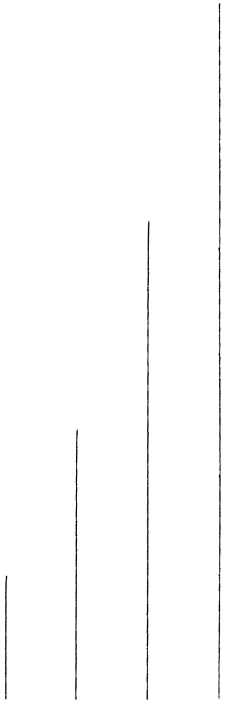
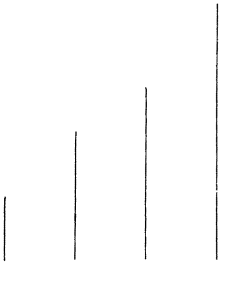
Seasonal Price Patterns and Class-Grade Differentials for Spring and Fed Lambs —Sheep and Wool Prices



by

Daniel D. Badger

James S. Plaxico



Bulletin B-517

November 1958

Foreword

A knowledge and understanding of seasonal movements in spring and fed lamb prices is important in production planning and in making marketing decisions.

This bulletin provides information on seasonal price patterns and class-grade differentials by seasons for both spring and fed lambs.

Lamb feeders usually have some choice in the condition and type of feeder lambs they buy and also in the methods and length of time used in fattening the lambs for the slaughter market. Ewe flock operators also have some choice in the time and finishing of lambs.

The price information presented in this bulletin will aid producers in planning the time of purchase and sale of various grades and classes of sheep to build a more profitable sheep industry in Oklahoma.

Seasonal Price Patterns and Class-Grade Differentials for Spring and Fed Lambs —Sheep and Wool Prices

Daniel D. Badger and James S. Plaxico
Department of Agricultural Economics

The purpose of this bulletin is to provide price information which will aid persons concerned with sheep enterprises in evaluating alternative systems of producing and marketing lambs and wool.

The specific objectives are to:

1. Present estimates of the seasonal pattern of price variation in fed lamb and spring lamb prices.
2. Provide information relative to grade and class price differentials by seasons.
3. Indicate past price trends for feeder lambs, western yearling ewes and wool.

As used in this bulletin, the terms spring lamb and lamb are defined as follows:

SPRING LAMB is the market term for a milk-fed lamb or a lamb which is sold directly off the ewe. However, it may have been fed grain and hay in a creep-feeding program. Most spring lambs in the U. S. are marketed during the period from March to October. However, on the Oklahoma City and Wichita markets the peak marketing period normally occurs during May and the first two weeks of June. Spring lambs usually range from 5 to 7 months in age and weigh from 80 to 100 pounds.

FED LAMB designates a dry-lot fed lamb or a lamb grazed on small grain or other pastures. A fed lamb is usually older than a spring lamb, and has been separated from the ewe for an extended period prior to being marketed. Fed lambs usually range from 7 to 15 months in age and weigh from 90 to 120 pounds. This term is used synonymously with "slaughter lambs".

Seasonal Price Patterns

Movements of prices within one year or one marketing season are called seasonal price variations. Prices of lambs, and many other farm products, as well, follow a fairly regular seasonal pattern because of the seasonal nature of production, and to a lesser extent because of seasonal variations in demand. The usual seasonal pattern, together with current information as to size of crop, price trends, and cyclical movements, are valuable aids in making decisions as to timing of sale for greatest net farm income.

How Patterns Were Determined

Price data from the Oklahoma City and Wichita livestock markets were obtained from the Livestock Division, AMS, USDA. These are the markets used by many Oklahoma farmers and are representative of the prices received by farmers for spring lambs and fed lambs. Analysis indicated that price movements are similar for the Wichita and Oklahoma City markets.[1] Since there appeared to be no significant difference in price patterns between the two markets, analysis of the Oklahoma City market is considered to be sufficient.

Data for the ten-year period 1947-48 through 1956-57 were used in the analysis. The March-October marketing season was used for spring lambs. The October-April marketing year was used for fed lambs, since there is a break in the marketing of fed lambs over the summer months. This ten-year period appears to give an adequate representation of past fed lamb and spring lamb marketings. It includes years of high prices, low prices, and moderate prices, and is long enough to establish a seasonal trend. Because of insufficient marketing volume for the Choice & Prime fed lamb grade during the 1956-57 season, only prices for the nine-year period 1947-48 through 1955-56 were available for this grade.

The monthly average prices were derived from weekly quotations from the *Market News,* published by the Livestock Division, AMS, USDA, Oklahoma City, Oklahoma. The seasonal indexes were computed using a moving average method for discontinuous series[2] of data (prices are not quoted during several months of the year). In this method, the season average prices were used as the denominator of the ratios. Thus, the index obtained for each month for prices received by farmers for their products represents the relative standing of that month as compared to the average price index of 100 for all months in that season. Finally, for each month's data the arithmetic mean of the ratios for all years in the analysis was computed. This mean is the final seasonal price index for that month.

Seasonal Price Variation

Fed lamb and spring lamb prices usually reach a seasonal price peak during the spring months because of the greater demand, particularly during the Easter season, and because of the smaller quantity marketed in the United States as a whole during this period. During the fall months, demand is weaker and the volume of lambs placed on the market is greater. This results in a seasonal low in price for both fed lambs and spring lambs.

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[1] For the ten-year period 1947-56 for spring lambs, and the 1947-48 to 1956-57 marketing season for fed lambs, the correlation coefficients were as follows: Choice & Prime Spring Lambs, .99; Good & Choice Spring Lambs, .98; Choice & Prime Fed Lambs, .97; and, Good & Choice Fed Lambs, .99.

[2] Karl A. Fox and R. J. Foote. *Seasonal Variation: Methods of Measurement and Tests of Significance,* Agriculture Handbook Number 48, USDA, BAE, Washington 25, D. C.

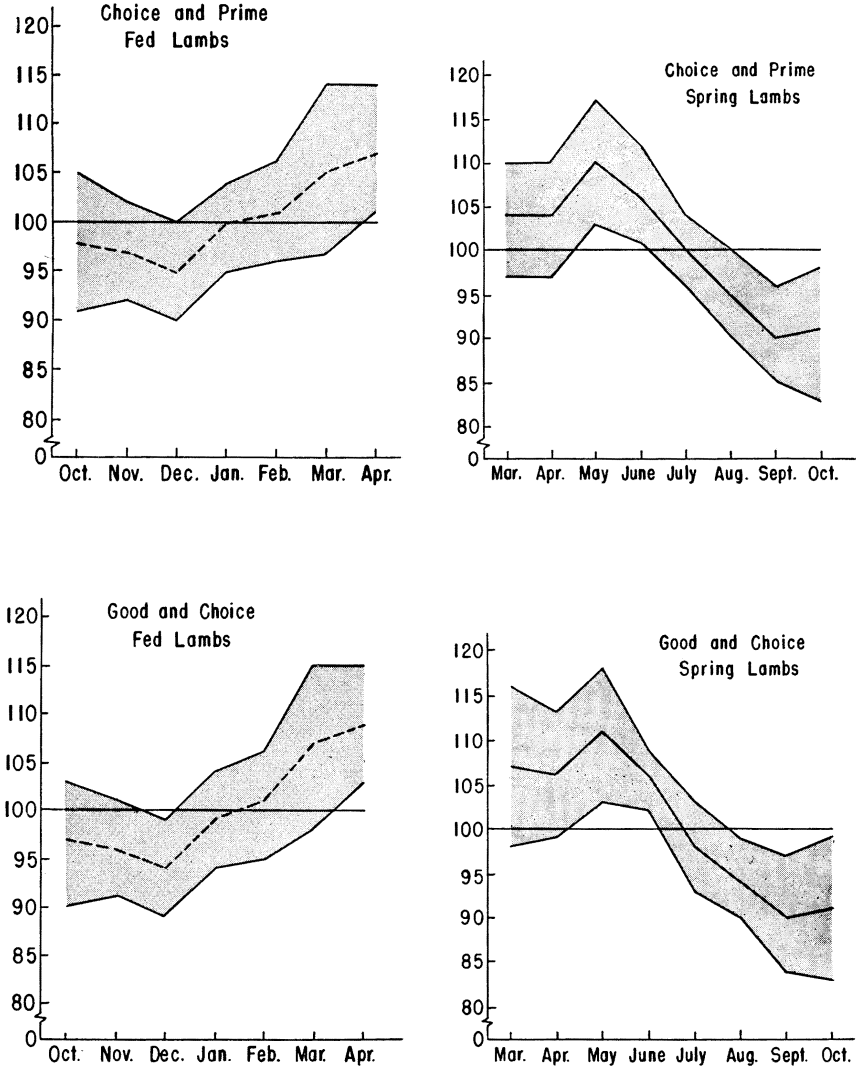

Figure 1. Seasonal Price Indexes for Spring and fed lambs Oklahoma City Market, 1947-1956. The shaded area represents the one standard deviation range for the index from the normal indexes and includes approximately two-thirds of the price deviations from the normal seasonal indes. The beginning, ending and high months of the marketing season tends to show greater variations in prices, as indicated by the larger shaded areas for these months. There is a significant seasonal movement associated with each of the above grades. The patterns of movement is similar for the grades in the same class, although there is slightly more variation in the lower (Good & Choice) grade of each class.

Figure 1 and Appendix Tables 1 and 2 indicate the seasonal variation for the Choice & Prime grades and for the Good & Choice grades of both spring lambs and fed lambs on the Oklahoma City market.[3] There is a significant seasonal movement within seasons for each of the four grades. There appears to be no significant difference between the grades of a class as far as the seasonal pattern is concerned.

Fed lamb prices reach a seasonal peak in April and fall to a seasonal low in December. The fluctuation in price between the high and low months is 12 percent of the annual average for the Choice & Prime grade and 15 percent of the annual average for the Good & Choice grade. The pattern of movement is similar for the two grades, although the lower grade exhibits a slightly greater degree of seasonal variation. Spring lamb prices reach a seasonal high in May and a low in September. The range in price between the high and low months is 20 percent of the annual average for the Choice & Prime grade and 21 percent of the annual average for the Good & Choice grade.

Price Differentials Between Grades and Classes

Fed Lambs and Spring Lambs

The relative price of the various grades and classes is an important factor determining the profitability of a given class and grade. Therefore the relative monthly price differentials of various classes and grades were estimated (Figure 2). The annual average price of Choice & Prime spring lambs is used as the base and the other three grades are expressed as percentages of this base. It should be emphasized that the price differentials shown in Figure 2 are typical or normal relationships for the ten-year period, and that the relationships between these grades and classes for any given year may deviate somewhat from normal. There is a significant price spread between the grades of a particular class, although the seasonal pattern is similar for both grades.

The Good & Choice grade of fed lambs is normally 7 to 9 percent below the Choice & Prime fed lamb grade. The Good & Choice grade of spring lambs varies from 5 to 9 percent below the Choice & Prime spring lamb grade.

As indicated in Figure 2, there is more variation in spring lamb prices than in fed lamb prices. Both grades of the fed lamb class vary only 12 points while the Good & Choice grade of spring lambs varies 19 points and the Choice & Prime grades of spring lambs varies 20 points.

Fed Lambs and Feeder Lambs

Seasonal indexes were computed for prices of good quality feeder lambs on the Denver, Colorado, market for the period 1940-41 through

[3] There have been no significant changes in the pattern of seasonal movements over time in the price indexes for these grades and classes of lambs. See Appendix Table 12 for regression equations and t values.

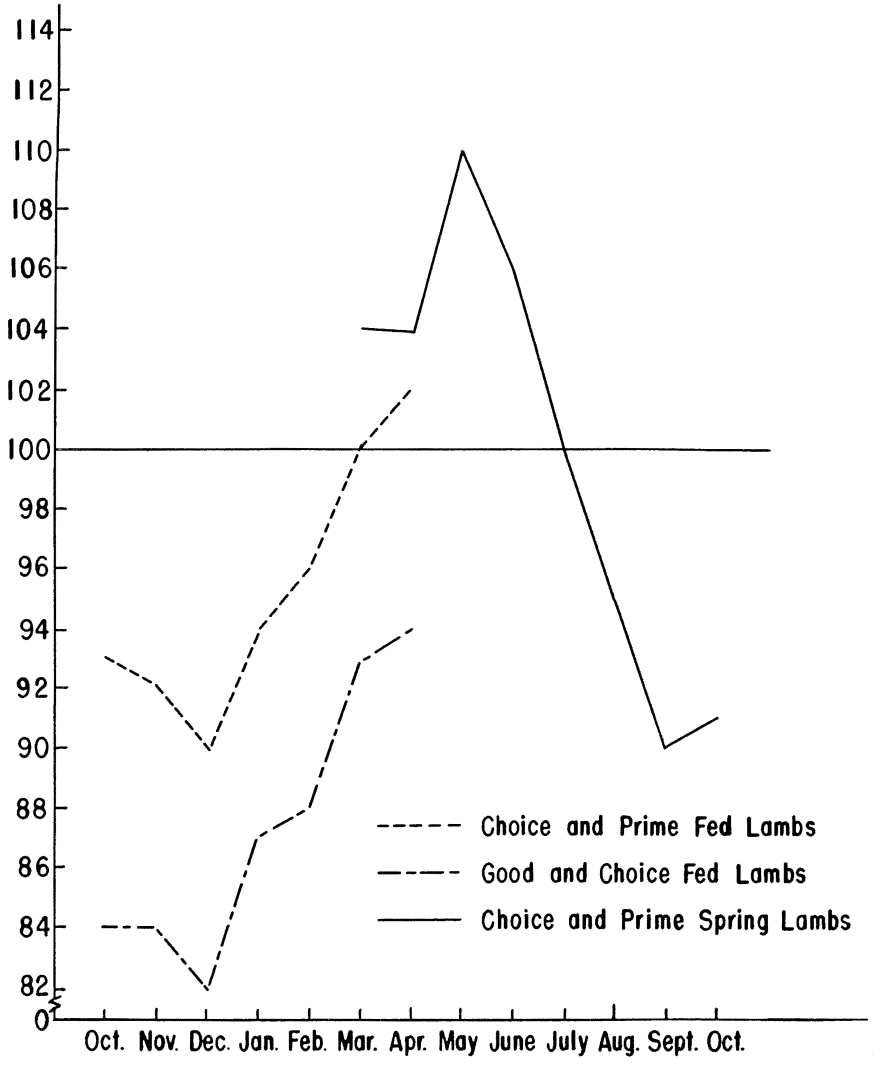

Figure 2. Seasonal Variation by class and grade with Choice & Prime Spring Lambs as the base grade and the other two grades expressed as a percentage of the annual average price of Choice & Prime Spring lambs. There is more variation in Spring Lamb prices than in fed lamb prices.

1957-58, and a similar index for the same marketing seasons was constructed for the Choice & Prime grade of fed lambs on the Oklahoma City market.[4] These are compared in Figure 3.[5] Comparison of the seasonal movements in these two classes of sheep is an aid in determining the usual best time to buy feeder lambs and sell fed lambs to obtain the widest favorable price margin.

Feeder lamb prices vary from a low in July (the first month feeder lamb prices are quoted) to a seasonal high in March. The usual December price decline corresponds to the decrease in fed lamb prices during this month. Feeder lambs tend to move into feedlots or onto pastures at heavier weights as the feeding season progresses. By April, demand for feeder lambs diminishes and the heavier feeder lambs usually sell for lower prices than in the preceding months. Also, spring lambs begin to move to market in large volume in April, which has a competitive effect on prices of both fed lambs and feeder lambs.

Feeder lambs are usually held on the farm 90 to 120 days, as reported by feeder lamb operators surveyed during the summer of 1957. Thus, feeder lambs purchased in November would probably go back to market as fed lambs in February or March. Obviously, the heavier the feeder lamb when purchased, the shorter will be the fattening period (unless a deferred feeding system is practical). Figure 3 represents only the typical or normal year operation, and thus provides only a guide in determining the seasonal movements and spread in prices between these two classes.

Appendix Table 8 presents estimated prices of feeder lambs on the Oklahoma City market for the period 1947-48 through 1957-58. The 1948-49 through 1957-58 simple average price was $19.19 per hundredweight. This average excludes prices for the first year, since price quotations on feeder lambs were limited to two months in that year.

It would appear that the Oklahoma City price quotations for feeder lambs would be higher than the Denver, Colorado price, because of transportation and commission costs. However, the reverse was true during this period; the difference in the two average prices being $3.29 per hundredweight less for the Oklahoma City market. An explanation could be as follows: Prices quoted on the Oklahoma City market include quotations on native feeder lambs which are handled through this market. Native feeders usually are in small bunches and do not sell as high as the large, uniform bands of feeder lambs originating in the western states. Also, many feeder lambs coming into Oklahoma from the San Angelo,

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[4] The 1956-57 marketing season was not included because volume of marketings of Choice & Prime fed lambs on the Oklahoma City market was not sufficient to quote prices for this grade.

[5] The long time seasonal average price of feeder lambs was expressed as a percentage of the Choice & Prime fed lamb grade.

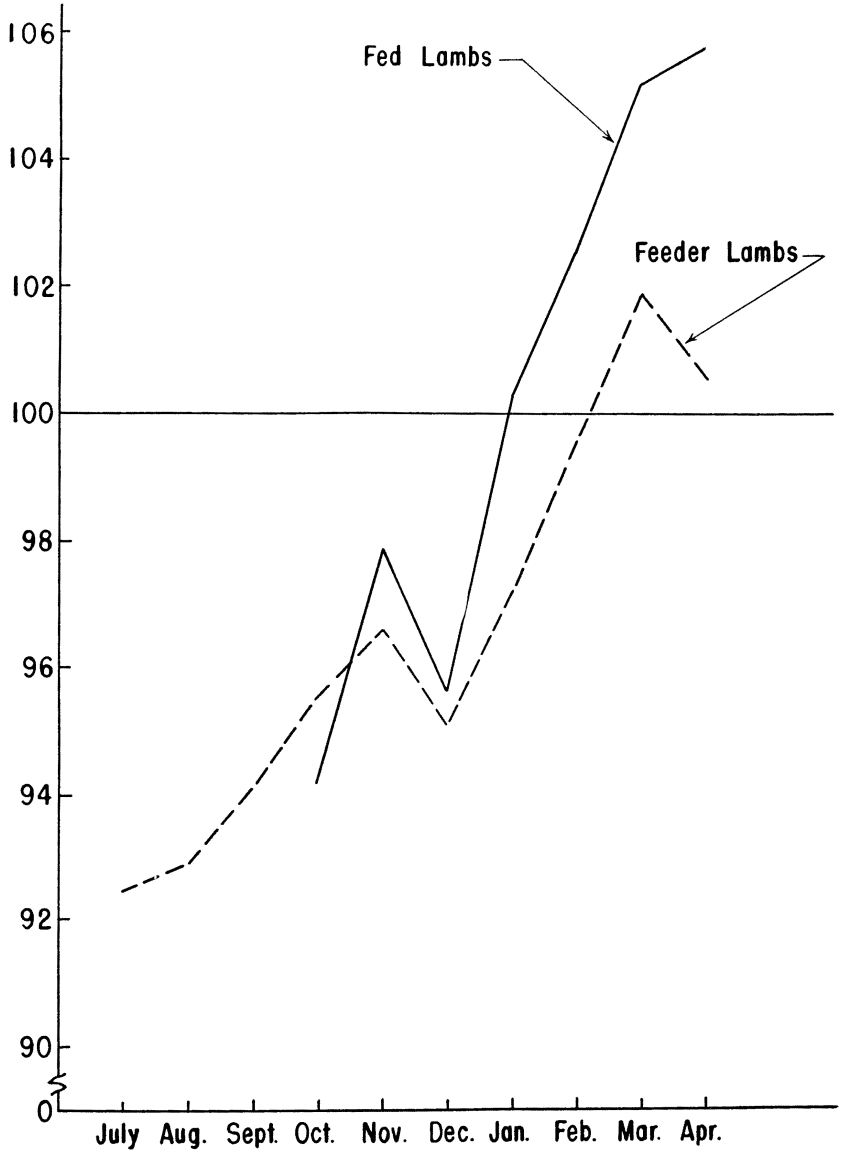

Figure 3. Seasonal Price Variation for the Choice & Prime grades of fed lambs and good quality feeder lambs, with fed lambs as the base grade. The seasonal index for feeder lambs is expressed as a percent of the ratio of the long time average prices (1840-41 thru 1957-58) of these two classes of lambs. Fed lamb prices tend to have a greater seasonal price movement than do feeder lambs. However, fed lamb prices are higher in all months except October. (Prices for fed lambs are for the Denver Market; prices for fed lambs are for the Oklahoma City market.)

Texas, area or the Roswell, New Mexico, area, are handled through private transactions. Thus they bypass the Oklahoma City market and would not be included in the Oklahoma City quotations. One other factor is that the price quotations for the Oklahoma City market in the case of feeder lambs contracted in the western states possibly is the contracting price at the originating point. In this case, the cost of transportation and a commission charge would need to be added.

The typical price paid for feeder lambs by Oklahoma farmers during this period probably is somewhere between the long time averages for Denver and Oklahoma City. A more applicable estimate of actual price relationships may be obtained by adding $1.50 to $2.00 per hundredweight to the price contracted for purchase of the lambs in San Angelo or Roswell or other areas. The transportation cost from these areas is approximately $.50 per head, or $.77 per hundredweight, based on a 65 pound lamb. Commission and/or handling charges are approximately $.15 per head or $.25 per hundredweight, based on a 65 pound lamb. Assuming a 4 percent shrink in transit from the originating point to the farm in Oklahoma, the actual weight loss on a 65 pound feeder lamb would be approximately 2.6 pounds. If the purchase cost were $18.00 per hundredweight, the weight loss would add $.47 per hundredweight to the purchase cost. If lambs die enroute from the shipping point to the farm, the purchase cost will again be increased.

Based on a purchase price of $18.00 per hundredweight at the originating point, the transportation ($.77 cwt), commission ($.25 cwt). and shrinkage costs ($.47 cwt), would increase this price by $1.48 per hundredweight. Thus, the total cost to get the feeder lambs on the farm would be $19.48 per hundredweight, if no death loss is incurred.

Dependability of Seasonal Indexes

The indexes for fed lamb and spring lamb prices describe the seasonal pattern most likely to occur over a period of years. Although actual prices seldom follow a "normal" seasonal pattern exactly, the normal price movements are approximately repeated in enough years to be valuable in the anticipation of short-run price changes. The probable range of the indexes, as measured by the standard deviation[6] is indicated by the shaded areas in Figure 1.

Figure 1 graphically illustrates the seasonal indexes and index of irregularity for the spring lamb data presented in Appendix Table 2. For the Choice & Prime grade of spring lambs, October has the widest range of dispersion, partly due to the few years in which spring lambs

[6] The standard deviation is a measure of variation about the mean. One standard deviation on either side of the mean would be expected to include two-thirds of the year to year prices for a given month.

were marketed in October, plus the large differences in prices for the years in which data were available for this month. Other than this month, the months of highest prices, i.e., March, April, and May, have the greatest variations in price. Thus, the shaded areas are greatest for these months. This also holds true for the Good & Choice grade of spring lambs.

Figure 1 also illustrates the data shown in Appendix Table 1 for the two grades of fed lambs. Again, the months of highest seasonal prices tend to have the greatest dispersion in actual prices, as indicated by the shaded areas. However, October, which is the first month of the fed lamb marketing season, also has a wide range in actual prices, as prices tend to be more unsettled due to price equilibrium seeking efforts on the part of producers and buyers.

Other Price Relationships

Ewe Prices

The salvage value received for cull ewes is an important return to the sheep enterprise. This return can be estimated from data shown in Appendix Tables 9 and 10. The prices from May to September are usually for shorn ewes, while for the other months, the prices quoted are normally for unshorn ewes. The difference in monthly prices between the two grades is consistently $1.20 per hundredweight or more in favor of the higher grade.

Lamb and Wool Prices

Spring and fed lamb prices are, of course, of much greater importance to farm flock producers than are ewe prices. Actual prices received by farmers for fed lambs and spring lambs on the Oklahoma City market are presented in Appendix Tables 3, 4, 5, and 6. Table 1 indicates the prices received by United States and Oklahoma farmers for wool for the 1955-57 marketing season. This table excludes the government incentive payment which has increased the United States annual average price received by farmers for these marketing seasons to 62 cents per pound. The *final* wool price received by Oklahoma farmers has been consistently below the U.S. seasonal average price.

Yearling Ewe Prices

Prices paid by commercial farm flock producers for western yearling ewes are presented in Appendix Table 11. These prices are approximate average prices for April, May and June of each year, since they are the months when most yearling ewes are handled through the Oklahoma City market. Western yearling ewes are purchased because of their early breeding ability which allows Oklahoma sheep producers to market spring lambs on the high market in the spring months.

Table 1.—Average Wool Prices[1] Received by United States and Oklahoma Farmers 1955-57, by Months, for the Marketing Season
(Price in Cents Per Pound)

	United States			Oklahoma		
	1955	1956	1957	1955	1956	1957
April	46.5	41.2	52.3	36	32	44
May	45.6	42.2	55.8	35	33	48
June	45.0	42.4	55.6	37	31	49
July	44.9	42.3	54.7	37	29	47
August	42.7	41.3	52.8	32	32	44
September	41.6	42.2	51.3	32	30	40
October	39.0	44.8	49.9	34	34	42
November	38.3	46.5	48.3	29	38	44
December	39.4	47.6	46.7	29	35	40
January	37.8	48.9	45.4	33	53	40
February	39.3	48.5	44.4	34	38	37
March	40.3	51.4	40.7	30	43	34
Weight Ave.	42.8	44.2	53.7	34	34	46

Source: *Agricultural Prices,* AMS, USDA.

(1) Does not include incentive price design to bring U. S. average price up to 62 cents per pound for shorn wool. Based on the U. S. average price, the incentive rate would be 44.9 percent in 1955, 40.3 percent in 1956 and 15.5 percent in 1957.

Ram Prices

The prices paid by commercial farm flock producers for rams vary considerably, depending on the quality and breeding of the ram, and its registry. Rams can be purchased for as little as $25 and for as much as $125 or $150. However, the prevailing price range for registered rams from good purebred flocks has been $50-$75 for the past several years.

Appendix Table 1.—Seasonal Price Patterns for Fed Lambs with the Index or Irregularity as Estimated from Price Data 1947-48 — 1956-57 Oklahoma City Market

Month	Choice & Prime (1)				Choice & Prime (1)			
	Index Seasonal Price	Standard Deviation (2)	Range High	Range Low	Index Seasonal Price	Standard Deviation (2)	Range High	Range Low
October	98.0	6.6	104.6	91.4	96.7	6.7	103.4	90.0
November	97.3	5.1	102.4	92.2	96.3	5.0	101.3	91.3
December	95.1	4.8	99.9	90.3	94.1	5.1	99.2	89.0
January	99.6	4.4	104.0	95.2	99.0	5.4	104.4	93.6
February	100.8	4.9	105.7	95.9	100.5	5.2	105.7	95.3
March	105.2	8.7	113.9	96.5	106.5	8.1	114.6	98.4
April	107.4	6.6	114.0	100.8	108.9	5.6	114.5	103.3

Appendix Table 2.—Seasonal Price Patterns for Spring Lambs with the Index of Irregularity as Estimated from Price Data 1947-1956 Oklahoma City Market

Month	Choice & Prime (1)				Good & Choice (1)			
	Index Seasonal Price	Standard Deviation (2)	Range High	Range Low	Index Seasonal Price	Standard Deviation (2)	Range High	Range Low
March	103.6	6.6	110.2	97.0	106.9	8.9	115.8	98.0
April	103.7	6.7	110.4	97.0	106.2	7.1	113.3	99.1
May	110.1	7.3	117.4	102.8	110.8	7.4	118.2	103.4
June	106.4	5.2	111.6	101.2	105.5	3.5	109.0	102.0
July	100.0	3.7	103.7	96.3	98.1	5.0	103.1	93.1
August	95.2	5.1	100.3	90.1	94.3	4.8	99.1	89.5
September	90.2	5.7	95.9	84.5	90.2	6.4	96.6	83.8
October	90.6	7.5	98.1	83.1	91.2	7.9	99.1	83.3

(1) Choice & Prime grade includes all fed lambs or spring lambs sold as prime and the top one-half of those quoted as choice. Good & Choice includes all the good grade and the bottom one-half of the choice grade.

(2) One standard deviation added to and subtracted from the index of seasonal price for a given month gives a range within which the index would be expected to fall in two-thirds of the years.

Appendix Table 3.—Monthly and Seasonal Average Prices Received by Farmers at Oklahoma City for Choice and Prime Fed Lambs[1] 1947-48—1957-58

(Prices in Dollars Per Hundred Pounds)

	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	Simple Average
1947-48	21.10	22.06	22.63	24.45	21.44	20.75	20.25	21.81
1948-49	23.45	24.13	23.25	23.53	22.88	26.19	27.93	24.48
1949-50	22.95	23.01	21.61	22.50	23.97	25.96	24.75	23.54
1950-51	-- --	28.25	29.49	32.26	36.70	38.27	37.09	33.68
1951-52	29.68	38.60	28.64	28.16	26.34	25.14	-- --	27.76
1952-53	22.62	21.61	20.20	21.11	20.90	-- --	-- --	21.29
1953-54	17.35	19.10	18.36	19.73	20.65	22.54	23.06	20.11
1954-55	18.79	18.78	18.30	19.33	19.97	21.20	21.05	19.63
1955-56	17.56	17.56	16.87	17.64	19.00	-- --	-- --	17.73
1956-57[2]	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
1957-58	21.00	21.00	21.63	23.10	23.25	23.00	22.25	22.18
1947-48 to 1957-58 Ave.	21.62	22.41	22.10	23.18	23.51	25.38	25.20	23.22

Source: *Market News,* Livestock Division, AMS, USDA, Oklahoma City, Oklahoma.

[1] Price Quotations for the 1956-57 marketing season were spotty for this grade. Very few lambs sold as choice and prime during this period.

[2] Grades were changed as fellows in May 1951: Good & Choice changed to Choice & Prime; and Medium & Good changed to Good & Choice.

Appendix Table 4.—Monthly and Seasonal Average Prices Received by Farmers at Oklahoma City for Good and Choice Fed Lambs[1] 1947-48—1957-58

(Prices in Dollars Per Hundred Pounds)

	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	Simple Average
1947-48	18.60	19.38	20.22	21.50	19.47	18.69	18.25	19.44
1948-49	21.00	22 03	21.10	21.88	21.04	24.16	25.41	22.37
1949-50	21.25	20.96	19.51	20.36	22.06	24.12	23.00	21.61
1950-51	-- --	27.00	27.65	30.38	34.40	36.07	35.49	31.83
1951-52	28.43	27.74	27.41	26.95	24.77	24.04	-- --	26.56
1952-53	20.59	19.54	18.00	19.60	19.59	-- --	-- --	19.46
1953-54	15.76	17.42	17.04	18.31	19.38	21.18	21.65	18.68
1954-55	17.43	17.46	17.27	18.38	18.96	20.26	20.05	18.54
1955-56	16.28	16.57	15.99	16.69	17.85	18.54	18.60	17.22
1956-57	18.44	18.00	17.63	18.31	18.56	20.75	21.69	19.05
1957-58	20.00	20.00	20.63	22.15	21.94	21.56	21.00	21.04
1947-48 to 1957-58 Ave.	21.61	22.41	22.10	23.18	23.51	25.38	25.20	23.22

Source: *Market News,* Livestock Division, AMS, USDA, Oklahoma City, Oklahoma.

[1] Grades were changed as follows in May 1951; Good & Choice changed to Choice & Prime; and Medium & Good changed to Good & Choice.

Appendix Table 5.—Monthly and Seasonal Average Prices Received by Farmers at Oklahoma City for Choice and Prime Spring Lambs[1] 1947-57

(Prices in Dollars Per Hundred Pounds)

	March	April	May	June	July	Aug.	Sept.	Oct.	Simple Average
1947	-- --	-- --	23.25	23.56	23.25	22.28	22.38	-- --	22.94
1948	-- --	24.50	27.56	28.75	28.45	26.06	23.50	25.25	26.30
1949	-- --	-- --	29.81	27.13	23.38	22.16	21.80	22.10	24.40
1950	-- --	27.65	27.91	27.17	26.52	26.65	27.09	27.61	27.23
1951	-- --	-- --	34.89	33.98	31.19	30.70	29.56	29.75	31.68
1952	-- --	29.08	29.41	27.55	27.83	27.95	25.03	-- --	27.81
1953	22.96	23.55	25.59	24.73	24.23	22.03	17.61	17.60	22.29
1954	24.53	25.60	25.73	23.20	20.69	18.96	18.48	18.10	21.91
1955	-- --	21.40	21.48	22.60	19.74	18.83	17.82	-- --	20.31
1956	20.60	21.25	25.05	22.98	21.04	19.81	19.75	-- --	21.50
1957	22.88	22.69	22.25	21.00	21.78	21.95	21.31	-- --	21.98
1947-57 Ave.	22.74	24.46	26.63	25.70	24.37	23.40	22.21	23.40	24.40

Source: *Market News,* Livestock Division, AMS, USDA, Oklahoma City, Oklahoma.

[1] Grades were changed as follows in May 1951: Good & Choice changed to Choice & Prime; and Medium & Good changed to Good & Choice.

Appendix Table 6.—Monthly and Seasonal Average Prices Received by Farmers at Oklahoma City for Good and Choice Spring Lambs[1] 1947-57

(Prices in Dollars Per Hundred Pounds)

	March	April	May	June	July	Aug.	Sept.	Oct.	Simple Average
1947	-- --	-- --	20.44	20.19	20.25	19.55	19.44	-- --	19.97
1948	-- --	22.63	24.19	24.88	24.60	22.75	21.13	22.25	23.20
1949	-- --	-- --	27.15	24.10	20.59	19.73	20.02	20.78	22.06
1950	-- --	26.08	26.18	25.64	24.88	24.93	25.67	26.13	25.64
1951	-- --	-- --	33.46	32.61	29.91	29.50	28.38	28.75	30.44
1952	-- --	28.13	28.38	26.25	26.29	26.38	22.95	-- --	26.40
1953	21.68	22.09	23.34	21.64	21.13	19.24	15.87	15.85	20.10
1954	23.85	24.74	24.48	21.11	18.08	17.26	17.16	16.70	20.42
1955	-- --	20.34	20.21	21.25	17.89	17.19	16.67	-- --	18.92
1956	19.48	20.03	23.53	21.78	19.70	18.76	18.63	-- --	20.27
1957	21.88	21.63	20.95	19.75	20.38	20.70	20.13	-- --	20.77
1947-57 Ave.	21.72	23.21	24.76	23.56	22.15	21.45	20.55	21.74	22.56

Source: *Market News,* Livestock Division, AMS, USDA, Oklahoma City, Oklahoma.

[1] Grades were changed as follows in May 1951: Good & Choice changed to Choice & Prime; and Medium & Good changed to Good & Choice.

Appendix Table 7.—Feeder Lamb Prices, By Month, and Year, for the Denver, Colorado Market 1940-41—1957-58.
(Prices in Dollars Per Hundred Pounds)

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Simple Average
1940-41	-- --	8.09	8.34	8.75	8.88	8.72	9.17	9.71	9.79	-- --	8.93
1941-42	10.09	10.58	11.11	11.10	10.93	11.09	11.20	11.06	10.89	11.15	10.92
1942-43	11.99	12.68	12.65	12.80	13.12	13.80	13.86	14.13	14.36	14.15	13.35
1943-44	13.05	13.16	12.41	12.03	12.01	11.41	11.47	-- --	-- --	-- --	12.22
1944-45	-- --	-- --	12.12	12.27	12.80	12.58	12.77	13.05	13.41	13.53	12.82
1945-46	-- --	14.18	14.10	14.46	14.80	14.51	14.31	14.98	15.26	15.28	14.65
1946-47	-- --	15.37	16.29	17.85	17.20	18.13	18.82	20.12	20.84	19.65	18.25
1947-48	20.25	20.74	21.56	21.69	22.42	22.52	22.79	21.24	-- --	-- --	21.65
1948-49	-- --	25.58	23.93	22.66	23.44	23.21	23.16	22.63	24.98	27.40	24.11
1949-50	21.56	21.95	23.06	23.52	23.84	22.68	23.44	24.62	26.29	25.89	23.68
1950-51	-- --	27.15	28.74	29.08	30.02	30.40	33.22	36.86	39.72	36.75	32.44
1951-52	31.44	31.61	32.47	32.62	30.45	29.25	28.41	26.82	25.58	26.23	29.49
1952-53	22.59	23.06	22.64	21.79	20.76	18.90	20.48	20.11	20.48	20.83	21.16
1953-54	17.98	17.15	15.43	17.20	19.08	18.38	18.83	19.46	-- --	-- --	17.94
1954-55	15.54	17.02	17.80	18.22	18.73	18.20	19.16	20.09	20.71	-- --	18.39
1955-56	17.19	16.49	17.75	18.56	18.94	17.71	17.58	18.27	17.92	17.90	17.83
1956-57	17.50	17.98	18.57	18.54	18.18	17.85	18.17	18.77	19.28	-- --	18.32
1957-58	18.59	19.98	21.14	21.37	21.95	22.47	22.76	22.77	22.18	21.29	21.45
1940-41—1957-58 Average	18.15	18.40	18.34	18.58	18.75	18.43	18.87	19.69	20.11	20.84	18.76

Appendix Table 8.—Feeder Lamb Prices, By Month, and Year for the Oklahoma City Market 1947-48—1957-58.
(Prices in Dollars Per Hundred Pounds)

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Simple Average
1947-48	16.00	16.12	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	16.06
1948-49	21.88	21.81	20.00	19.50	18.75	18.50	-- --	-- --	-- --	-- --	20.07
1949-50	16.50	17.75	19.25	18.81	20.00	19.25	22.50	-- --	23.50	-- --	19.70
1950-51	22.00	22.69	24.97	26.50	25.75	28.06	32.75	35.75	-- --	-- --	27.31
1951-52	27.50	27.20	28.88	29.00	27.20	24.25	25.50	25.75	25.03	23.25	26.36
1952-53	16.13	16.56	13.88	12.50	12.75	15.13	17.78	17.00	-- --	-- --	15.22
1953-54	-- --	15.50	14.00	12.50	16.72	16.25	17.13	19.50	21.00	-- --	16.58
1954-55	13.55	14.75	14.77	14.50	15.19	15.67	17.17	18.75	19.00	-- --	15.93
1955-56	14.50	15.00	15.65	16.00	16.16	14.69	15.00	-- --	-- --	-- --	15.29
1956-57	14.25	14.50	15.25	15.56	15.62	15.38	16.06	16.69	17.58	18.08	15.90
1957-58	16.81	17.90	18.19	19.63	20.40	21.06	21.50	21.94	18.83	-- --	19.58
1947-48—1957-58 Average	17.91	18.16	18.48	18.45	18.85	18.82	20.60	22.20	20.82	20.66	18.91

Source: AMS, USDA.

Appendix Table 9.—Prices Received by Farmers for Good and Choice Ewes, by Months, 1947-57 Oklahoma City Market
(Prices in Dollars Per Hundred Pounds)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Simple Average
1947	6.80	7.63	8.13	8.75	8.05	6.81	7.06	7.50	7.63	7.35	7.87	8.50	7.67
1948	10.20	11.19	11.31	11.05	11.94	10.19	10.05	10.50	9.63	8.70	8.63	8.65	10.17
1949	9.47	9.75	10.59	11.83	11.25	9.42	8.55	8.24	7.71	8.33	9.13	9.75	9.50
1950	10.13	11.04	11.59	11.88	11.63	10.11	8.75	9.47	11.38	12.18	12.96	13.78	11.24
1951	14.50	17.74	20.40	20.05	14.44	15.79	14.80	14.35	14.44	14.50	13.20	12.79	15.58
1952	12.88	12.55	12.50	12.50	10.69	8.09	5.58	6.60	6.63	5.75	5.67	5.13	8.71
1953	6.50	6.75	7.88	8.50	6.74	4.53	4.21	5.30	4.53	4.43	4.94	5.50	5.82
1954	5.58	6.38	7.19	8.10	5.44	5.05	4.09	3.75	4.25	4.25	4.25	4.25	5.21
1955	5.26	5.56	6.13	6.00	4.06	4.25	3.75	4.13	4.50	4.50	4.31	4.40	4.74
1956	4.50	4.75	5.50	5.50	4.44	4.25	4.35	4.34	4.50	4.50	4.50	4.50	4.64
1957	4.75	5.50	6.05	6.75	4.40	5.38	7.00	7.25	7.25	7.25	7.25	7.63	6.37
1947-57 Average	8.23	8.99	9.75	10.08	8.46	7.62	7.11	7.40	7.50	7.43	7 52	7 72	8.15

Source: *Market News,* Livestock Division (Weekly Livestock Market Report) Oklahoma Livstock and Crop Reporting Board, AMS, USDA, Oklahoma City, Oklahoma.

Appendix Table 10.—Prices Received by Farmers for Cull and Utility Ewes, by Months, 1947-57 Oklahoma City Market
(Prices in Dollars Per Hundred Pounds)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Simple Average
1947	5.63	6.38	6.91	7.50	6.80	5.44	5.13	5.95	5.94	5.95	6.63	7.00	6.27
1948	8.65	9.38	9.56	9.65	10.44	8.50	8.40	8.75	8.19	7.15	7.60	7.35	8.64
1949	8.28	8.50	9.38	10.35	9.69	7.60	6.90	6.59	6.85	7.20	7.78	8.50	8.13
1950	8.69	9.73	10.34	10.56	10.38	9.01	7.75	8.33	9.90	10.84	11.75	12.39	9.97
1951	13.50	16.34	18.60	18.50	11.69	12.96	12.03	12.55	12.19	12.00	10 60	10.54	13.46
1952	10.75	11.00	11.00	11.00	9.06	6.56	3.65	5.15	5.19	4.60	4.50	5.13	7.30
1953	5.50	5.75	6.75	7.25	5.56	3.65	3.46	4.38	3.61	3.58	4.13	4.50	4.84
1954	4.59	5.38	5.88	6.75	4.50	4.34	3.34	3.00	3.50	3.50	3.50	3.50	4.32
1955	4.30	4.63	5.25	4.89	3.31	3.50	3.25	3.38	3.50	3.50	3.50	3.50	3.88
1956	3.50	3.69	4.25	4.25	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.64
1957	3.75	4.50	4.90	5.50	3.45	3.95	4.94	5.25	5.25	5.25	5.25	5.44	4.79
1947-57 Average	7.01	7.75	8.44	8.75	7.13	6.27	5.67	6.08	6.15	6.10	6.25	6.49	6.84

Source: *Market News,* Livestock Division (Weekly Livestock Market Report) Oklahoma Livstock and Crop Reporting Board, AMS, USDA, Oklahoma City Oklahoma.

Appendix Table 11.—Average Price per Head[1] Paid by Oklahoma Farm Flock Operators for Western Yearling Ewes, 1947-58.

Year	Average Price Per Head
1947	$17.50
1948	24.25
1949	23.00
1950	23.00
1951	33.00
1952	19.50
1953	15.50
1954	17.75
1955	18.50
1956	18.00
1957	21.00
1958	21.00
1947-58 Average	21.00

Source: Oklahoma City Livestock Market Quotations

[1] Prices are quoted on a "per head" basis and are usually quoted for the spring months (April 15-June 15), although yearling ewes occasionally are purchased earlier or later than this period.

Appendix able 12. Regression of Monthly Ratios the Moving Average on Time. Prices of Choice and Prime Good and Choice Spring Lambs and Fed Lambs

Month	Spring Lambs				Fed Lambs			
	Choice and Prime		Good and Choice		Choice and Prime		Good and Choice	
	"b"	"t"	"b"	"t"	"b"	"t"	"b"	"t"
January					—.11	.19	—.19	.40
February					.79	1.63	.34	.79
March	—1.40	.59	—1.35	.52	.38	.38	.35	.47
April	.90	1.08	.68	.70	.37	.41	.34	.47
May	.28	.39	.30	.39				
June	—.27	.50	— .11	.22				
July	—.40	.90	— .53	1.11				
August	—.27	.60	— .32	.67				
September	—.39	.65	— .48	.81				
October	—2.75	2.32	—3.10	2.75	—.25	.36	—.29	.44
November					—.21	.36	—.31	.62
December					—.22	.40	—.26	.50

$Y = a + b_1 x_1$ fit for each month:

where Y = ratio to moving average

X_1 = time (1947-48=1).