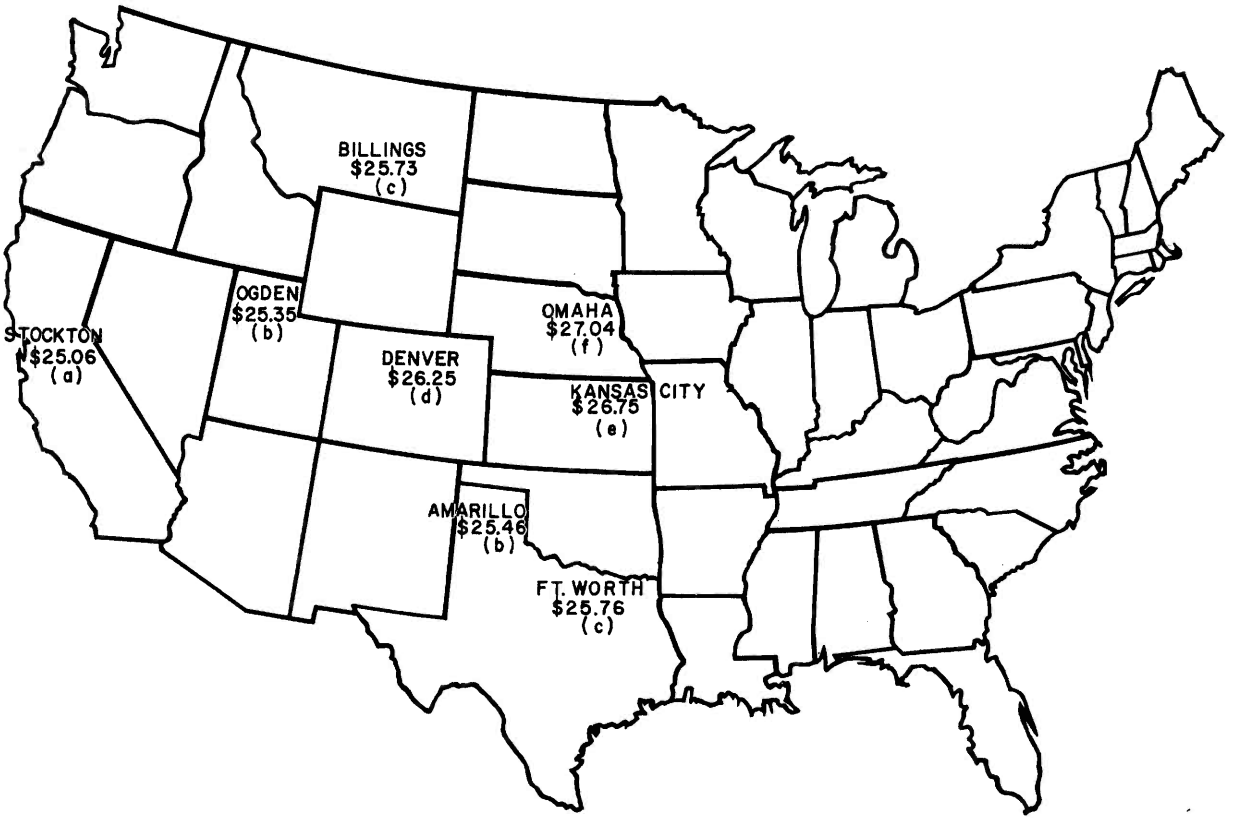

Figure 1. Average Price Received for Choice 500-800 Pound Stocker-Feeder Steers, 1957-1961, by Markets. (There was no significant difference between markets sharing a common letter.)

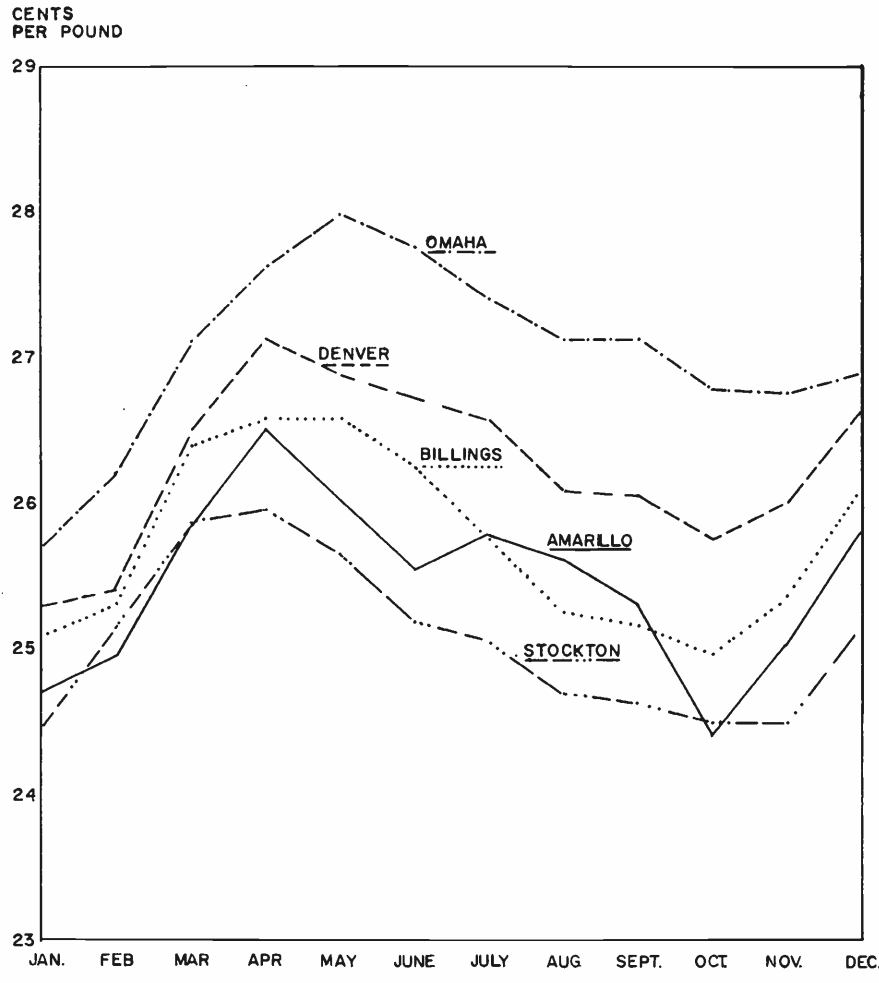

Figure 2. Average Monthly Prices Received at Omaha, Denver, Billings, Amarillo, and Stockton for Choice 500-800 Pound Stocker-Feeder Steers, 1957-1961.

tain and Intermountain Areas are usually strongest during the spring of the year, because this is the time when grass is available for grazing. However, California and the Gulf Coast States have grass available in the fall of the year. This is reflected in Figure 4, in the average price of this category of cattle in the fall at Stockton and San Antonio as compared to Billings and Phoenix.

Also, part of the increased marketings in the fall at San Antonio were sold as slaughter calves. There are some Medium grade stocker-feeder

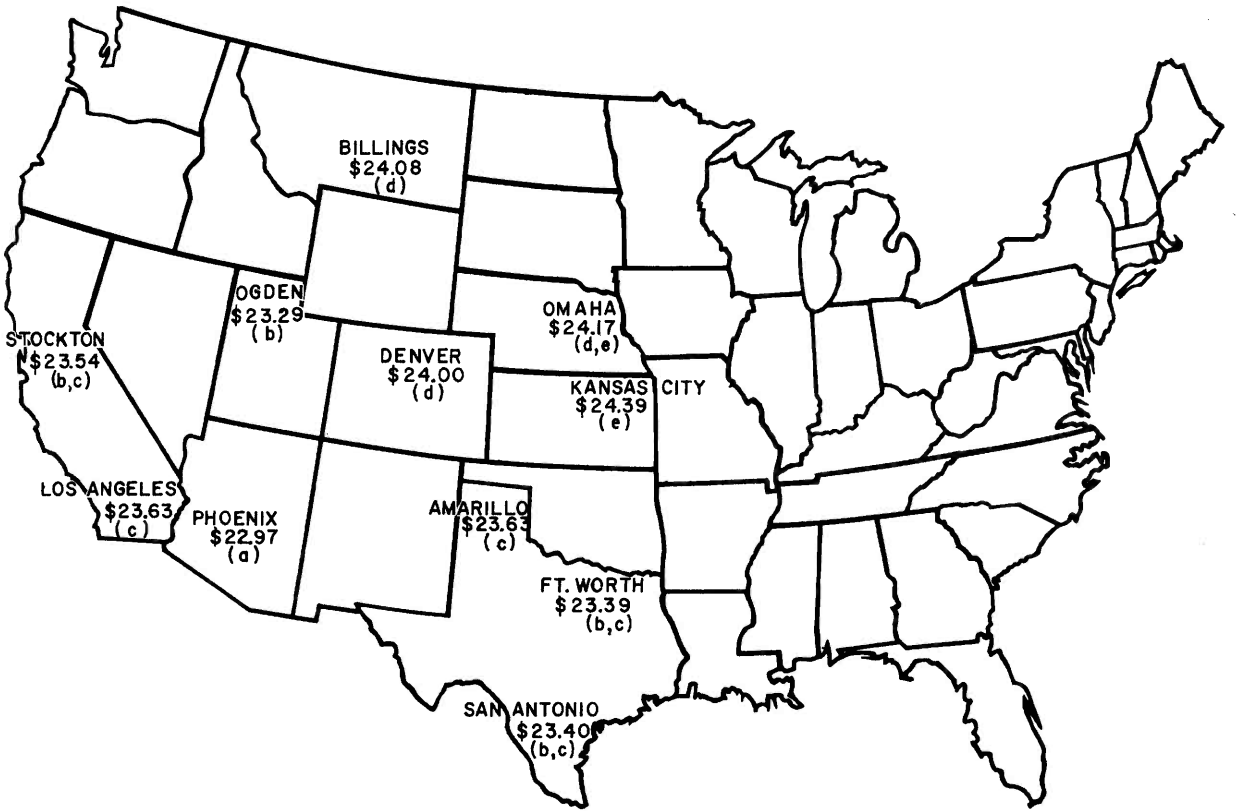

Figure 3. Average Price Received for Good 500-800 Pound Stocker-Feeder Steers, 1957-1961, by Markets. (There was no significant difference between markets sharing a common letter.)

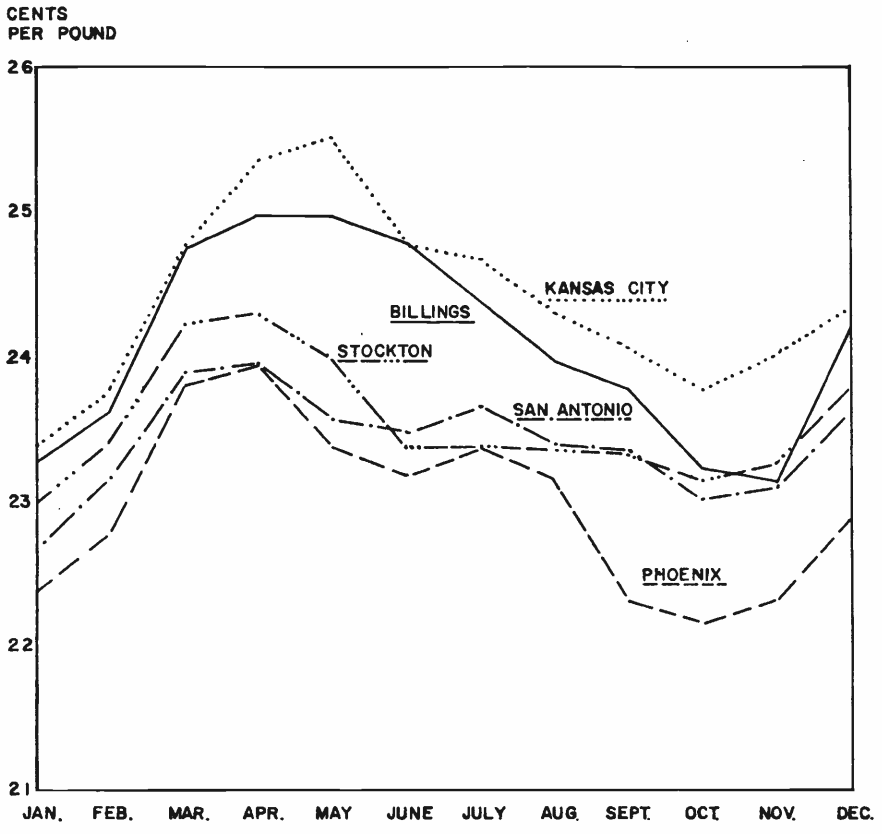

Figure 4. Average Monthly Prices Received at Kansas City, Billings, Stockton, San Antonio, and Phoenix for Good 500-800 Pound Stocker-Feeder Steers, 1957-1961.

steers that are young enough to meet the standards for slaughter as calves, although they weigh over 500 pounds. When there is a relative increase in the supply, as there is in the fall, some of these two-way cattle are sold for slaughter rather than as stocker-feeder cattle.

There are more than enough Good grade stocker-feeder steers available in the fall of the year in Arizona to meet local demand. The decline in the price at Kansas City is not as great as at Billings. This is probably due to location near feedlots and wheat pasture. (It should be noted that the relative positions of these markets shifted during the periods studied yearly as well as seasonally—Appendix Table 2.)

Medium 500-1,000 Pound Stocker-Feeder Steers

Prices for this category of stocker-feeder cattle were quoted at all of the 11 markets included in the study. Figure 5 gives the average price

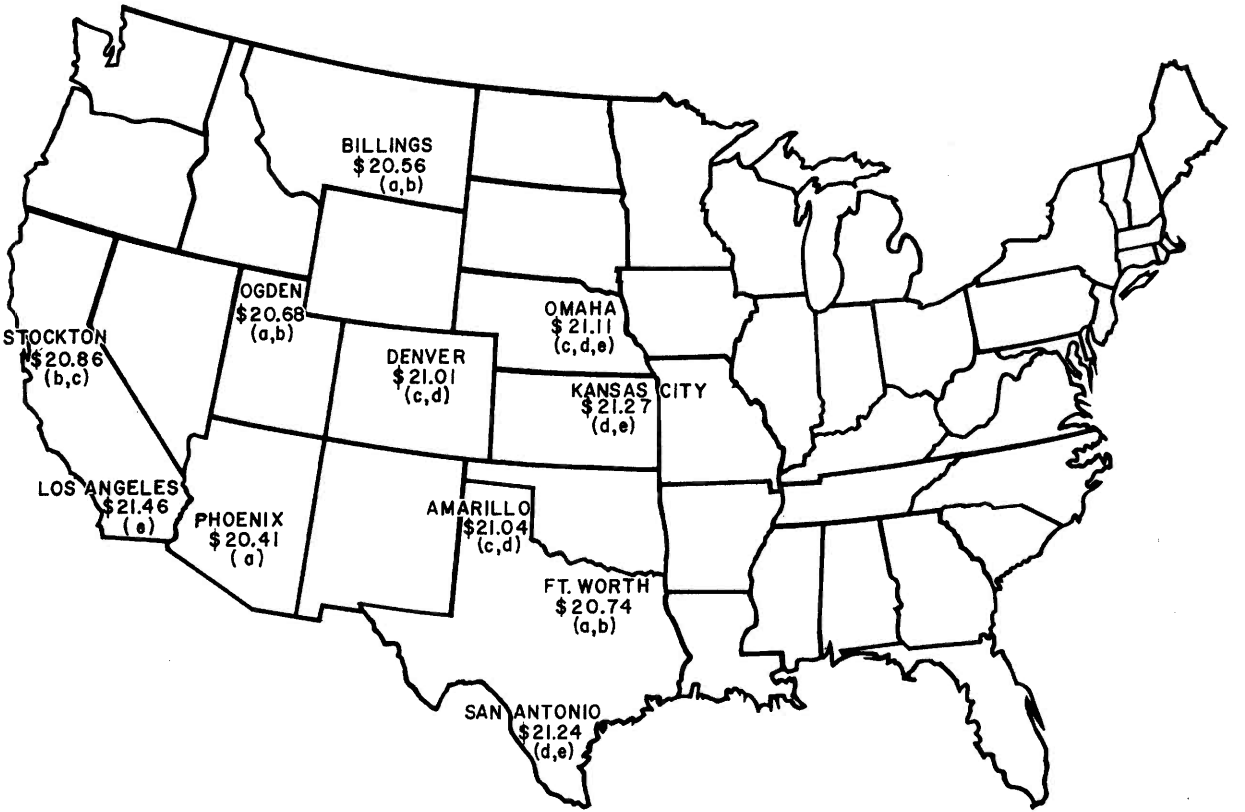

Figure 5. Average Price Received for Medium 500-1000 Pound Stocker-Feeder Steers, 1957-1961. (There was no significant difference between markets sharing a common letter.)

received at each of the markets and indicates those markets at which the prices were significantly different.[19]

The results of the statistical analysis of the prices received require considerable scrutiny. The wide weight range makes comparisons difficult. The "Medium" grade under the "old" standards was probably the most controversial of all the grades, due to the fact that thin cattle having good conformation could be placed in this grade. In addition, cattle of less desirable conformation were placed in this grade. Cattle of poor conformation are readily accepted by the southwestern feeders, while the thin cattle are highly desirable. These can be placed on native pasture at the beginning of the growing season.[20]

Phoenix (Figure 5) had the lowest average price for this category of feeder cattle. This is inconsistent with the fact that large numbers of Medium 500-700 pound steers were purchased in Texas, Arkansas, Oklahoma and Louisiana, and shipped to Arizona for feeding. The only explanation could be in the fact that there were not enough of this category of stocker-feeder cattle in the auction markets in Arizona to assemble them into large enough lots of 50 head or more without a great amount of difficulty and cost.

Los Angeles had the highest average price. Large numbers of this category of cattle are fed in the Imperial Valley, as well as in the Los Angeles area. This is not true of Stockton. A recent study has shown that Okies did not perform as well as California-produced Herefords when fed at Davis, Calif.[21]

There does not appear to be a general pattern to these prices, as was the case with Choice and Good grade stocker-feeder steers. There was no significant difference between the following markets:

1. **Phoenix, Ogden, Billings, and Fort Worth**
2. **Stockton, Billings, Ogden, and Fort Worth**
3. **Stockton, Denver, Amarillo, and Omaha**
4. **Denver, Amarillo, Omaha, Kansas City, and San Antonio**
5. **Omaha, Kansas City, San Antonio, and Los Angeles.**

Thus, with the exception of Los Angeles and San Antonio, the higher priced markets were located near the Corn Belt. San Antonio has been one of the higher priced markets for Standard grade beef for the last 20 years.[22] Also, a portion of this category falls in both the top end of the slaughter calf weight and the bottom end of the stocker-feeder steer weight. These cattle will be slaughtered when there is a relative increase in supply in

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[19] See Appendix Tables 3, 12 and 21 for statistical analysis and monthly average prices.

[20] Cattle that have "bloom" (having reached their best market condition) on wheat pasture or alfilaria will most likely lose their bloom if they are placed on native pasture at the beginning of the growing season, while thinly fleshed steers or heifers will usually gain more weight (relative to initial body weight) and improve in appearance.

[21] Bell, F. L. "Monte"; *Okie Cattle vs. Herefords on the Hoof and on the Hook*, California Feeders Day, University of California, Davis, California, November 1964, pp. 5-9.

[22] McNeely, John G., *Beef Cattle Prices at Fort Worth, Houston and San Antonio, 1946-1950*, Texas Agricultural Experiment Station Miscellaneous Publication 78, Texas A & M College, College Station, July 1951, p. 25, and an unpublished analysis made by author.

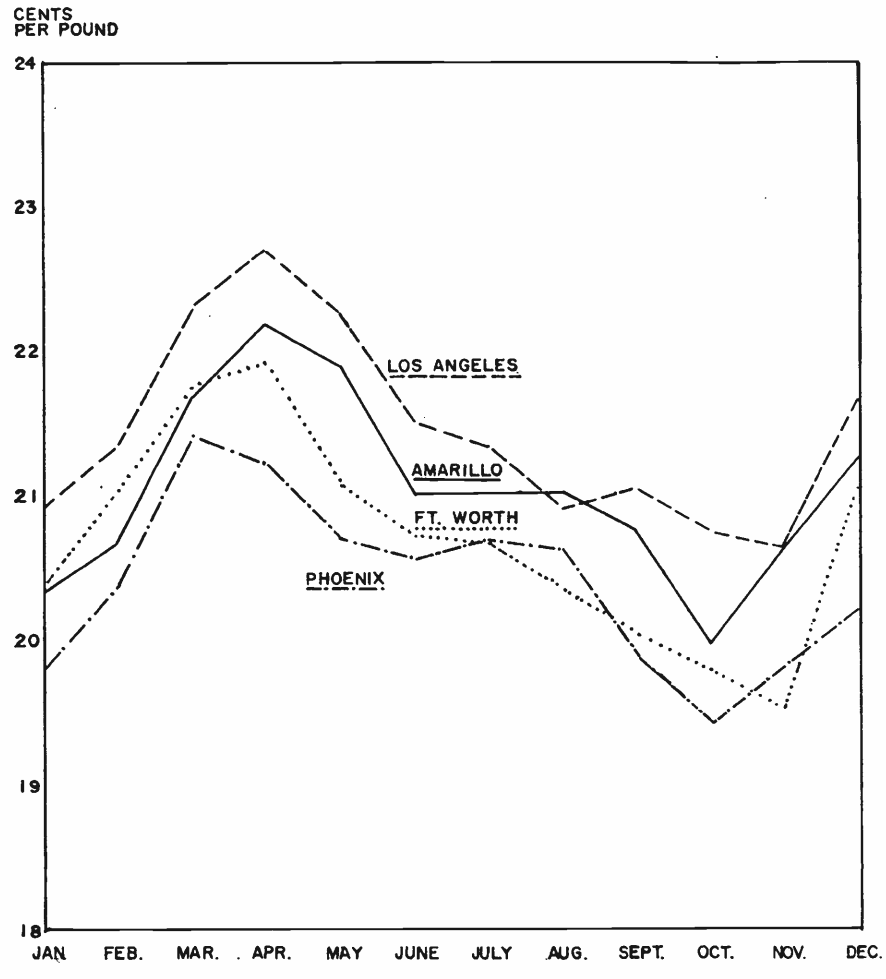

Figure 6. Monthly Average Prices Received at Los Angeles, Amarillo, Ft. Worth, and Phoenix for Medium 500-1000 Pound Stocker-Feeder Steers, 1957-1961.

relation to the demand for stocker-feeder cattle. This is especially true in the fall of the year. In other words, the packers in San Antonio were competing with the growers and feeders for Medium 500-1,000 pound stocker-feeder steers. Apparently, the supply was not enough to fill both needs, and this resulted in an average price higher than at Fort Worth.

Figure 6 gives the monthly average prices received at Los Angeles, Amarillo, Fort Worth, and Phoenix. The seasonal patterns were very similar.[23] The supply of this category of stocker-feeder cattle is smaller

[23] Statistically, the relative position of the markets shifted at least one year during the study. Also, the seasonal pattern shifted during the period—Appendix Table 3.

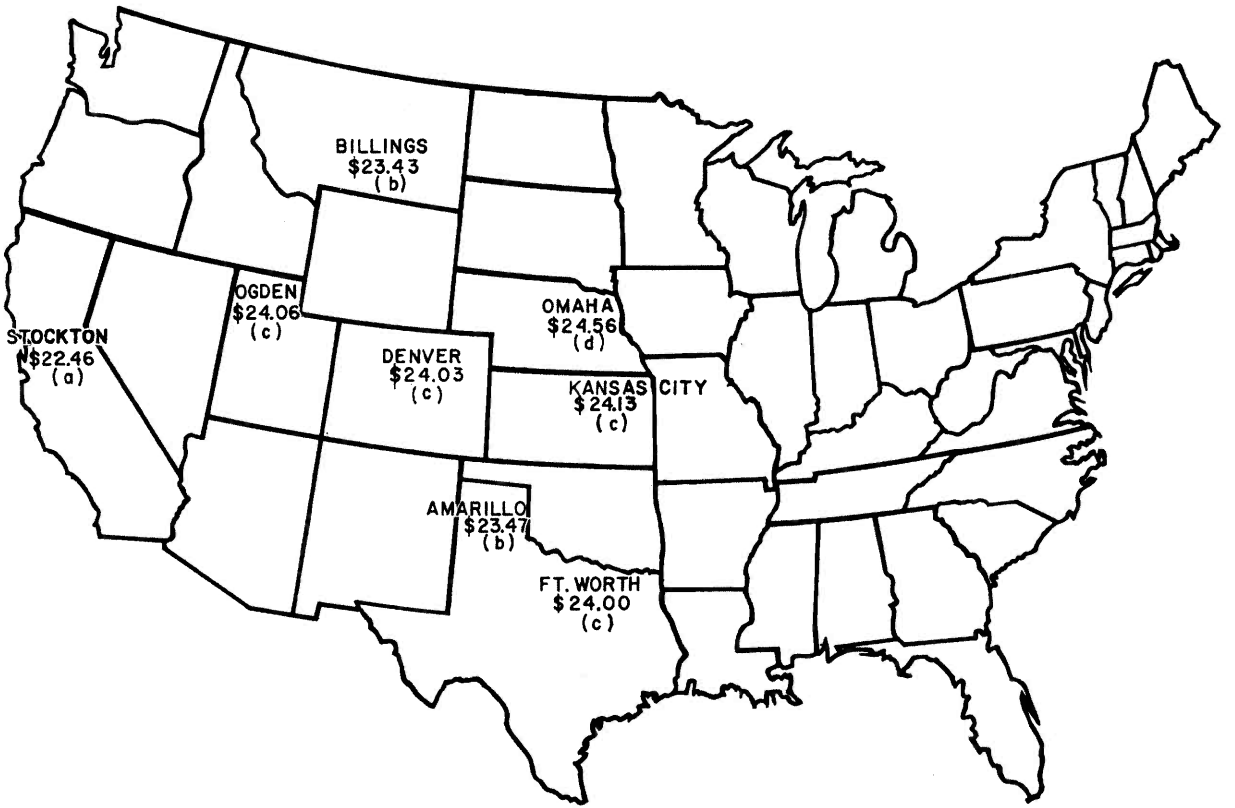

Figure 7. Average Price Received for Choice 500-750 Pound Stocker-Feeder Heifers, 1957-1961, by Markets. (There was no significant difference between markets sharing a common letter.)

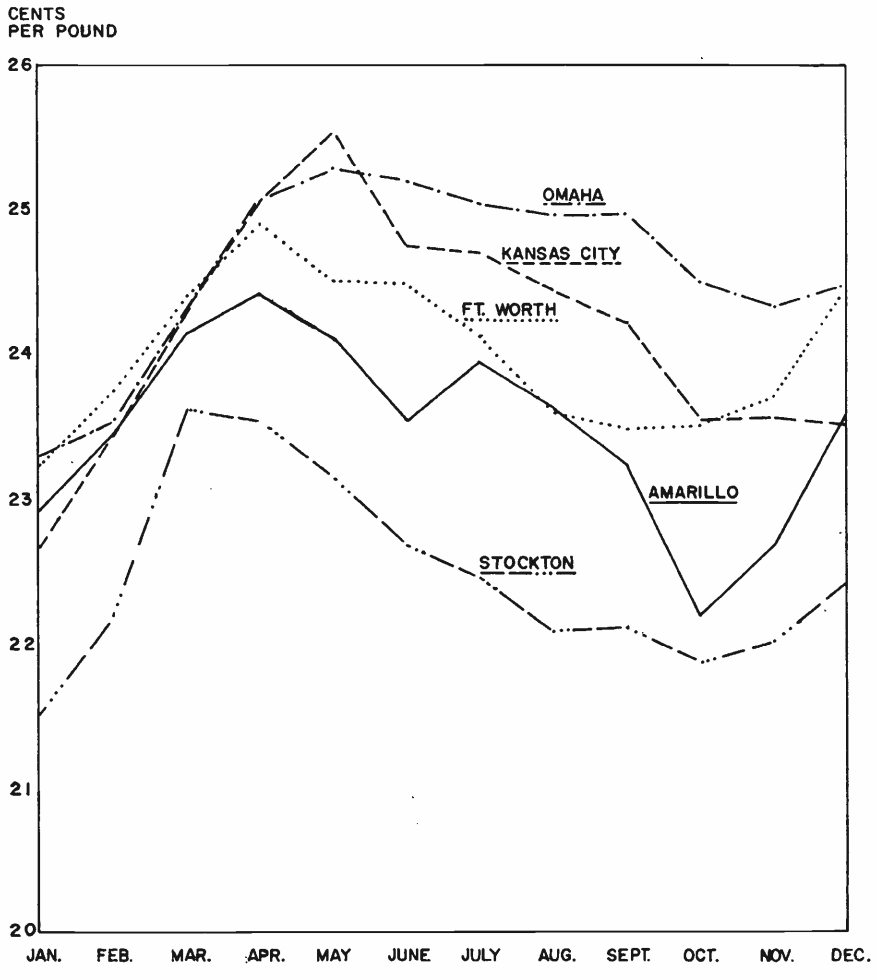

Figure 8. Average Monthly Prices Received at Omaha, Kansas City, Ft. Worth, Amarillo and Stockton for Choice 500-750 Pound Stocker-Feeder Heifers, 1957-1961.

in the spring than in the fall. In addition, native vegetation is becoming available to produce cheap gains in the spring. These two factors explain a large part of the seasonal variation in prices for this category of stocker-feeder cattle.

Choice 500-750 Pound Stocker-Feeder Heifers

The price data for this category of stocker-feeder cattle were complete for eight markets. Prices received at the eight markets were significantly different.[24] Figure 7 illustrates the results of the statistical analysis.

[24] See Appendix Tables 4 and 13 for statistical analysis.

Omaha had the highest average prices, with Ogden, Denver, Kansas City and Fort Worth having the second highest average prices. (There was no significant difference between these markets.) Billings and Amarillo were the third highest markets. Stockton had the lowest average price.

Local preferences have a rather marked effect on prices for heifers for both the stocker-feeder and slaughter purposes. Denver and Ogden are located in consuming areas that show a preference, at the prevailing price differential, for cuts of beef that come from heifer carcasses. This is not true for the California consuming areas.

Fort Worth, as was mentioned earlier, slaughtered a large number of grass-fat steers and heifers. This preference, at prevailing price differentials, is reflected in the price of this category of stocker-feeder cattle.

Figure 8 shows the average monthly prices received at four of the markets. Kansas City, Omaha and Stockton did not have as great an upturn in price during the fall of the year as did Amarillo and Fort Worth.[25] [26] This is probably due to the large movement of stocker-feeder cattle being moved off the ranges and farms in the Amarillo and Fort Worth areas during October and November. The native grasses dry up at this time, and stocker-feeder cattle left on native pasture lose their bloom.

Good 500-750 Stocker-Feeder Heifers

By statistical test, prices received at 10 markets were significantly different.[27] Figure 9 shows that markets at Phoenix, Stockton and Billings had the lowest average price for this category of cattle. Ogden had the second lowest average price. The local demand for Choice grade slaughter heifers probably accounts for the average price at Ogden being higher than Phoenix and Stockton.[28]

Prices received at Omaha and Kansas City were influenced by location of these markets in relation to the Corn Belt. Again, the influence of the local preference for Choice grade slaughter heifers accounts for Denver having a higher average price than Kansas City.

The Amarillo and Fort Worth markets, second highest, were affected by at least two factors, (1) local demand for smaller carcasses, and (2) local demand to restock ranges after the drought of 1951-1956.

San Antonio had the highest average price. One might have assumed that San Antonio would have been one of the lower-priced markets, since cattle moved out of southern and central Texas to Arizona and California. However, there was a preference for calf and smaller beef in San Antonio as well as other areas in Texas during the period studied.[29]

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[25] See Appendix Table 22 for the average monthly price for all the eight markets for this category of stocker-feeder cattle.

[26] The relative positions of the markets changed during the period studied both yearly and seasonally—Appendix Table 4.

[27] See Appendix Tables 5 and 14.

[28] Good grade feeder cattle (suggested standard) could be fed to Choice slaughter grade.

[29] Unpublished data show that San Antonio was the highest market of the 11 included in this study for Standard grade slaughter heifers, second highest for Good grade slaughter calves and the highest for Standard grade slaughter calves. These data cover the period 1957-1962. The average price in San Antonio was above the average price at Fort Worth for all three categories. This is opposite of what one might think from the results of the Dietrich and *et al.*, study. (*The Texas-Oklahoma Meat Industry, Structure and Marketing Practices.*) They show that more calf and veal was distributed in the Dallas-Fort Worth area than in San Antonio. However, almost as much calf and veal was distributed in Houston as in the Dallas-Fort Worth area, (Page 44, Table 36).

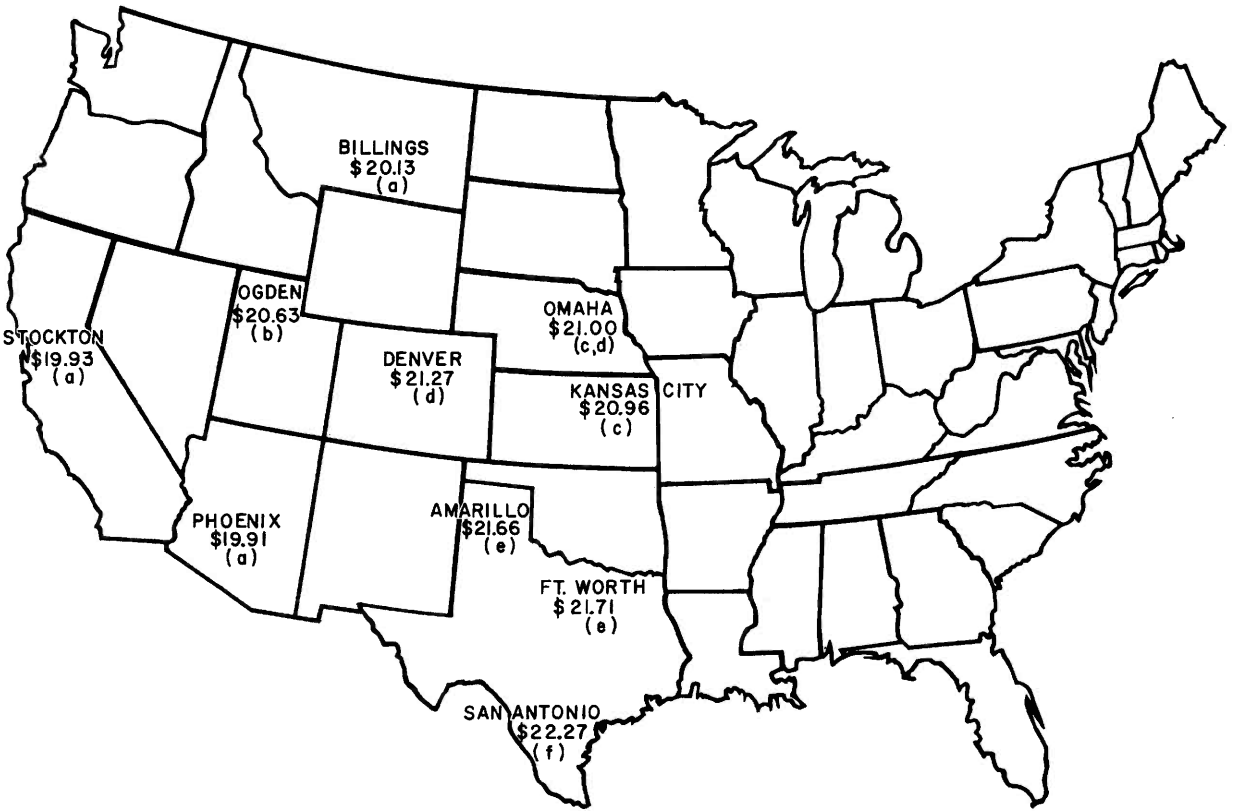

Figure 9. Average Price Received for Good 500-750 Pound Stocker-Feeder Heifers, 1957-1961, by Markets. (There was no significant difference between markets sharing a common letter.)

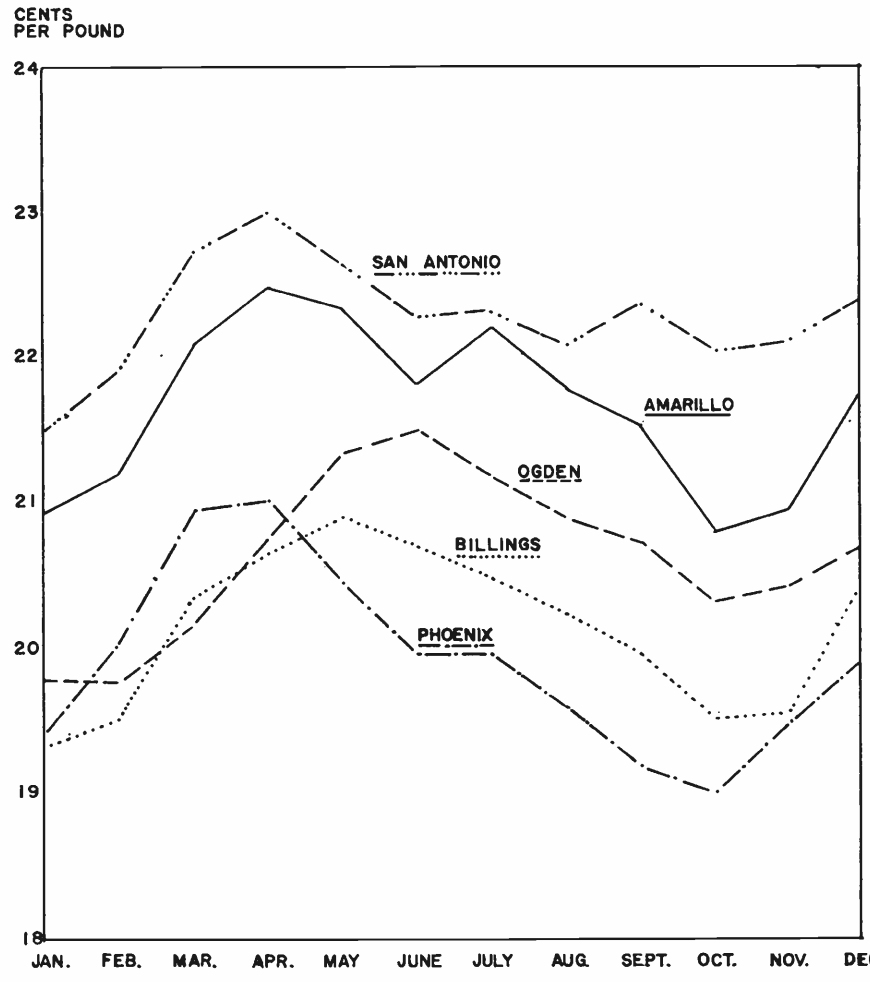

Figure 10. Average Monthly Prices Received at San Antonio, Amarillo, Ogden, Billings and Phoenix for Good 500-750 Pound Stocker-Feeder Heifers, 1957-1961.

Two-way heifers (slaughter or stocker-feeder) in the San Antonio market, were often young enough to qualify as slaughter calves although they weighed over 500 pounds. Such cattle, if they grade Good as stocker-feeder cattle, probably grade Good as slaughter calves and Standard as slaughter heifers. Also, there is enough feeding in the San Antonio area to use most, if not all, of this category of stocker-feeder cattle that was not slaughtered.

Figure 10 shows the average monthly prices for five of the markets.

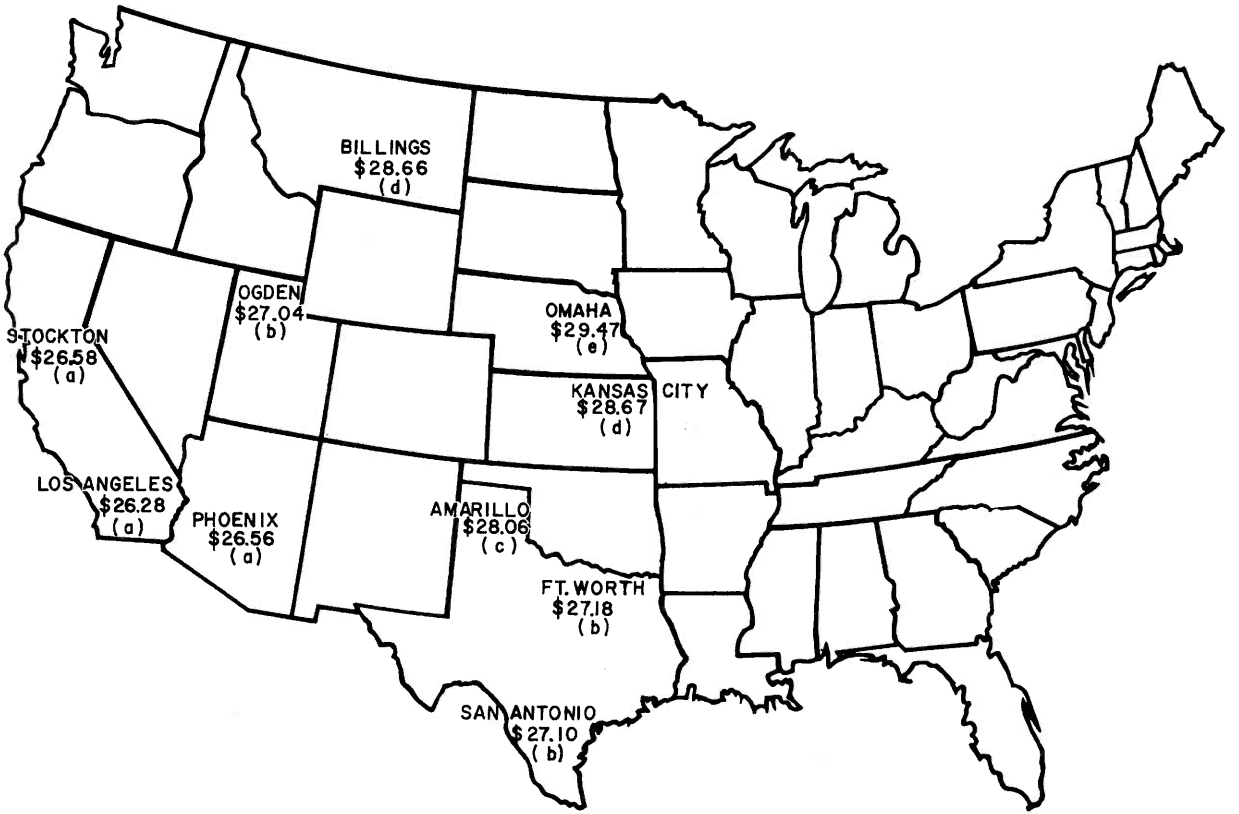

Figure 11. Average Price Received for Good and Choice 250-500 Pound Stocker-Feeder Steer Calves, 1957-1961, by Markets. (There was no significant difference between markets sharing a common letter.)

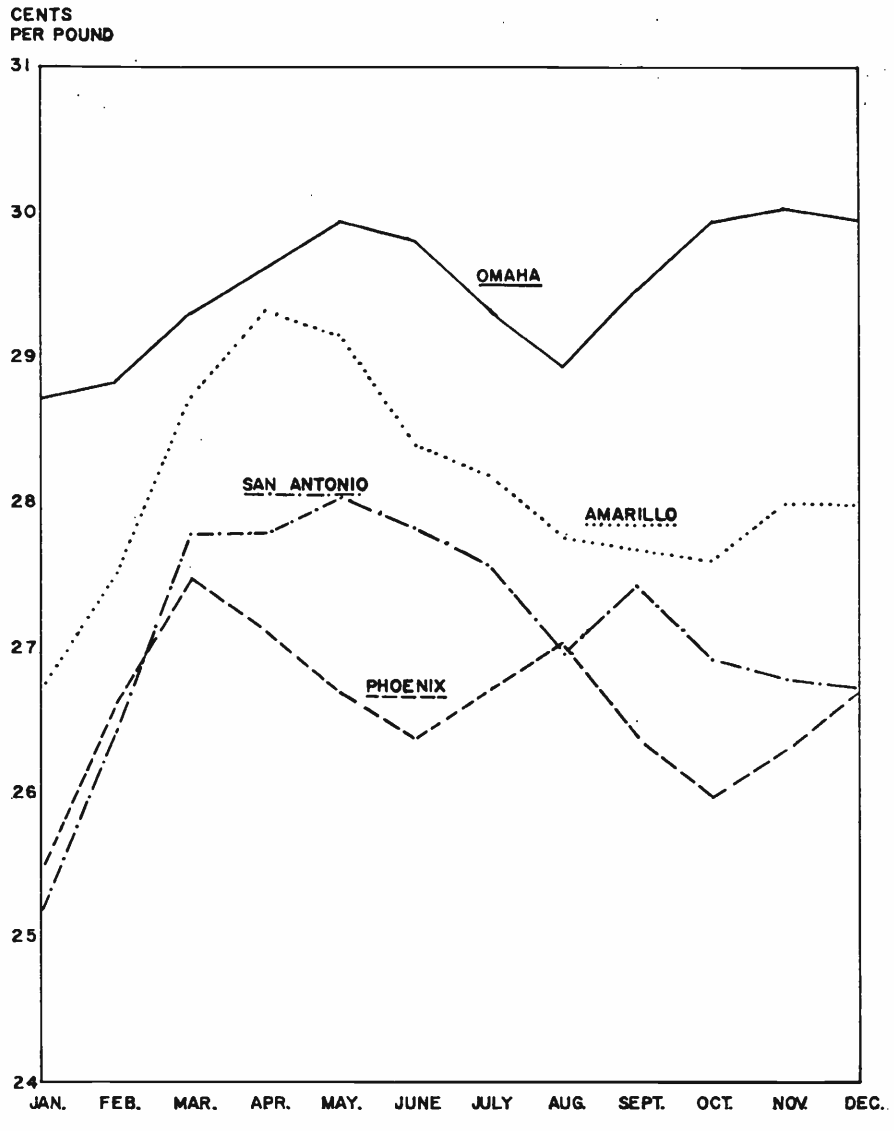

Figure 12. Average Monthly Prices Received at Omaha, Amarillo, San Antonio and Phoenix for Good and Choice 250-500 Pound Stocker-Feeder Steer Calves, 1957-1961.

The seasonal pattern is different for all the markets.[30] San Antonio did not have the usual fall decline. This was due in part, at least, to the slaughtering of the light fat-end of this category as slaughter calves. Amarillo had an upswing in July. Ogden did not reach its seasonal peak until June, while Billings reached its seasonal peak in May.

Good and Choice 250-500 Pound Stocker-Feeder Steer Calves

Until 1962, Good and Choice grade stocker-feeder calves were reported as one category by the U. S. Department of Agriculture, Market News Service. Prices received at 10 of the 11 markets for this category of stocker-feeder cattle were significantly different.[31] (Price data for the Denver market were not adequate for analysis.)

Figure 11 shows the average prices received at the 10 markets. The California and Arizona markets were the lowest. Ogden, San Antonio and Fort Worth had the second lowest average prices. Billings and Kansas City had the second highest average prices. Omaha was the highest market. This is consistent with the price pattern of Choice grade of 500-700 pound stocker-feeder steers—those markets closest to the Corn Belt had the highest prices for this category of stocker-feeder cattle.

Figure 12 gives the average monthly prices for Good and Choice 250-500 pound stocker-feeder cattle for the markets of Omaha, Amarillo, San Antonio and Phoenix.[32] No two of the four markets had similar seasonal price patterns.[33] Omaha had higher average prices in the fall, and this again could be explained by the cycle effect on the price of this category. Amarillo was the strongest in the spring—probably the effect of a strong demand for stocker cattle.

San Antonio and Phoenix had two low and two high periods. They were different from Omaha in that the highest average price came in the first half of the year. This reflects the demand for cattle to go on pasture in late winter or early spring. Arizona has early desert ranges during some years, while the San Antonio area has a longer growing season for natural pasture.

Medium 250-500 Pound Stocker-Feeder Steer Calves

There were adequate data to compare the prices received at seven markets for this category of stocker-feeder cattle. Prices received at the seven markets were significantly different.[34] (There were not enough continuous sales of this category of stocker-feeder cattle at Los Angeles, Denver, Omaha and Kansas City for these markets to be included in the analyses.)

Here we have a situation that is almost the opposite of the Good and Choice grade 250-500 pound stocker-feeder steer calves. Ogden, Amarillo, Fort Worth and San Antonio had the lowest prices (see Figure 13), while Phoenix and Stockton had the second highest.

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[30] See Appendix Table 23 for average monthly prices for all 10 markets. The relative positions of the markets shifted monthly, seasonally and yearly for this category of stocker-feeder cattle—Appendix Table 5.

[31] See Appendix Tables 6 and 15 for statistical analyses.

[32] See Appendix Table 24 for average monthly prices at all 10 markets.

[33] The seasonal variation changed during the period studied. (This change can be explained by the fact that in 1957 calf prices increased throughout most of the year.) The relative yearly position of the markets also changed. There was a relative change seasonally among the markets—See Appendix Table 6.

[34] See Appendix Tables 6 and 15 for results of statistical analyses.

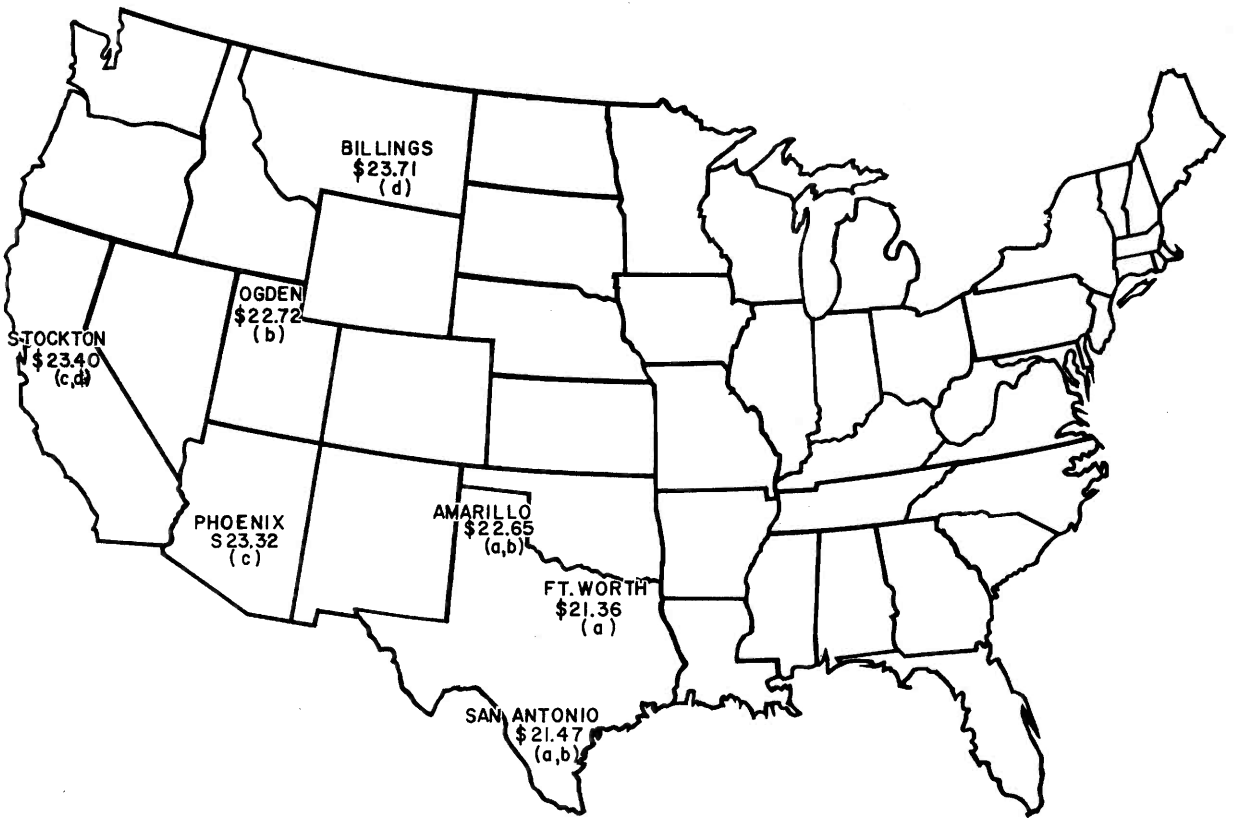

Figure 13. Average Price Received for Medium 250-500 Pound Stocker-Feeder Steer Calves, 1957-1961, by Markets. (There was no significant difference between markets sharing a common letter.)

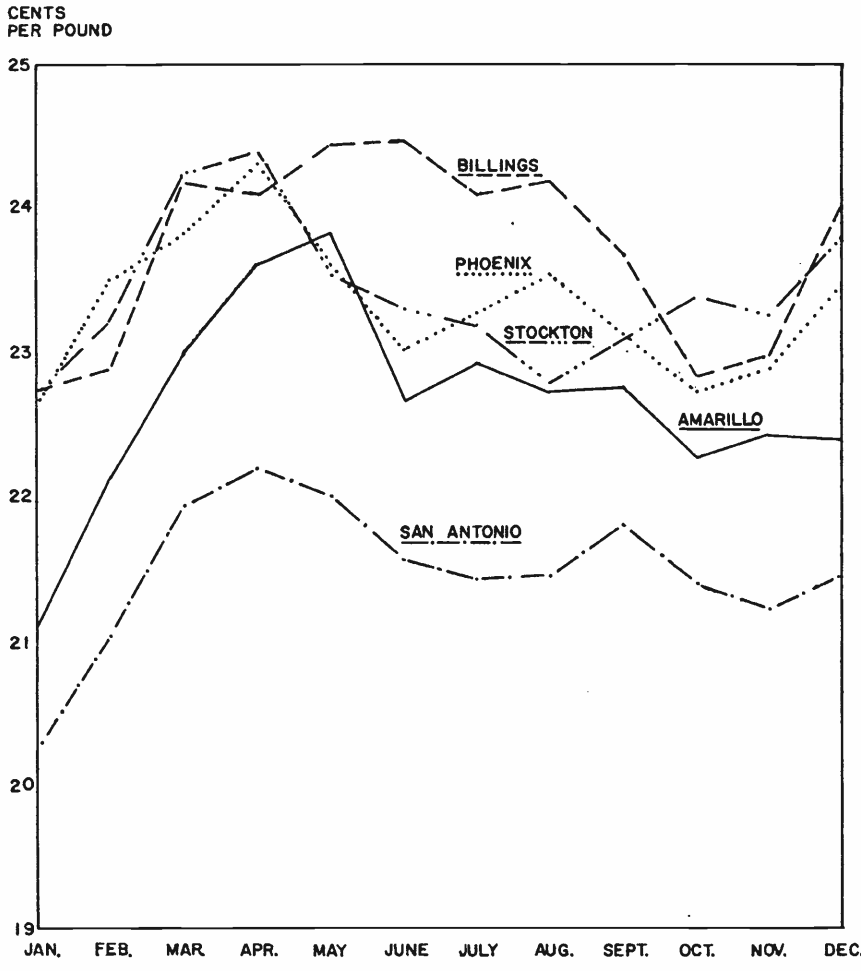

Figure 14. Average Monthly Prices at Billings, Phoenix, Stockton, Amarillo and San Antonio for Medium 250-500 Pound Stocker-Feeder Steer Calves, 1957-1961.

Billings had the highest average price. A Hereford or Angus calf in thin flesh is an ideal animal to place on wheat pasture during the winter, as well as on native grass ranges during the growing season. The demand for this category of stocker-feeder cattle to be placed on wheat pasture in western wheat states, and on ranges adjacent to Billings, probably explains Billings' position.

The reason for the Stockton and Phoenix markets being the second highest was that feeders in these areas found it most profitable to feed calves that fall into this category. It is interesting to note that the Phoenix

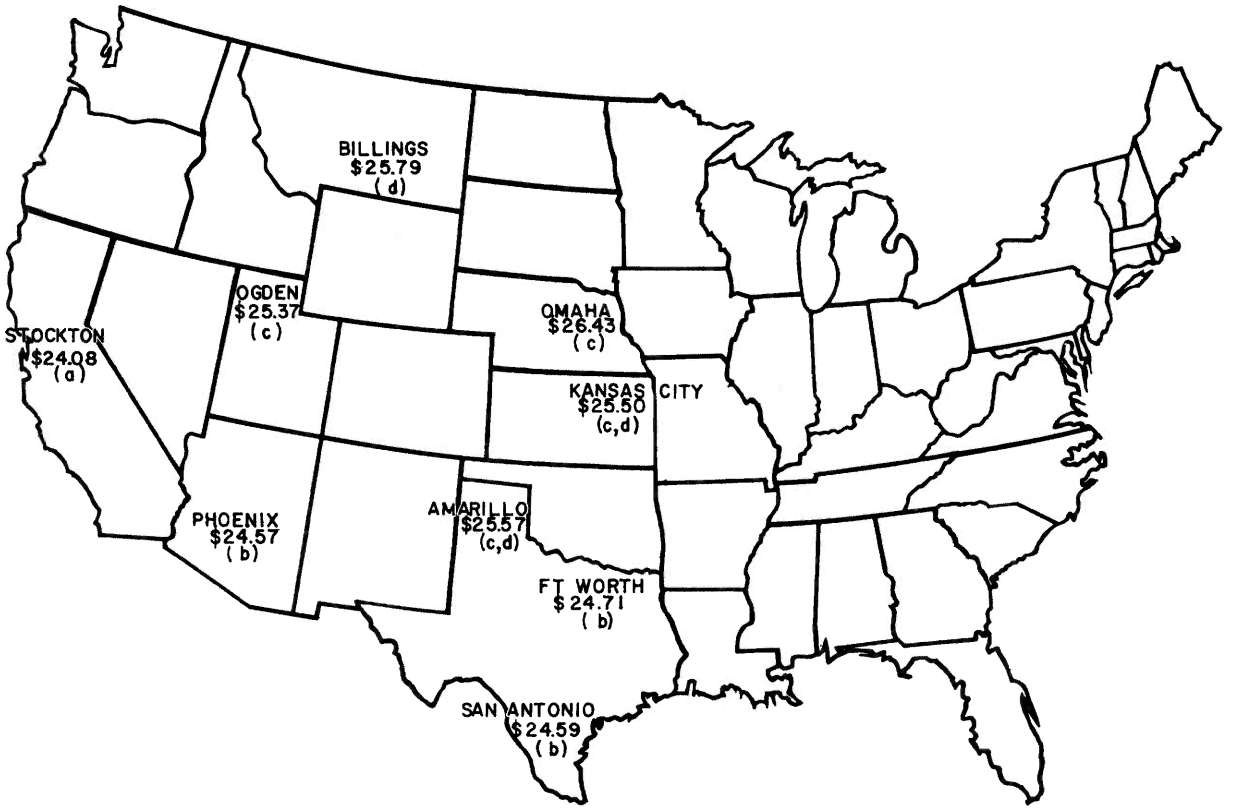

Figure 15. Average Price Received for Good and Choice 250-500 Pound Stocker-Feeder Heifer Calves, 1957-1961, by Markets. (There was no significant difference between markets sharing a common letter.) EDITOR'S NOTE: Error in map — "c" under "Omaha" should be "e."

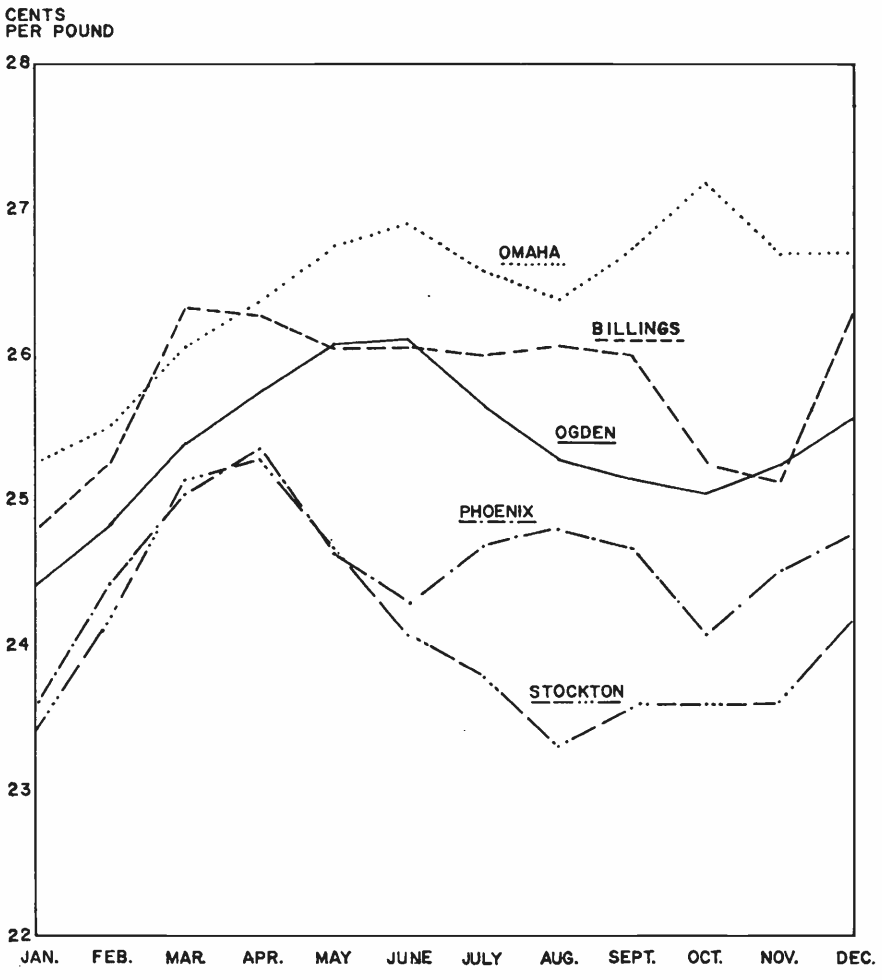

Figure 16. Average Monthly Prices Received at Billings, Omaha, Ogden, Phoenix and Stockton for Good and Choice 250-500 Pound Stocker-Feeder Heifer Calves, 1957-1961.

market was one of the second highest markets for Medium 250-500 pound stocker-feeder steer calves, while it was one of the lower markets for Medium 500-1,000 pound stocker-feeder steers. This may be accounted for by the fact that more of these animals were available for sale in the Phoenix area than were steers, making it possible to assemble large enough lots of the stocker-feeder steer calves to be attractive to buyers.

Average monthly prices received for Medium 250-500 pound stocker-feeder steer calves at Billings, Phoenix, Stockton, Amarillo and San Antonio are given in Figure 14.[35] The seasonal pattern is somewhat different for

[35] See Appendix Table 24 for the average monthly prices for all seven markets.

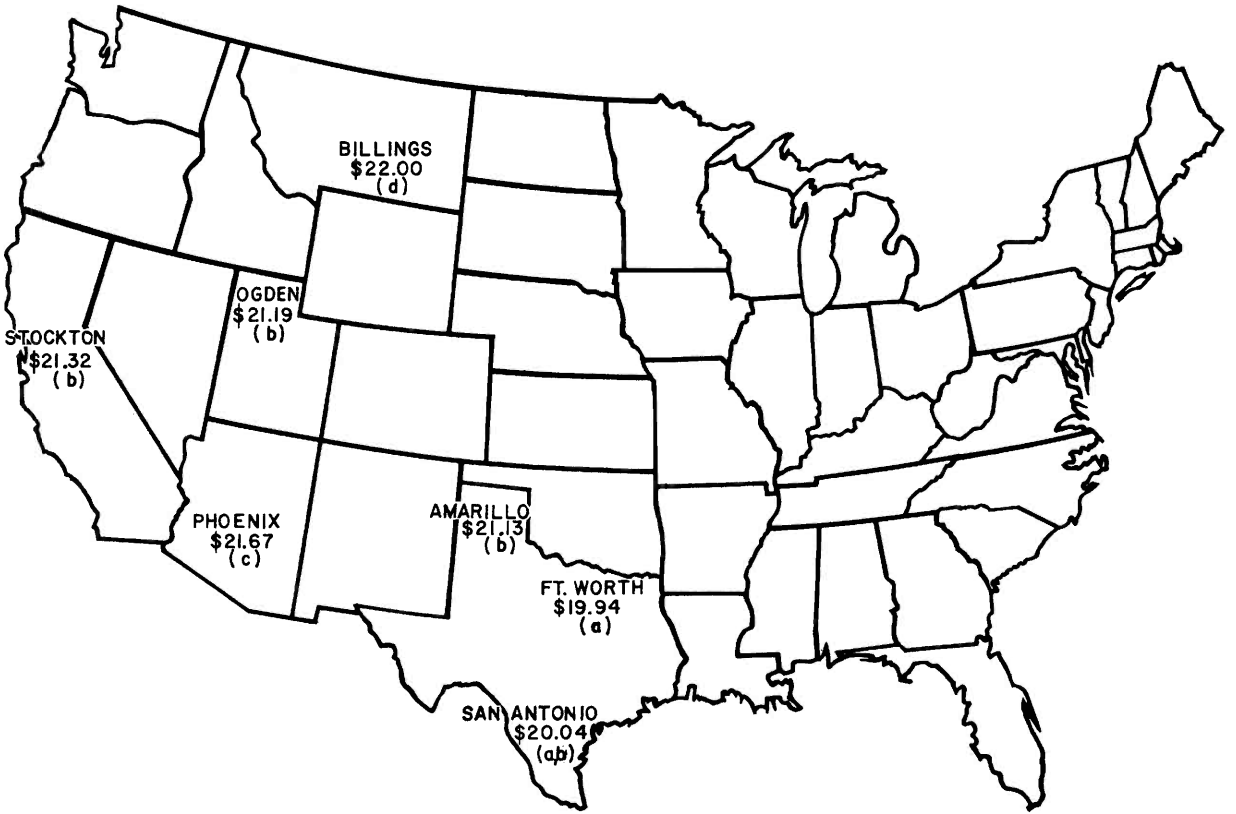

Figure 17. Average Price Received for Medium 250-500 Pound Stocker-Feeder Heifer Calves, 1957-1961, by Markets. (There was no significant difference between markets sharing a common letter.)

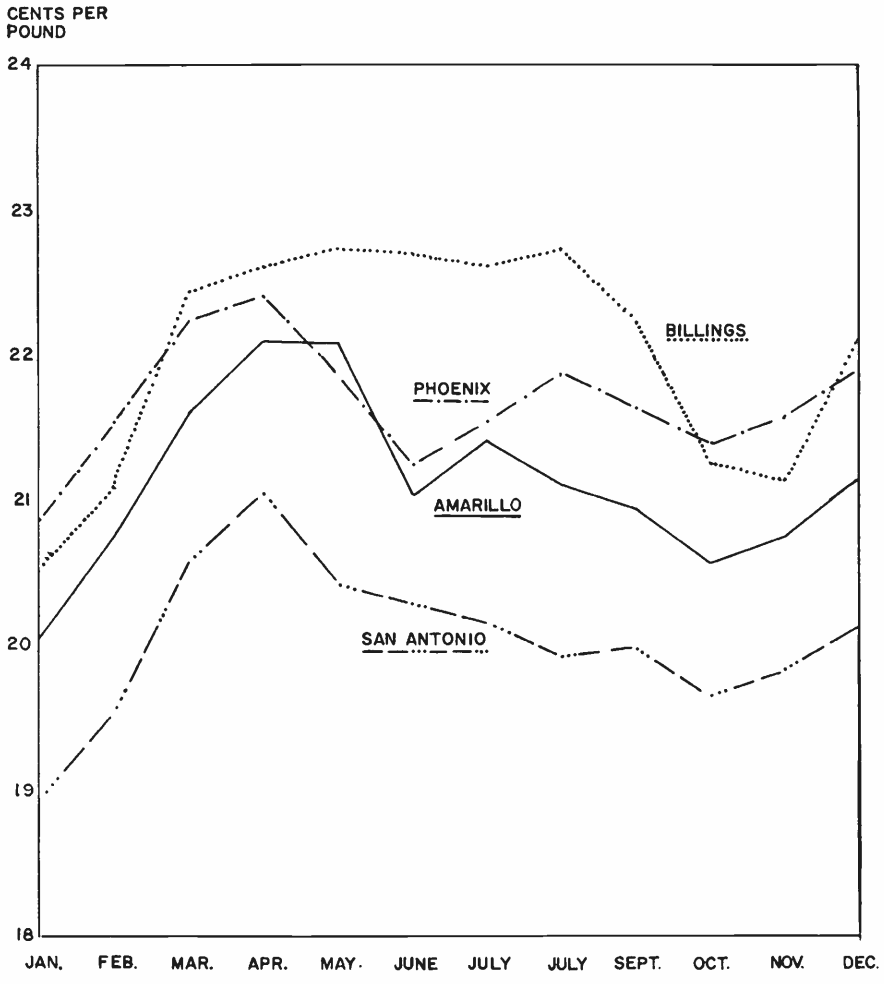

Figure 18. Average Monthly Prices Received at Billings, Phoenix, Amarillo, and San Antonio for Medium 250-500 Pound Stocker-Feeder Heifer Calves, 1957-1961.

all five of the markets.[36] Differences in the seasonal pattern can be explained to some extent by the availability of pasture for grazing these animals. Also, this category of cattle is slaughtered as slaughter calves at San Antonio.

[36] As was the case with the other categories of stocker-feeder cattle, the markets changed relative positions yearly as well as seasonally—see Appendix Table 6.

Good and Choice 250-500 Pound Stocker-Feeder Heifer Calves

There were adequate data to statistically analyze the prices received at nine of the 11 markets. Results of the analysis showed that the prices at the nine markets were significantly different[37] Figure 15 gives the average prices received by markets. Stockton is the lowest, with Phoenix, Fort Worth and San Antonio being second lowest. Ogden and Amarillo, Kansas City and Billings, had the second highest average prices. Again, Omaha was the high market for this category of stocker-feeder cattle. (It should be noted that a significant difference existed between the average prices received at Ogden and Billings, but not between Amarillo, Kansas City and Billings, nor between Amarillo, Kansas City and Ogden.)

The seasonal variation in the average monthly prices received for these categories of stocker-feeder cattle at five of the nine markets is shown in Figure 16.[38] All of the seasonal patterns are somewhat different.[39] The pattern during the winter and spring for Phoenix and Stockton was very similar, but different for other seasons of the year.

Medium 250-500 Pound Stocker-Feeder Heifer Calves

There were adequate data for seven of the 11 markets. Again, the statistical analysis of these data show that the average prices received at these markets were significantly different.[40] Billings had the highest average price—Figure 17. The author attributes this to the demand for thin stocker heifers throughout the growing season. (See Figure 18.) Phoenix had the second highest average price. The Phoenix market shows a preference at the existing price differentials for Good grade slaughter heifers.[41] This category of calves can easily be fed to that grade. The reason for average prices being lowest at Fort Worth and San Antonio was that these marketing areas were the major sources of supply for this category of stocker-feeder cattle for Arizona and California, as well as for the Panhandle of Texas.

The seasonal price pattern (average monthly prices) for Billings, Phoenix, Amarillo and San Antonio is shown in Figure 18.[42] The seasonal pattern was different for each of the four markets.[43] The seasonal high at Phoenix, Amarillo and San Antonio in the spring of the year can be explained by the demand for stocker cattle to be placed on ranges and in feedlots.

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[37] See Appendix Tables 8 and 17 for statistical results.

[38] Appendix Table 26 gives the average monthly prices for all eight markets.

[39] Relative positions of the eight markets shifted during the period studied as well as the seasonal pattern—Appendix Table 8.

[40] Appendix Tables 9 and 18 contain the results of the statistical analysis of prices received for this category of stocker-feeder cattle.

[41] Wright, N. Gene, and Thomas M. Stubblefield, *Direct Sales Versus Terminal Markets for Selling Fat Cattle*, Agricultural Experiment Station Tech. Bul. 152, The University of Arizona, Tucson, 1963, pp. 25-26.

[42] See Appendix Table 27 for the average monthly prices received at each of the seven markets.

[43] The relative positions of the markets changed yearly and monthly during the period of study. The seasonal pattern also shifted—Appendix Table 9.

Appendix

Table 1. Analysis of Variance of the Prices Received at Eight Markets for Choice 500-800 Pound Stocker-Feeder Steers, 1957 through 1961. [a]

Source	*DF*	*SS*	*MS*	*F*
Markets	7	203.46	29.07	145.35*
Years	4	3188.95	797.24	3986.20*
Months	11	134.03	12.18	60.90*
Ma x Y	28	28.08	1.00	5.00*
Ma x Mo	77	25.78	0.33	1.65*
Mo x Y	44	708.05	16.09	80.45*
Ma x Y x Mo	308	61.59	0.20	
Total	479	4351.94		

* Significant at the one percent level.

[a] Markets: Stockton, Ogden, Amarillo, Billings, Ft. Worth, Denver, Kansas City, Omaha.

Table 2. Analysis of Variance of the Prices Received at Eleven Markets for Good 500-800 Pound Stocker-Feeder Steers, 1957 through 1961. [a]

Source	*DF*	*SS*	*MS*	*F*
Markets	10	111.76	11.18	37.3*
Years	4	2975.19	926.44	3088.1*
Months	11	126.57	14.67	48.9*
Ma x Y	40	722.84	1.37	4.6*
Ma x Mo	110	67.75	.33	1.1*
Mo x Y	44	665.64	17.37	57.9*
Ma x Y x Mo	440	296.48	0.30	
Total	659	4966.23		

* Significant at the one percent level.

[a] Markets: Phoenix, Ogden, Ft. Worth, San Antonio, Stockton, Amarillo, Los Angeles, Denver, Billings, Omaha, Kansas City.

Table 3. Analysis of Variance of the Prices Received at Eleven Markets for Medium Grade 500-1,000 Pound Stocker-Feeder Steers 1957-1961 [a]

Source	*DF*	*SS*	*MS*	*F*
Markets	10	62.5300	6.2530	13.27*
Years	4	3035.4800	758.8700	1610.16*
Months	11	120.8400	10.9855	23.31*
Ma x Y	40	83.3200	2.0830	4.42*
Ma x Mo	110	63.2000	0.5745	1.22
Mo x Y	44	721.6800	16.4018	34.80*
Ma x Y x Mo	440	207.3800	0.4713	1.00
Total	659	4294.4300		

* Significant at the one percent level.

[a] Markets: Phoenix, Billings, Ogden, Ft. Worth, Stockton, Denver, Amarillo, Omaha, San Antonio, Kansas City, and Los Angeles.

Table 4. Analysis of Variance of the Prices Received at Eight Markets for Choice 500-750 Pound Stocker-Feeder Heifers, 1957 through 1961. [a]

Source	*DF*	*SS*	*MS*	*F*
Markets	7	172.94	24.71	112.32*
Years	4	3161.72	790.43	3592.86*
Months	11	152.51	13.86	62.99*
Ma x Y	28	39.90	1.43	6.50*
Ma x Mo	77	43.33	0.56	2.55*
Mo x Y	44	704.88	16.02	72.82*
Ma x Y x Mo	308	66.59	0.22	
Total	479	4341.87		

* Significant at the one percent level.

[a] Markets: Stockton, Billings, Amarillo, Ft. Worth, Denver, Ogden, Kansas City, Omaha.

Table 5. Analysis of Variance of the Prices Received at Ten Markets for Good 500-750 Pound Stocker-Feeder Heifers, 1957 through 1961. [a]

Source	*DF*	*SS*	*MS*	*F*
Markets	9	349.69	38.85	14.22*
Years	4	3359.12	839.78	2468.95*
Months	11	129.46	11.77	34.6 *
Ma x Y	36	131.67	3.66	10.76*
Ma x Mo	99	46.15	0.47	1.38*
Mo x Y	44	715.20	16.25	47.76*
Ma x Y Mo	396	133.57	0.34	
Total	599	4864.86		

* Significant at the one percent level.

[a] Markets: Phoenix, Stockton, Billings, Ogden, Omaha, Denver, Amarillo, Ft. Worth, San Antonio.

Table 6. Analysis of Variance of the Prices Received at Ten Markets for Good and Choice 250-500 Pound Stocker-Feeder Steer Calves, 1957 through 1961. [a]

Source	*DF*	*SS*	*MS*	*F*
Markets	9	634.98	70.55	117.54*
Years	4	7136.44	1784.11	2972.33*
Months	11	151.65	13.79	22.97*
Ma x Y	36	81.82	2.27	3.78*
Ma x Mo	99	82.50	0.83	1.38**
Mo x Y	44	1605.24	36.48	60.78*
Ma x Y Mo	396	239.00	0.60	
Total	599	9931.63		

* Significant at the one percent level.

** Significant at the five percent level.

[a] Markets: Los Angeles, Phoenix, Stockton, Ogden, San Antonio, Ft. Worth, Amarillo, Billings, Kansas City, Omaha.

Table 7. Analysis of Variance of the Prices Received at Seven Markets for Medium Grade 250-500 Pound Stocker-Feeder Steer Calves, 1957 through 1961. [a]

Source	*DF*	*SS*	*MS*	*F*
Markets	6	311.17	51.86	115.23*
Years	4	3476.59	869.15	1931.25*
Months	11	81.26	7.39	16.42*
Ma x Y	24	177.97	7.42	16.49*
Ma x Mo	66	37.77	0.57	1.27
Mo x Y	44	810.71	18.43	40.95*
Ma x Y x Mo	264	119.38	0.45	
Total	419	5014.85		

* Significant at the one percent level.

[a] Markets: Ft. Worth, San Antonio, Amarillo, Ogden, Phoenix, Stockton, Billings.

Table 8. Analysis of Variance of the Prices Received at Nine Markets for Good and Choice 250-500 Pound Stocker-Feeder Heifer Calves, 1957 through 1961. [a]

Source	*DF*	*SS*	*MS*	*F*
Markets	8	262.69	32.84	69.88*
Years	4	6463.93	1615.98	3438.81*
Months	11	131.32	11.94	25.41*
Ma x Y	32	106.29	3.32	7.06*
Ma x Mo	88	51.00	0.58	1.23
Mo x Y	44	1410.06	32.05	68.20*
Ma x Y x Mo	352	164.54	0.47	
Total	539	8589.83		

* Significant at the one percent level.

[a] Markets: Stockton, Phoenix, San Antonio, Ft. Worth, Ogden, Kansas City, Amarillo, Billings, Omaha.

Table 9. Analysis of Variance of the Prices Received at Seven Markets for Medium Grade 250-500 Pound Stocker-Feeder Heifer Calves, 1957 through 1961. [a]

Source	*DF*	*SS*	*MS*	*F*
Markets	6	218.15	36.36	82.65*
Years	4	3230.22	807.56	1835.58*
Months	11	84.38	7.67	17.43*
Ma x Y	24	50.58	6.27	14.25*
Ma x Mo	66	30.09	0.46	1.05*
Mo x Y	44	816.17	18.55	42.16*
Mo x Y x Mo	264	116.72	0.44	
Total	419	4646.31		

* Significant at the one percent level.

[a] Markets: Ft. Worth, San Antonio, Ogden, Amarillo, Stockton, Phoenix, Billings.

Table 10. Mean Values for Choice 500-800 Pound Stocker-Feeder Steers, 1957-1961[a]

MARKET

$$\text{Standard error of the mean} = \left(\frac{.20}{60}\right)^{\frac{1}{2}} = (.003333)^{\frac{1}{2}} = .05773$$

Stockton	*Ogden*	*Amarillo*	*Billings*	*Ft. Worth*	*Denver*	*Kansas City*	*Omaha*
25.06	25.35	25.46	25.73	25.76	26.25	26.75	27.04

YEAR

$$\text{Standard error of the mean} = \left(\frac{.20}{96}\right)^{\frac{1}{2}} = (.0020833)^{\frac{1}{2}} = .0456$$

1957	*1961*	*1960*	*1958*	*1959*
21.72	24.97	25.77	28.04	29.11

MONTH

$$\text{Standard error of the mean} = \left(\frac{.20}{40}\right)^{\frac{1}{2}} = (.005)^{\frac{1}{2}} = .0707$$

Jan.	*Oct.*	*Feb.*	*Nov.*	*Sept.*	*Aug.*	*Dec.*	*July*	*Mar.*	*June*	*May*	*Apr.*
25.07	25.31	25.46	25.53	25.63	25.78	26.04	26.13	26.31	26.32	26.69	26.82

[a] There is no significant difference between those items which have a common line.

Table 11. Mean Values for Good 500-800 Pound Stocker-Feeder Steers, 1957-1961 [a]

MARKET

$$\text{Standard error of the mean} = \left(\frac{.30}{60}\right)^{\frac{1}{2}} = (.005)^{\frac{1}{2}} = .071$$

Phoenix	*Ogden*	*Ft. Worth*	*San Antonio*	*Stockton*	*Amarillo*	*Los Angeles*	*Denver*	*Billings*	*Omaha*	*Kansas City*
22.97	23.29	23.38	23.40	23.54	23.62	23.63	24.00	24.08	24.17	24.39

YEAR

$$\text{Standard error of the mean} = \left(\frac{.30}{132}\right)^{\frac{1}{2}} = (.0022727)^{\frac{1}{2}} = .0479$$

1957	*1961*	*1960*	*1958*	*1959*
19.70	23.06	23.54	25.49	26.61

MONTH

$$\text{Standard error of the mean} = \left(\frac{.30}{60}\right)^{\frac{1}{2}} = (.00545)^{\frac{1}{2}} = .074$$

Jan.	*Oct.*	*Feb.*	*Nov.*	*Sept.*	*Aug.*	*Dec.*	*July*	*June*	*Mar.*	*May*	*Apr.*
22.97	22.99	23.26	23.26	23.38	23.62	23.84	23.86	23.96	24.13	24.35	24.53

[a] There is no significant difference between those items which have a common line.

Table 12. Mean Values for Medium 500-1,000 Pound Stocker-Feeder Steers, 1957-1961. [a]

MARKET

$$\text{Standard error of the mean} = \left(\frac{.4713}{60}\right)^{\frac{1}{2}} = (.007855)^{\frac{1}{2}} = .0886$$

Phoenix	*Billings*	*Ogden*	*Ft. Worth*	*Stockton*	*Denver*	*Amarillo*	*Omaha*	*San Antonio*	*Kansas City*	*Los Angeles*
20.41	20.56	20.68	20.74	20.86	21.01	21.04	21.11	21.24	21.27	21.46

YEAR

$$\text{Standard error of the mean} = \left(\frac{.4713}{132}\right)^{\frac{1}{2}} = (.003570)^{\frac{1}{2}} = .0597$$

1957	*1961*	*1960*	*1958*	*1959*
17.35	20.54	20.58	22.72	23.52

MONTH

$$\text{Standard error of the mean} = \left(\frac{.4713}{55}\right)^{\frac{1}{2}} = (.008569)^{\frac{1}{2}} = .0926$$

Jan.	*Oct.*	*Nov.*	*Feb.*	*Sept.*	*Aug.*	*July*	*June*	*Dec.*	*Mar.*	*May*	*Apr.*
20.30	20.37	20.57	20.63	20.69	20.83	21.06	21.10	21.17	21.41	21.46	21.71

[a] There is no significant difference between those items which have a common line.

Table 13. Mean Values for Choice 500-750 Pound Stocker-Feeder Heifers, 1957-1961.[a]

MARKET

$$\text{Standard error of the mean} = \left(\frac{.22}{60}\right)^{\frac{1}{2}} = (.0037)^{\frac{1}{2}} = .0605$$

Stockton	*Billings*	*Amarillo*	*Ft. Worth*	*Denver*	*Ogden*	*Kansas City*	*Omaha*
22.46	23.43	23.47	24.00	24.03	24.06	24.13	24.56

YEAR

$$\text{Standard error of the mean} = \left(\frac{.22}{96}\right)^{\frac{1}{2}} = (.00229)^{\frac{1}{2}} = .0479$$

1957	*1961*	*1960*	*1958*	*1959*
19.49	23.02	23.57	25.94	26.82

MONTH

$$\text{Standard error of the mean} = \left(\frac{.22}{40}\right)^{\frac{1}{2}} = (.005)^{\frac{1}{2}} = .0707$$

Jan.	*Oct.*	*Feb.*	*Nov.*	*Sept.*	*Dec.*	*Aug.*	*Mar.*	*July*	*June*	*Apr.*	*May*
22.74	23.16	23.19	23.26	23.61	23.78	23.82	24.05	24.17	24.33	24.52	24.58

[a] There is no significant difference between those items which have a common line.

Table 14. Mean Values for Good 500-750 Pound Stocker-Feeder Heifers, 1957-1961. [a]

MARKET

$$\text{Standard error of the mean} = \left(\frac{.34}{66}\right)^{\frac{1}{2}} = (.00515151)^{\frac{1}{2}} = .0718$$

Phoenix	*Stockton*	*Billings*	*Ogden*	*Kansas City*	*Omaha*	*Denver*	*Amarillo*	*Ft. Worth*	*San Antonio*
19.91	19.93	20.13	20.63	20.96	21.00	21.27	21.66	21.71	22.27

YEAR

$$\text{Standard error of the mean} = \left(\frac{.34}{120}\right)^{\frac{1}{2}} = (.0028333)^{\frac{1}{2}} = .0532$$

1957	*1961*	*1960*	*1958*	*1959*
17.08	20.25	20.59	23.05	23.78

MONTH

$$\text{Standard error of the mean} = \left(\frac{.34}{50}\right)^{\frac{1}{2}} = (.006800)^{\frac{1}{2}} = .0824$$

Jan.	*Oct.*	*Feb.*	*Nov.*	*Sept.*	*Aug.*	*Dec.*	*July*	*June*	*Mar.*	*May*	*Apr.*
20.11	20.43	20.49	20.55	20.80	20.93	21.03	21.23	21.28	21.30	21.57	21.66

[a] There is no significant difference between those items which have a common line.

Table 15. Mean Values for Good and Choice 250-500 Pound Stocker-Feeder Steer Calves, 1957-1961.[a]

MARKET

$$\text{Standard error of the mean} = \left(\frac{.60}{60}\right)^{\frac{1}{2}} = (.010000)^{\frac{1}{2}} = .100$$

Los Angeles	*Phoenix*	*Stockton*	*Ogden*	*San Antonio*	*Ft. Worth*	*Amarillo*	*Billings*	*Kansas City*	*Omaha*
26.28	26.56	26.58	27.04	27.10	27.18	28.06	28.66	28.67	29.47

YEAR

$$\text{Standard error of the mean} = \left(\frac{.60}{120}\right)^{\frac{1}{2}} = (.005000)^{\frac{1}{2}} = .0707$$

1957	*1961*	*1960*	*1958*	*1959*
21.85	26.85	26.99	30.20	31.92

MONTH

$$\text{Standard error of the mean} = \left(\frac{.60}{50}\right)^{\frac{1}{2}} = (.012000)^{\frac{1}{2}} = .1060$$

Jan.	*Feb.*	*Oct.*	*Sept.*	*Aug.*	*Nov.*	*July*	*Dec.*	*June*	*Mar.*	*May*	*Apr.*
26.43	27.00	27.31	27.40	27.42	27.45	27.65	27.73	27.82	27.95	28.27	28.31

[a] There is no significant difference between those items which have a common line.

Table 16. Mean Values for Medium 250-500 Pound Stocker-Feeder Steer Calves, 1957-1961. [a]

MARKET

$$\text{Standard error of the mean} = \left(\frac{.45}{60}\right)^{\frac{1}{2}} = (.007500)^{\frac{1}{2}} = .0866$$

Ft. Worth	*San Antonio*	*Amarillo*	*Ogden*	*Phoenix*	*Stockton*	*Billings*
21.36	21.47	22.65	22.72	23.32	23.40	23.71

YEAR

$$\text{Standard error of the mean} = \left(\frac{.45}{84}\right)^{\frac{1}{2}} = (.0053571)^{\frac{1}{2}} = .0732$$

1957	*1961*	*1960*	*1958*	*1959*
18.04	21.96	22.06	24.72	26.53

MONTH

$$\text{Standard error of the mean} = \left(\frac{.45}{35}\right)^{\frac{1}{2}} = (.0128571)^{\frac{1}{2}} = .1134$$

Jan.	*Oct.*	*Nov.*	*Feb.*	*Sept.*	*Aug.*	*July*	*June*	*Dec.*	*Mar.*	*May*	*Apr.*
21.76	22.29	22.35	22.41	22.52	22.60	22.69	22.72	22.80	23.16	23.19	23.46

[a] There is no significant difference between those items which have a common line.

Table 17. Mean Values for Good and Choice 250-500 Pound Stocker-Feeder Heifer Calves, 1957-1961. [a]

MARKET

$$\text{Standard error of the mean} = \left(\frac{.47}{60}\right)^{\frac{1}{2}} = (.0078340)^{\frac{1}{2}} = .0885$$

Stockton	*Phoenix*	*San Antonio*	*Ft. Worth*	*Ogden*	*Kansas City*	*Amarillo*	*Billings*	*Omaha*
24.08	24.57	24.59	24.71	25.37	25.50	25.57	25.79	26.43

YEAR

$$\text{Standard error of the mean} = \left(\frac{.47}{108}\right)^{\frac{1}{2}} = (.004351851)^{\frac{1}{2}} = .0659$$

1957	*1961*	*1960*	*1958*	*1959*
19.55	24.25	24.58	27.91	29.59

MONTH

$$\text{Standard error of the mean} = \left(\frac{.47}{45}\right)^{\frac{1}{2}} = (.0104444)^{\frac{1}{2}} = .1022$$

Jan.	*Feb.*	*Oct.*	*Nov.*	*Aug.*	*Sept.*	*Dec.*	*July*	*June*	*Mar.*	*May*	*Apr.*
24.03	24.69	24.87	24.89	25.09	25.16	25.30	25.36	25.52	25.54	25.77	25.91

[a] There is no significant difference between those items which have a common line.

Table 18. Mean Values for Medium 250-500 Pound Stocker-Feeder Heifer Calves, 1957-1961. [a]

MARKET

$$\text{Standard error of the mean} = \left(\frac{.44}{60}\right)^{\frac{1}{2}} = (.0073333)^{\frac{1}{2}} = .08563$$

Ft. Worth	*San Antonio*	*Ogden*	*Amarillo*	*Stockton*	*Phoenix*	*Billings*
19.94	20.04	21.10	21.13	21.32	21.67	22.00

YEAR

$$\text{Standard error of the mean} = \left(\frac{.44}{84}\right)^{\frac{1}{2}} = (.00523810)^{\frac{1}{2}} = .0724$$

1957	*1961*	*1960*	*1958*	*1959*
16.63	20.21	20.47	23.08	24.76

MONTH

$$\text{Standard error of the mean} = \left(\frac{.44}{35}\right)^{\frac{1}{2}} = (.01257143)^{\frac{1}{2}} = .1121$$

Jan.	*Feb.*	*Oct.*	*Nov.*	*Sept.*	*Aug.*	*June*	*July*	*Dec.*	*May*	*Mar.*	*Apr.*
20.03	20.66	20.72	20.77	20.90	21.03	21.08	21.16	21.20	21.49	21.51	21.81

[a] There is no significant difference between those items which have a common line.

Table 19. Monthly average prices received at selected markets for Choice 500-800 pound stocker-feeder steers, 1957-1961.

Market	*Jan.*	*Feb.*	*Mar.*	*April*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
Amarillo	$24.68	$24.95	$25.84	$26.50	$26.03	$25.54	$25.78	$25.61	$25.31	$24.41	$25.01	$25.82
Billings	25.09	25.30	26.38	26.57	26.58	26.25	25.75	25.25	25.16	24.96	25.39	26.09
Denver	25.29	25.40	26.48	27.13	26.88	26.71	26.57	26.09	26.04	25.75	26.00	26.62
Ft. Worth	25.12	25.63	26.31	26.85	26.44	25.95	25.94	25.43	25.22	25.07	25.28	25.92
Kansas City	25.53	26.17	27.30	28.05	28.02	27.06	26.98	26.84	26.44	26.09	26.18	26.35
Ogden	24.66	24.89	25.19	25.91	25.96	26.10	25.59	25.17	25.13	24.92	25.13	25.51
Omaha	25.70	26.20	27.11	27.63	27.98	27.75	27.40	27.12	27.13	26.79	26.76	26.88
Stockton	24.47	25.12	25.86	25.95	25.65	25.18	25.06	24.69	24.63	24.48	24.48	25.13

Table 20. Monthly average prices received at selected markets for Good 500-800 pound stocker-feeder steers, 1957-1961.

Market	*Jan.*	*Feb.*	*Mar.*	*April*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
Amarillo	$22.81	$23.05	$24.10	$24.54	$24.48	$23.80	$23.79	$23.80	$23.41	$22.34	$23.29	$23.96
Billings	23.28	23.63	24.74	24.98	24.97	24.79	24.37	23.96	23.77	23.20	23.13	24.19
Denver	23.21	23.30	24.30	24.87	24.64	24.33	24.16	23.82	23.82	23.38	23.90	24.30
Ft. Worth	22.87	23.34	24.09	24.78	23.99	23.63	23.46	22.95	22.53	22.50	22.86	23.57
Kansas City	23.38	23.76	24.77	25.37	25.50	24.77	24.67	24.31	24.06	23.76	24.00	24.32
Los Angeles	23.07	23.38	24.25	24.78	24.69	23.57	23.40	23.32	23.21	22.90	23.13	23.84
Ogden	22.63	22.70	23.18	23.69	23.86	23.94	23.64	23.37	23.24	22.85	22.97	23.38
Omaha	23.35	23.35	24.13	24.61	24.77	24.70	24.61	24.35	24.19	23.70	23.93	24.38
Phoenix	22.38	22.79	23.81	23.94	23.38	23.17	23.36	23.14	22.32	22.16	22.29	22.88
San Antonio	22.68	23.15	23.89	23.96	23.57	23.48	23.65	23.39	23.35	23.00	23.10	23.61
Stockton	22.97	23.39	24.23	24.30	23.97	23.37	23.38	23.35	23.33	23.14	23.25	23.80

Table 21. Monthly average prices received at selected markets for Medium 500-1,000 pound stocker-feeder steers, 1957-1961.

Market	*Jan.*	*Feb.*	*Mar.*	*April*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
Amarillo	$20.32	$20.67	$21.68	$22.18	$21.90	$21.01	$21.04	$21.07	$20.76	$19.96	$20.65	$21.25
Billings	19.88	19.96	20.76	21.02	21.11	20.95	20.77	20.61	20.36	19.65	20.41	21.26
Denver	20.57	20.51	21.26	21.72	21.49	21.28	21.13	20.68	20.56	20.47	21.00	21.50
Ft. Worth	20.30	21.06	21.74	21.92	21.06	20.72	20.69	20.35	20.04	20.34	19.52	21.09
Kansas City	20.31	20.32	21.59	22.00	22.23	21.57	21.59	21.30	21.25	20.77	21.03	21.25
Los Angeles	20.95	21.34	22.30	22.70	22.26	21.51	21.36	20.88	21.04	20.76	20.67	21.69
Ogden	20.04	20.08	20.53	20.94	21.15	21.10	21.02	20.72	20.77	20.51	20.53	20.82
Omaha	20.24	20.24	20.74	21.32	21.55	21.54	21.52	21.34	21.30	20.91	21.15	21.43
Phoenix	19.77	20.40	21.43	21.22	20.70	20.66	20.77	20.62	19.90	19.41	19.83	20.21
San Antonio	20.51	21.00	21.69	21.85	21.29	21.07	21.43	21.35	21.27	21.05	21.03	21.31
Stockton	20.44	21.30	21.75	21.94	21.36	20.66	20.37	20.18	20.37	20.43	20.45	21.02

Table 22. Monthly average prices received at selected markets for Choice 500-750 pound stocker-feeder heifers, 1957-1961.

Market	*Jan.*	*Feb.*	*Mar.*	*April*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
Amarillo	$22.91	$23.43	$24.14	$24.41	$24.10	$23.52	$23.94	$23.62	$23.22	$22.18	$22.64	$23.57
Billings	22.27	22.80	23.84	24.10	24.41	24.15	23.88	23.72	23.23	22.67	22.60	23.45
Denver	22.72	22.97	24.03	24.91	25.00	25.04	24.85	24.11	23.79	23.37	23.48	24.09
Ft. Worth	23.23	23.70	24.38	24.88	24.51	24.48	24.11	23.59	23.47	23.51	23.69	24.44
Kansas City	22.66	23.39	24.29	25.06	25.52	24.74	24.70	24.43	24.22	23.54	23.55	23.50
Ogden	23.34	23.58	23.84	24.37	24.68	24.85	24.38	24.05	23.92	23.67	23.81	24.26
Omaha	23.29	23.52	24.27	24.90	25.27	25.19	25.05	24.95	24.97	24.49	24.32	24.47
Stockton	21.49	22.16	23.61	23.53	23.14	22.67	22.45	22.07	22.10	21.86	21.99	22.42

Table 23. Monthly average prices received at selected markets for Good 500-750 pound stocker-feeder heifers, 1957-1961.

Market	*Jan.*	*Feb.*	*Mar.*	*April*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
Amarillo	$20.94	$21.20	$22.08	$22.48	$22.34	$21.80	$22.20	$21.77	$21.52	$20.80	$20.96	$21.81
Billings	19.33	19.51	20.34	20.65	20.89	20.69	20.47	20.23	19.96	19.50	19.55	20.46
Denver	20.47	20.68	21.47	21.92	21.83	21.96	21.81	21.17	20.99	20.63	20.90	21.38
Ft. Worth	20.88	21.66	22.42	22.74	22.07	21.90	21.88	21.43	21.26	21.29	21.15	21.88
Kansas City	19.70	20.13	21.19	21.83	22.18	21.35	21.37	21.17	20.98	20.27	20.53	20.83
Ogden	19.79	19.76	20.16	20.78	21.35	21.50	21.18	20.89	20.73	20.31	20.41	20.69
Omaha	19.87	20.10	20.86	21.24	21.45	21.33	21.29	21.47	21.44	20.99	20.93	21.06
Phoenix	19.42	20.03	20.95	21.01	20.46	19.95	19.96	19.59	19.19	19.00	19.48	19.91
San Antonio	21.49	21.90	22.73	22.98	22.63	22.27	22.31	22.07	22.36	22.04	22.10	22.41
Stockton	19.21	19.88	20.84	20.95	20.54	20.09	19.85	19.50	19.55	19.48	19.44	19.83

Table 24. Monthly average prices received at selected markets for Good and Choice 250-500 pound stocker-feeder steer calves, 1957-1961.

Market	*Jan.*	*Feb.*	*Mar.*	*April*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
Amarillo	$26.69	$27.40	$28.72	$29.31	$29.14	$28.40	$28.18	$27.74	$27.66	$27.58	$27.98	$27.97
Billings	27.90	28.07	29.11	29.34	29.33	29.09	28.51	28.51	28.43	28.09	28.27	29.30
Ft. Worth	25.76	26.45	27.30	28.26	28.24	27.72	27.74	27.36	27.09	26.63	26.59	26.99
Kansas City	27.13	27.91	28.86	29.44	29.84	28.99	28.69	28.47	28.67	28.58	29.03	28.44
Los Angeles	24.96	24.72	25.75	27.32	27.37	26.85	26.47	26.64	26.11	26.39	26.14	26.67
Ogden	26.49	26.83	27.23	27.40	27.46	26.96	27.19	26.77	26.73	26.86	27.14	27.46
Omaha	28.72	28.82	29.30	29.61	29.92	29.79	29.32	28.92	29.44	29.91	30.00	29.93
Phoenix	25.47	26.60	27.47	27.10	26.68	26.36	26.70	27.03	26.36	25.96	26.27	26.68
San Antonio	25.13	26.41	27.77	27.78	28.02	27.82	27.56	26.94	27.41	26.91	26.77	26.70
Stockton	26.01	26.80	27.94	27.57	26.67	26.18	26.21	25.79	26.08	26.22	26.31	27.16

Table 25. Monthly average prices received at selected markets for medium 250-500 pound stocker-feeder steer calves, 1957-1961.

Market	*Jan.*	*Feb.*	*Mar.*	*April*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
Amarillo	$21.09	$22.14	$23.00	$23.62	$23.83	$22.66	$22.92	$22.71	$22.75	$22.26	$22.42	$22.39
Billings	22.73	22.88	24.17	24.09	24.44	24.46	24.10	24.18	23.67	22.82	22.97	24.02
Ft. Worth	20.77	21.59	22.20	22.55	21.79	20.99	21.01	20.87	20.67	20.89	21.16	21.85
Ogden	22.19	22.53	22.78	23.07	23.14	23.06	22.94	22.71	22.55	22.54	22.54	22.64
Phoenix	22.60	23.49	23.82	24.29	23.62	23.02	23.25	23.52	23.13	22.73	22.88	23.45
San Antonio	20.25	21.03	21.93	22.19	22.00	21.56	21.42	21.45	21.79	21.38	21.21	21.44
Stockton	22.70	23.21	24.22	24.37	23.54	23.29	23.17	22.78	23.07	23.38	23.25	23.79

Table 26. Monthly average prices received at selected markets for Good and Choice 250-500 pound stocker-feeder heifer calves, 1957-1961.

Market	*Jan.*	*Feb.*	*Mar.*	*April*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
Amarillo	$24.32	$25.17	$26.22	$26.68	$26.40	$25.51	$25.86	$25.33	$25.74	$25.08	$25.21	$25.36
Billings	24.76	25.26	26.33	26.27	26.06	26.06	26.01	26.05	26.01	25.29	25.14	26.27
Ft. Worth	23.47	24.29	24.93	25.65	25.44	25.16	25.03	24.62	24.44	24.27	24.29	24.90
Kansas City	24.07	24.80	25.75	26.38	26.68	25.91	25.60	25.53	25.70	25.19	25.06	25.28
Ogden	24.41	24.84	25.39	25.75	26.08	26.11	25.64	25.27	25.15	25.04	25.24	25.57
Omaha	25.25	25.51	26.06	26.37	26.74	26.89	26.58	26.39	26.72	27.19	26.70	26.71
Phoenix	23.58	24.42	25.05	25.36	24.64	24.30	24.70	24.81	24.67	24.08	24.51	24.78
San Antonio	23.00	23.77	25.03	25.45	25.20	25.70	24.97	24.52	24.45	24.08	24.30	24.60
Stockton	23.41	24.19	25.13	25.29	24.68	24.07	23.81	23.32	23.58	23.61	23.61	24.20

Table 27. Monthly average prices received at selected markets for Medium 250-500 pound stocker-feeder heifer calves, 1957-1961.

Market	*Jan.*	*Feb.*	*Mar.*	*April*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
Amarillo	$20.06	$20.76	$21.60	$22.10	$22.08	$21.02	$21.41	$21.11	$20.94	$20.57	$20.75	$21.14
Billings	20.47	21.07	22.43	22.60	22.72	22.70	22.61	22.72	22.23	21.27	21.13	22.11
Ft. Worth	19.03	19.90	20.61	21.04	20.28	19.71	19.89	19.63	19.43	19.56	19.74	20.44
Ogden	20.61	20.84	21.17	21.28	21.36	21.33	21.21	20.94	20.98	21.06	21.07	21.41
Phoenix	20.86	21.53	22.24	22.41	21.88	21.25	21.54	21.88	21.64	21.39	21.57	21.88
San Antonio	18.95	19.56	20.57	21.06	20.42	20.28	20.15	19.92	19.97	19.65	19.82	20.11
Stockton	20.25	20.93	21.95	22.17	21.69	21.27	21.30	21.02	21.08	21.55	21.33	21.33


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