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Quality-Price Relationships of Cotton at Local Markets in Oklahoma

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SUMMARY AND RECOMMENDATIONS

This investigation has revealed that a policy of paying producers a set price for all grades of cotton, rather than varying prices for individual bales of cotton according to their quality, is detrimental both to the cotton grower and to the cotton industry in at least three ways:

(1) It either penalizes producers of premium cotton, subsidizes producers of low-quality cotton, or does both, thereby encouraging producers to increase the proportion of low-quality cotton in the total crop.

(2) It makes it harder and harder to find a market for Oklahoma cotton.

(3) It forces the ginners to offset the losses incurred through transactions in cotton with earnings from other departments of their businesses, and thereby produces an artificial market for cotton.

Knowledge of the facts about Oklahoma cotton quality-price relationships and their results makes possible recommendations for their improvement. These recommendations all are directed toward establishment of prices at local markets in Oklahoma based on quality of individual bales of cotton. The writer is convinced from the results of this study that only such prices will permit any general or lasting improvement in the quality of Oklahoma cotton; and he therefore makes the following seven recommendations:

1. Measures should be taken to make the staple and grade of cotton known to farmers and to gin operators and other buyers. This might be accomplished by groups of farmers in cooperation with gin managers, with or without public action.

The community organizations necessary to carry out the quality improvement program discussed under 7 could arrange for official classing of their cotton under the provision of the amendment of April 13, 1937, to the Act of March 3, 1927, providing for a grade and staple estimating service.

Another possibility is for ginners in a given locality to engage a licensed classer cooperatively. Or, since gins are public utilities, they could be required by statute to furnish a federally licensed classer's certificate for each bale ginned and include the additional cost in ginning charges.*

2. Cotton producers and buyers should be encouraged to defer final price settlements until cotton has been certified. Promptness in classing and in making reports available will aid in the accomplishment of this goal.

3. Measures should be taken to bring about effective competition for premium staples and grades of cotton among ginners and other local buyers. This might be accomplished by making it harder to cover losses from cotton-buying by gains from other departments of the ginning business. Among measures recommended for this purpose are the removal of gins from the public utility classification, or else establishment of an upper and lower limit rather than a uniform rate for ginning. If the latter plan is adopted, the upper limit should be low enough to prevent monopolistic charges in localities served by only one or two gins, and the lower limit should be high enough to prevent cutthroat competition.

4. A market reporting system for cottonseed should be established. This necessarily would be within the province of the United States Department of Agriculture. Such a service should include provisions for sampling and grading seed at cost upon request of those financially interested.

5. An effective educational program should be carried on for the purpose of developing interest of farmers, ginners, and others in selling cotton according to the quality of individual bales.

An expansion in the number of classing schools conducted by the Oklahoma Agricultural and Mechanical College should be made.* Ginners should be encouraged to attend for the purpose of learning to class cotton accurately and becoming licensed classers.

Farmers should be made better acquainted with essential information about the marketing of cotton. In addition, the following educational procedures should be stressed:

a. Demonstrations and schools to inform farmers about the significance of staple and grade in determining prices for cotton, and about the principal factors affecting these qualities.**

b. Cotton marketing schools for instructing farmers in the source and use of commercial difference sheets. This is particularly important for farmers in one-variety communities.

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* The Summer Cotton Classing School formerly conducted annually by the Oklahoma A. and M. College was discontinued in 1940 because of lack of interest on the part of those expected to attend and lack of college funds for maintaining it.

** It is recognized, of course, that development of a quality program such as that proposed in recommendation 7, below, would also require considerable educational work among farmers concerning production methods.

6. The gin supervisory staff of the Oklahoma Corporation Commission should be composed of men experienced in gin operation and familiar with the latest results of research on ginning methods.

7. The proportion of premium quality cotton in the entire crop should be increased. The experiment station should determine most suitable varieties for various districts of the state,* and efforts should be made to get farmers in each community to grow but one variety and to use care in harvesting and handling cotton. Prices based on quality for individual bales, such as should be associated with changes in the marketing machinery suggested above, will make farmers receptive to the establishment of a permanent quality-improvement program.

The one-variety program is listed after the recommendations on marketing because the writer does not believe farmers will be inclined to go to any particular trouble to improve quality of cotton until they are paid according to quality, and, therefore, receive more money for cotton than the farmers who pay no attention to quality. Once farmers do find it to their interest to improve the quality of their cotton, the increased quantities of premium cotton will facilitate the entire marketing process for Oklahoma cotton.

* Determination of the varieties of cotton best adapted to the different sections of the state, and breeding of new varieties, is now being carried on by the Office of Cotton Improvement, Agronomy Department, Oklahoma Agricultural Experiment Station. See Biennial Reports of the Station, 1936-38, pp. 190-191, and 1938-40, pp. 32-36.

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QUALITY-PRICE RELATIONSHIPS OF COTTON AT LOCAL MARKETS IN OKLAHOMA*

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THE COTTON QUALITY-PRICE PROBLEM IN OKLAHOMA

Purpose of Study

The purpose of this study was to determine the relationship of quality to prices received for lint cotton at local markets in Oklahoma. The problem was to establish this relationship for each area of the State having distinct quality characteristics and for each month of the cotton marketing season. Relationships found were examined in reference to marketing systems in each area and interpreted so far as possible in light of institutions and practices involved in such systems. To facilitate such analysis, data showing the organization of Oklahoma local cotton markets and their relationship to central markets were gathered. A further objective of this investigation was the presentation of market data based on actual cotton marketed at specific points on certain days.

Need for the Study

Differences in the staple length, grade, and character of cotton are responsible for variations in its usefulness for manufacture. Consequently, spinners, the consumers of raw cotton, buy according to price differences determined by the relative supply of various qualities in relationship to demand. Daily quotations of such central market prices for the various qualities of cotton are available to local cotton buyers from governmental and private sources.[1] However, at the present time there is no systematic information available concerning local cotton markets that would be representative of all parts of Oklahoma to show to what extent local buyers purchase the various qualities of cotton according to central market price differentials.

The need for definite scientific quality-price information for the entire cotton producing section of Oklahoma is shown by the conflicting opinions relative to pricing policies.

Of 287 gin operators surveyed in 1937, 264 claimed that they purchased cotton only "on grade and staple," while 23 not only admitted that they made no attempt to do so themselves, but charged that their competitors showed equal disregard of quality. Several of these operators who gave conflicting reports were competitors.

The importance of securing facts on this problem arises from the evils charged to buying lint cotton without price adjustments for quality variations. Cotton brokers surveyed in April 1937 charged lack of relationship between quality and local prices of cotton with responsibility for a trend

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* Present fees for classing individual samples of cotton according to both staple and grade have been set at 25 cents per bale by the Secretary of Agriculture. United States Department of Agriculture, S. R. A. No. 125, page 17. It has been estimated that a widespread service could be provided at 12 cents per bale. House Document No. 405, 73d Congress.

* Submitted by the author to the Graduate School of the University of Illinois, February, 1938, in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Economics. This bulletin constitutes an abstract of the original thesis.

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[1] Such quotations are available to anyone who requests them, from the Agricultural Marketing Service, United States Department of Agriculture.

toward shorter staple lengths of cotton produced in Oklahoma. They also indicated that grade is lowered because near-uniform prices encourage snapping, which makes for a sample with considerable foreign material. An earlier study bears out their contention that snapping cotton tends to lower grades: "In 1932-33, 94.6 percent of the picked cotton was equal to or better than cotton of the grade middling white, while only 68.5 percent of the cotton harvested by snapping was of the same quality. Also in 1933-34, 92.6 percent of the picked cotton as compared with 67.6 percent of the snapped cotton was equal to or better than middling white, in grade."[2]

One of the most important criticisms of a pricing policy which fails to provide adequate price differences to offset quality variations is that it discourages quality improvement programs. A uniform price policy concentrates the producer's interest upon yield per acre and lint turn-out as the two factors which determine the profitableness of his operations. Unfortunately, progressively shorter staple lengths have accompanied such emphasis in the past.

Production and Quality of Oklahoma Cotton

Oklahoma Cotton Production Heaviest in Southwest.—During the five-year period 1928-1932, all counties with an annual average cotton production of 25,000 or more bales, except Garvin county, were in the area west of a line drawn along the eastern boundary of Kingfisher county, south along the eastern boundary of Jefferson county to the Texas line (Figure 1).

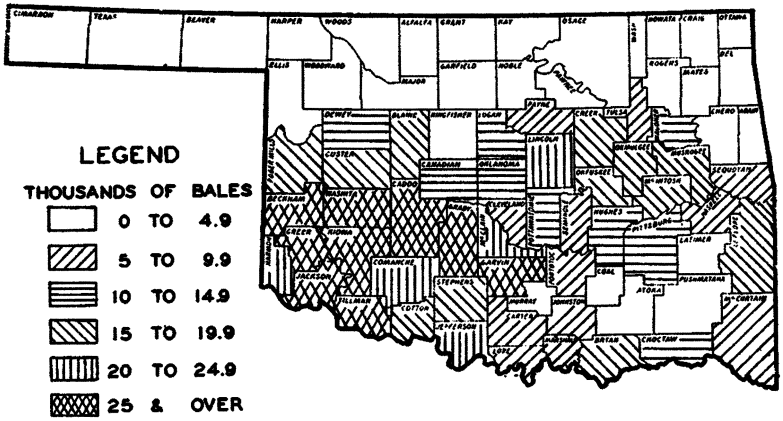

Figure 1. Average cotton ginnings per county in Oklahoma during the seasons 1928-29 through 1932-33. From United States Department of Commerce, Bureau of the Census, "Cotton Production in the United States." Crops of 1929-1932.

The volume of cotton production was relatively light in the eastern portion of the state, with the lightest production in Latimer, Pushmataha, and Atoka counties. The heaviest producing area in the eastern portion was located immediately north of these counties.

Average production figures for 1933-34 and 1934-35 also show the bulk of the cotton in the western section.

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[2] McWhorter, Clyde C., and Roy A. Ballinger, *Relative Economic Advantage of Harvesting Cotton by Picking and Snapping in Western Oklahoma*, p. 11. Oklahoma Agr. Exp. Sta. Bul. 227; October, 1935.

Official Standards for Staple and Grade.—Staple length and grade are the measures of cotton quality for which official standards exist. Standards for staple length (i. e., length of fibre) include 20 lengths for American upland cotton, with a range of 1 1/2 inches downward to 3/4 inch and shorter.

Most Oklahoma cotton is below 1 1/8 inches in staple length. Normally, only a minute portion of the Oklahoma crop is longer than 1 1/8 inches (Table I).

Grade includes (a) color, (b) amount of foreign material, and (c) preparation of the cotton.

TABLE I.—Staple Lengths of Cotton Ginned in Selected Districts of Oklahoma During the Seasons 1933-34 and 1934-35.*

(Percent of total ginnings.)

	1 inch and longer	15/16 inch	7/8 inch	13/16 inch and shorter
District I	11.5	48.2	37.5	2.8
District II	3.2	36.2	53.7	6.9
District III	33.4	45.8	17.7	3.1
District IV	11.0	40.9	40.3	7.8
District V	1.4	15.3	55.9	27.4
State	10.4	38.0	42.2	9.4

SOURCE: United States Department of Agriculture, Bureau of Agricultural Economics, Division of Cotton Marketing, in cooperation with the Oklahoma Agricultural Experiment Station. Reports for the 1933 and 1934 crops.

* Districts are shown on map, Figure 2.

During the 1935-36 season there were 39 different grades for upland cotton representing different combinations of these three characteristics determining grade (Table II, Section 1). This schedule of grades, which had been in effect since August 1, 1934, was superseded by a more condensed group of 32 grades on August 20, 1936 (Table II, Section 2). In the new schedule: (a) three blue stained grades are eliminated; (b) white includes much of what was formerly extra-white; (c) spotted includes a portion of the formerly white grades; (d) yellow-tinged is lighter and now includes a good portion of cotton formerly classed as spotted, while (e) the two yellow-stained classes are combined with the darker part of the original yellow-tinged grades. As a result of these changes, all grades now include somewhat brighter cotton than previously.

These changes did not interfere with the study because no attempt was made to combine data for two seasons except where average quality only was being analyzed.

Grade 5, white middling, is known as "basis" grade; and during the seasons studied, a staple length of 7/8 inch was known as "basis" staple.*

This is significant to any price investigation because quotations for other qualities are listed in condensed form as premiums and discounts from the "basis."

* In 1940, the Basis staple length was changed to 15/16 inch.—Editor.

TABLE II.—Grade Standards for American Upland Cotton

Section 1. August 1, 1934 to August 19, 1936.

Grades[1] No.	Name	Blue stained	Gray Descriptive	Extra White	White	Spotted Descriptive	Yellow Tinged	Yellow Light Stained Descriptive	Yellow Stained
1	Middling Fair				***				
2	Strict Good Middling				***		***		
3	Good Middling	***	***	***	***	***	***	***	***
4	Strict Middling	***	***	***	***	***	***	***	***
5	Middling	***	***	***	***[2]	***	***	***	***
6	Strict Low Middling			***	***	***	***		
7	Low Middling			***	***	***	***		
8	Strict Good Ordinary			***	***				
9	Good Ordinary			***	***				

Section 2. August 20, 1936.

Grades[1] No.	Name	Gray	Extra White	White	Spotted	Tinged	Yellow Stained
1	Middling Fair			***			
2	Strict Good Middling			***			
3	Good Middling	***	***	***	***	***	***
4	Strict Middling	***	***	***	***	***	***
5	Middling	***	***	***[2]	***	***	***
6	Strict Low Middling		***	***	***	***	
7	Low Middling		***	***	***	***	
8	Strict Good Ordinary		***	***			
9	Good Ordinary		***	***			

SOURCE: United States Department of Agriculture, Bureau of Agricultural Economics. Service and Regulatory Announcements, No. 150, March, 1936.

[1] Grades below the heavy line not tenderable on futures contracts in accordance with Section 5 of the United States Cotton Futures Act.

[2] Basis grade.

Variation Among Districts in Staple Length and Grade.—To analyze regional variations in quality, the cotton-producing areas of Oklahoma were divided into five districts according to the percentage of average production during the 1933-34 and 1934-35 seasons which was classed as 7/8 inch and less in staple length. (Table I; Figure 2.) Creek and Muskogee counties, although they produced a higher production of 7/8 inch staple than other counties in the district, are included in District I because they are contiguous to other counties in this district and produce cotton more similar in staple length to that produced in those counties than to any other in that part of the state. Border counties in northeastern Oklahoma were omitted because of their relative unimportance in cotton production.

The percentage of all cotton classed 15/16 inch staple or longer was highest in District III and lowest in District V (Table I; Figure 2). The percentage classed shorter than 7/8 inch was highest in District V and lowest in District I. It is evident that the proportion which this latter classification represents of total production increases from north to south, and particularly from east to west.

The grade of cotton appears to improve from north to south (Table III). It is evident that the relative importance of various grades varies widely among different sections of the state. However, in each section sufficient range in grade exists that the problem of effectively relating prices to quality is significant.

For the state as a whole, data gathered in this study confirmed the general opinion that cotton ginned during the early and late parts of the season includes a heavy proportion of staple shorter than 7/8 inch and that the bulk of the cotton ginned after October is of relatively low grade. The distribution of the total ginnings of each district among the various staple lengths and grades was wide enough each month to emphasize the importance of maintaining the proper relationship between quality and price. Failure to maintain such a relationship must penalize the producer of high quality cotton, place a premium on lower quality, or both.

TABLE III.—Grades[1] of Cotton Ginned in Selected Districts of Oklahoma During the Seasons of 1933-34 and 1934-35.[2]

(Percent of total ginnings.)

	Wh. & Ex. Wh. Str. Mid. & Above	Wh. & Ex. Wh. Middling	Spotted Str. Mid. and Above	Spotted Middling	Wh. & Ex. Wh. Str. Low Mid. and Low Mid.	Spotted Str. Low Mid. and Low Mid.	Wh. & Ex. Wh. Str. Good Ord. & Good Ord.
District I	9.9	14.2	24.8	19.8	20.4	8.3	2.6
District II	13.9	16.2	23.2	15.2	23.0	4.8	3.7
District III	5.2	6.2	34.1	26.9	15.0	11.9	.7
District IV	10.9	8.2	37.7	19.2	14.4	8.5	1.1
District V	13.4	11.0	39.7	14.9	13.4	4.0	.6
State	11.0	11.2	32.5	18.7	17.0	7.9	1.7

SOURCE: United States Department of Agriculture, Bureau of Agricultural Economics, Division of Cotton Marketing, in cooperation with the Oklahoma Agricultural Experiment Station. Reports for the 1933 and 1934 crops.

[1] Grades shown in the table are not all grades produced, but were selected to give a range from high to low quality.

[2] Districts are shown on map, Figure 2.

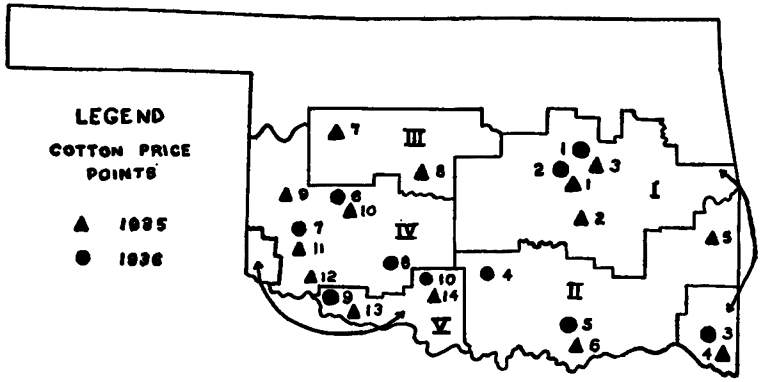

Figure 2. Distribution of gins from which price data were secured during the seasons 1935-36 and 1936-37, and districts into which state was divided for purposes of analyzing the data.

Method of Study

The investigation covers the marketing seasons 1935-36 and 1936-37. The Bureau of the Census estimated production for Oklahoma at 500,747 bales (500 lb.) in 1935 and 289,600 in 1936. These figures compare with a five-year (1929-1933) average of 1,105,000 bales for the period immediately before the government programs and the severe droughts.[2]

Selected gin operators, the type of buyers which purchased 348,349 bales, or 70 percent of the 1935 crop, were the only buyers included in the investigation. Since a large cooperative association bought 128,000 bales, or 23 percent, "on grade and staple," it is obvious that little cotton was bought on a "hog-round" level by buyers other than ginners during the 1935-36 season. The overwhelming dominance of ginners as local buyers during these seasons indicates that an analysis of local quality-price relationships for cotton purchased by these buyers will show pricing practices affecting the bulk of cotton sold on local markets in Oklahoma.

For the season 1935-36, usable information on date of sale and price per bale was secured for a total of 6,324 bales of cotton purchased at 14 gins, or price points in the five districts of the state. (Figure 2.) For the season 1936-37, an extremely short crop year, data on 3,183 bales were collected from 10 points. The number of price points in the various districts was determined approximately by the proportionate amount of the state total cotton production grown in that district. Ginners supplying data included those in charge of gins owned by: (a) companies owning five or more gins, (b) private companies owning not over four gins, and (c) farmers cooperative gins. All were enrolled in a cooperative project of the Oklahoma Agricultural and Mechanical College Experiment Station and the Grade and Staple Estimate Service of the Bureau of Agricultural Economics under which a four-ounce sample was drawn from each bale of cotton and classed by the grade and staple estimating service. Official staple and grade classification of cotton included in this study was obtained from reports provided

[2] United States Department of Agriculture. Statistical Bulletins No. 52, March 1936, and No. 56, February 1937.

by the above-mentioned project, associated with prices paid for individual bales at the local markets, and the two sets of data compared with central market prices for the same grades on the same days.

Central market prices were available on the daily price difference sheets published by the Division of Cotton Marketing for the "Ten Designated Spot Markets." Houston and Galveston prices were used because available information indicates that the bulk of Oklahoma cotton is shipped to one of these markets.[4]

Additional data used in the study included: Annual figures for production of cotton in Oklahoma by counties, taken from special reports of the Census Bureau; data on volume of ginnings and purchases by gins, compiled from ginners' reports to the Oklahoma Corporation Commission; staple and grade of cotton produced in selected counties of Oklahoma for previous years, as compiled by the Division of Cotton Marketing; freight rates from selected points of Oklahoma, obtained from the secretary of the Oklahoma Cotton Exchange; and various data dealing with marketing practices and conditions in Oklahoma, which were obtained through special surveys of ginners, cotton buyers, and others engaged in the cotton industry of Oklahoma.

THE OKLAHOMA FARM PRICE AND CENTRAL MARKET PRICES FOR INDIVIDUAL BALES OF 7/8 INCH COTTON AND OTHER STAPLE LENGTHS

Average local market price differences were determined for five staple lengths identified as numbers 1 to 5, and these differences were compared with those at central markets for white and extra white cotton of (1) middling, and (2) all other grades combined.[5] Since central market discounts are not quoted at Houston and Galveston for cotton shorter than basis staple, an arbitrary figure of 50-points-off was used for short staple cotton in 1935, and 100-points-off in 1936. These values were supplied by brokers operating in Oklahoma during these seasons.

Of the 6,324 bales of cotton studied for the 1935-36 season, 71 percent was classed in the two white groups with 22 percent middling and 49 percent other grades. Spotted cotton included 29 percent of the total; 14 percent middling and above, and 15 percent lower than middling.

There was no consistent similarity between quality-price relationships for staple at local markets and those at central markets during the 1935-36 season. Local and central market prices were compared for five staple lengths in each of three color-grade groups. No group showed a close likeness in the amount of price differences at local and central markets on individual staple lengths, while even the direction of the price differences was opposite for 15/16 inch and one inch white middling cotton and 15/16 inch spotted cotton of grades middling and above. (Figure 3.)

Generally speaking, the price for longer than basis cotton was too low, and that for shorter than basis was too high. The two most important staple classes within each of the color-grade groups were the less-than-

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[4] During the season 1932-33, 653,245 bales of Oklahoma cotton were shipped to these ports and Texas City on direct bills of lading. An additional 60,922 bales shipped to foreign ports on through bills probably cleared through these ports. The total, 753,167 bales, represented 74.4 percent of all cotton shipped from the state that season. Wright, J. W., and J. H. McClure, *The Distribution of American Raw Cotton, Season* 1932-33, page 78. United States Department of Agriculture, Bureau of Agricultural Economics, January 1937.

[5] Seven-eighths inch cotton, Number 2, was used as the basis and the average differences were computed between the price of this staple length and other staple lengths within each color-grade group.

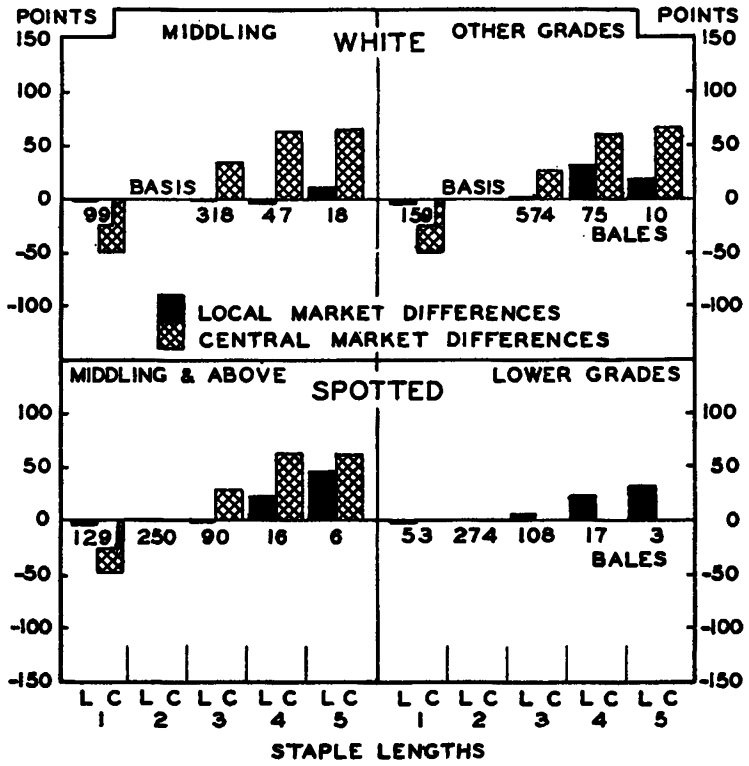

Figure 3. Average Oklahoma local market premiums and discounts for specified staple lengths of cotton other than white 7/8 inch (basis) compared with central market quotations during the season 1935-36.

7/8 inch and the 15/16 inch lengths. Producers were underpaid for the 15/16 inch, and overpaid for the short staple cotton in each group. Per bale overpayments exceeded the underpayments but total underpayments were greater than total overpayments. This came about because there was more of the 15/16 inch than of the less-than-7/8 inch cotton. The following table presents in summary form the results of this analysis for bales actually sold at the local markets included in this study in 1935-36:

Less Than 7/8 Inch

Color-grade groups	Percent of sample	Bales compared	Producer's price advantage per bale	Total
White-middling	2.7	99	$2.45	$242.00
White-other grades	4.6	159	2.25	358.00
Spotted-middling and above	3.9	129	2.30	297.00
Total	11.2	387	2.30	$897.00

15/16 Inch

Color-grade groups	Percent of sample	Bales compared	Producer's price advantage per bale	Total
White-middling	7.1	318	—$1.72	—$547.00
White-other grades	15.0	574	—1.25	— 723.00
Spotted-middling and above	3.3	90	—1.40	— 126.00
Total	25.4	982	—$1.40	—$1,396.00

The analysis of 1936-37 data yielded results quite similar to those for 1935-36. Again in each color-grade group the shorter than 7/8 inch staple was purchased at too high a price relative to the price of 7/8 inch staple, while 15/16 inch cotton was purchased too low. The less than 7/8 inch cotton represented a larger percentage of the sample than the 15/16 inch during this season. Because of this and the fact that per bale overpayments for the short cotton exceeded per bale underpayments for the 15/16 inch cotton, ginner-buyers lost more in total overpayments than they gained in underpayments.

The same kind of analysis of quality-price relationships made for staple by seasons was applied to months and districts for the 1935-36 season. The most important staple classes other than basis were shorter than 7/8 inch, and 15/16 inch. The local discounts for the shorter than 7/8 inch cotton did not represent more than a fractional part of comparable central market values for any color-grade group in any month. Premiums over the price of 7/8 inch staple were allowed on shorter than 7/8 inch staple in two instances: for white grades other than middling during (a) October and (b) November.

The relationships were even more erratic for the 15/16 inch cotton. Discounts were imposed in local markets in over half of the comparisons, while only fractional premiums were allowed in instances when the local market price differences agreed in direction with those on central markets. Also, as far as the bulk of Oklahoma cotton is concerned, its staple length had little effect upon the price at which it was purchased by ginner-buyers during the 1935-36 season in any district of the state represented by the sample. It is apparent the lack of quality-price relationship found in the entire sample for the season as a whole was also the normal condition during each of the individual months of the season and in the four districts of the state. This consistency in the quality-price relationships for the parts of the sample strengthens the conclusions drawn from the analysis of data for the season as a whole.

If the classing of cotton used in this study was accurate, either local ginner-buyers were unable to determine the staple of cotton which they bought, or they were not willing to make price differentiations between the various staple lengths similar to those on central markets. This conclusion follows if the local market price for 7/8 inch cotton of the various grades is as fair a basis as the comparable central market quotation with which to compare the price of other staple lengths. This must be true unless for some reason buyers discriminate against this particular quality. However, the fact that both shorter and longer staples sometimes receive premiums and sometimes discounts, indicates that no deliberate discrimination was made against 7/8 inch staple. Rather, pricing practices used by ginners appeared to disregard variations in staple length of cotton purchased.

THE OKLAHOMA FARM PRICE AND CENTRAL MARKET PRICES FOR INDIVIDUAL BALES OF MIDDLING WHITE COTTON AND OTHER GRADES

Average local market differences were determined for eight grades, identified by numbers 2 to 9,[6] for both white and spotted cotton of (1) 7/8 inch staple, and (2) all other staples combined. These differences were then compared with those at central markets.

The 1935-36 sample, including 6,324 bales, was divided according to staple length as follows: white 7/8 inch staple, 34.4 percent; other white staple, 36.4 percent; 7/8 inch spotted staple, 14.5 percent; and other spotted staple, 14.7 percent.

There was a consistent agreement in direction between local and central market price differences for grades but not in amount. (Figure 4.) The only grade above the basis that included any substantial proportion of the sample was strict middling (grade 4). On the average for every color-staple group this grade was purchased at local markets at a lower price relatively to the basis grade (white middling) than at central markets. The grades below the basis, which included most cotton, were strict low middling, low middling, and strict good ordinary (grades 6, 7, and 8) for white, and middling, strict low middling, and low middling (grades 5, 6, and 7) for spotted. These grades were purchased by gin operators at too high a price relative to the basis grade. When totaled, the overpayments for lower grades exceeded the underpayments for grades above white middling by seven times. This occurred for two reasons: (1) per bale underpayments exceeded per bale overpayments, and (2) the amount of cotton below white middling in quality was approximately five times the amount above. These price comparisons are summarized in the following table:

[6] White middling cotton, Number 5, was used as the basis and the average differences were computed between the price of this grade and the other grades within each staple-length group.

Below Basis

Color-staple groups	Percent of sample	Bales compared	Producer's price advantage per bale	Total
White 7/8	19.4	807	$2.70	$2,182.00
White other staple	17.8	499	3.15	1,577.00
Spotted 7/8	14.1	523	2.40	1,243.00
Spotted other staple	14.4	389	1.85	713.00
Total	65.7	2,218	$2.60	$5,715.00

Above Basis

Color-staple groups	Percent of sample	Bales compared	Producer's price advantage per bale	Total
White 7/8	5.3	204	—$1.80	—$367.00
White other staple	6.2	213	— 1.85	— 394.00
Spotted 7/8	.4	16	— 1.00	— 16.00
Spotted other staple	.5	8	— .40	— 3.00
Total	12.4	441	—$1.75	—$780.00

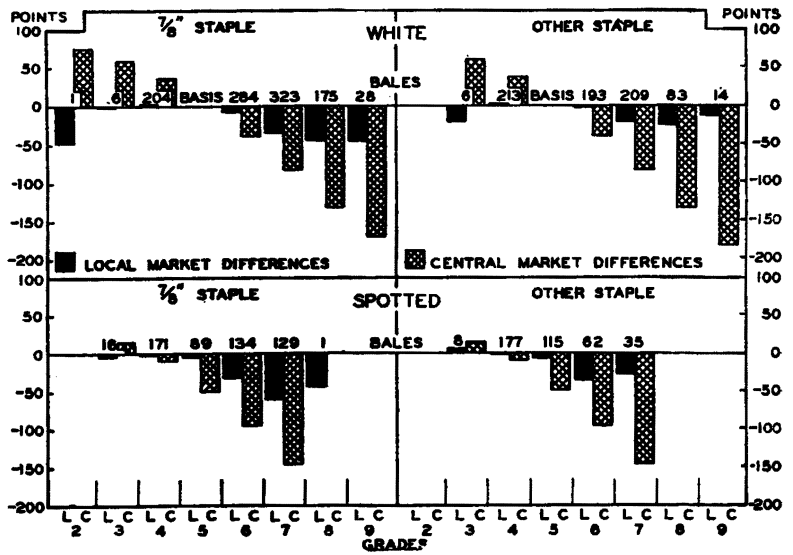

Figure 4. Average Oklahoma local market premiums and discounts for specified grades of cotton other than middling white (basis) as compared with central market quotations during the season 1935-36.

It is evident that ginner-buyers failed by a wide margin to break even on price differences for grades of cotton purchased in 1935-36.

The results of the analysis of data for the 1936-37 season are substantially the same as for the previous season. Again ginner-buyers overpaid for lower grades, and underpaid for higher grades within all color-staple groups. The local market price differences for grades other than middling agreed with central market differences in direction for most comparisons. The most marked variation between pricing practices of buyers on the two types of markets was in the amounts of premiums and discounts.

A larger proportion of the sample in white grades was classed above the white middling basis in 1936-37 than in 1935-36. However, total underpayments for higher grades relative to the price of basis grade were again exceeded by total underpayments for grades lower than the basis. For all color-staple groups about two and one-half times the amount of cotton classed higher than the basis in quality was classed in lower grades.

Quality-price relationships for grade during 1935-36 also were analyzed according to months and districts. The bulk of cotton was purchased in October and November during the 1935-36 season, and no significant variations were made in local market prices for quality except in December when there was a reasonably close resemblance between local and central market premiums and discounts. As a result, the overpayments to producers of lower grades were reduced during that month.

Also, the data for individual districts, like those for separate months of the season, indicate that most Oklahoma cotton of better than white middling grade is bought by ginners at too low a price relative to the basis, and that most Oklahoma cotton below the white middling in grade is bought at too high a price. The discounts for grades lower than white middling in the 7/8 inch groups cotton of Districts I and V more nearly approximated comparable central market values than in other districts. However, there was no similar tendency for premiums on cotton above white middling in quality.

The analysis of the relationship of grade to prices for cotton within districts and by months reinforces and supports the findings of the study for the state as a whole. It may be concluded that local market premiums and discounts for grades of both white and spotted cotton consistently were in the same direction as central market differences. This was true for the 1935-36 and the 1936-37 seasons as a whole, for months of the 1935-36 season, and for various districts during this season. These price differences, however, were far smaller than central market differences in amount. The result of failure of local market price differences to equal those of central markets was that producers were underpaid for grades above middling and overpaid for grades below middling. Since total underpayments failed to equal total overpayments during either season, ginners who bought this cotton sustained net losses on cotton buying operations so far as grade is concerned.

VARIATIONS IN AVERAGE QUALITY-PRICE RELATIONSHIPS FOR OKLAHOMA COTTON

Average Quality and Local-Central Market Spreads on 7/8 Inch White Middling Cotton

The margin, or spread, between local and central market prices, for cotton of white middling grade and 7/8 inch staple length was determined through comparisons of prices at the two types of markets on the same days. Of the sample of 6,860 bales studied during the 1935-36 market season, 599 bales of 7/8 inch white middling cotton were sold at a price that averaged 42 points below the central market price for the same quality. (Figure 5.)[7] The 381 bales of such quality sold during the 1936-37 season averaged 81 points lower than central market prices for the same days, and the average for both seasons was 57 points.

The spread during the 1935-36 season was insufficient to cover the cost of freight alone, much less defray other costs incident to moving cotton into the channels of trade. The spread for the 1936-37 season, although 39 points wider than in 1935-36, lacked 30 points of being adequate to cover all costs. The minimum spread necessary to cover such costs with no allowance for commissions for local buyers during each of the two seasons was approximately 111 points.[8]

One primary reason for a wider spread between local and central market prices for white middling 7/8 inch cotton in 1936-37 than in the 1935-36 season was the lower average quality of the crop. An index to the quality of the crop may be obtained by calculating the value of the sample of bales of cotton at central market prices. This was calculated and it was found that the sample, excluding basis cotton, would have brought 56 points per

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[7] Total number given includes colors below spotted.

[8] The following represent approximately the average costs intervening between local and ex-warehouse central market price of white middling 7/8 cotton during the 1935-36 and 1936-37 marketing seasons:

(Costs per 500 pound bale)	
Rail freight	$2.70
Broker's margin	1.00
High-density compression	.75
Insurance	.15
Concentration at Houston	.45
Handling	.10
Drayage	.10
Interest	.089
Exchange	.063
Other	.15
Total per bale	$5.552
Total per pound	.0111

SOURCES:—

Freight rates: Oklahoma State Cotton Exchange, Oklahoma City, Oklahoma.
Compression and handling charges: Survey of compresses operating in Oklahoma.
Insurance, broker's margin, Houston concentration, interest, exchange, and drayage: Survey of cotton brokers operating in Oklahoma.

Interest was calculated upon a valuation of $50.00 per bale, holding four days in the cotton yard four days for clearance after shipment, and interest at 8 percent. Exchange was calculated at a rate of 1/8 of one percent. Insurance was calculated at a rate of $5.00 per $100.00 valuation for the season, and 6 percent for the four days the cotton was held at the cotton yard.

See also, Ellis, Lippert S., A. M. Dickson, and Clyde C. McWhorter, *The Sale of Cotton in the Seed in Oklahoma*, Table II, p. 28. Oklahoma Agr. Exp. Sta. Bul. 219. October, 1934.

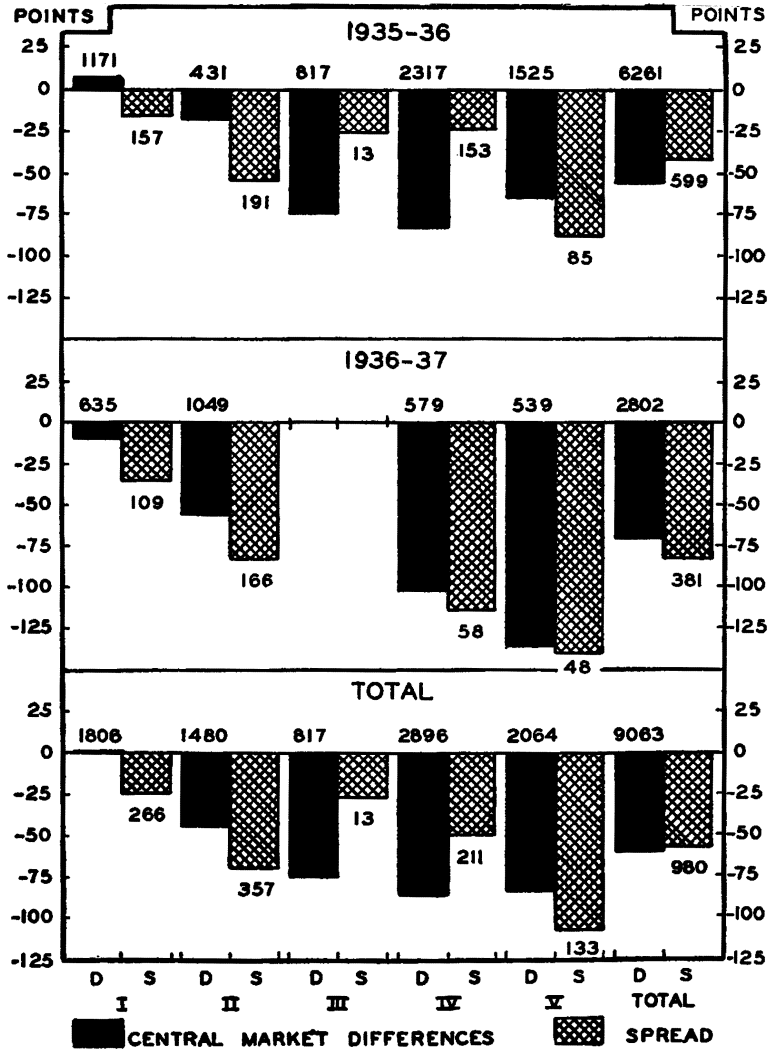

Figure 5. Variations among districts in the season's average spread between Oklahoma local and central market prices of white middling 7/8 inch cotton as compared with average central market differences for other cotton sold on local markets; seasons of 1935-36 and 1936-37, and combined total for both seasons. Data have been adjusted for variations in freight rates among gins and for changes in the price level in 1935.

bale under white middling 7/8 inch cotton in 1935-36, and 70 points under in 1936-37 (Figure 5).[9]

The spread widened as the quality lowered from the 1935-36 to the 1936-37 season. However, the fact that average spreads widened 39 points while average quality as measured by average net central market differences lowered 14 points indicates that other factors were operative. These factors were studied in subsequent analyses of variations among districts and among periods of the marketing seasons.

By districts, the average local-central market spread for basis quality cotton widened as the average quality of other cotton deteriorated for Districts I, II, and V during the 1935-36 season. This was not true of Districts III and IV, however, largely because more of the white middling 7/8 inch cotton was sold during the first two marketing periods in these two districts than in other districts.

Both average net central market differences for other than basis quality cotton and average spread became progressively lower for Districts I through V in 1936-37. (Figure 5.)[10]

The data for both seasons combined indicate a consistent relationship between average quality and average local-central market spreads for all districts except III and IV. Data for only one season were available for District III, and during that season all basis quality cotton was purchased prior to the sharp reduction in average quality of other cotton. Data for both seasons were available for District IV, but the 1935-36 season, during which white middling 7/8 inch cotton was purchased early, included almost three times as much cotton as the 1936-37 season. Consequently, the two-season average was heavily weighted by the 1935-36 data.

It is evident that the price paid for basis quality cotton tends to vary among districts in accordance with variations in the average quality of other cotton. The tendency appears to be toward buying all cotton offered on the same day at a nearly uniform price influenced in large measure by the average quality of cotton other than white middling 7/8 inch.

An investigation of month-to-month changes in the relationship between average quality of other cotton and average local-central market spreads for white middling 7/8 inch cotton further emphasizes that the price for basis cotton at local markets is affected greatly by the average quality of other cotton. Data used were obtained by averaging information from 1935-36 and 1936-37.

It was found that average quality tended to decline in each district as the season progressed (Figure 6).

Spreads tended to follow net central market differences and to widen as net central market differences become more unfavorable. However, in Districts I and IV, the spread narrowed between the first and second periods of the season.

The apparent inconsistency in the price of basis quality cotton in District IV was due to extreme competition among gins which encouraged the highest possible pricing of cotton during the 1935-36 season. The fact

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[10] No data were available for District III during 1936-37.

[9] Use of average net central market differences to measure average quality for a given period is an effective method of combining the influence of both staple length and grade A similar technique was used in a recent Bureau of Agricultural Economics publication to measure average quality for all cotton sold upon local markets. See Howell, L. D., and John S. Burgess, *Farm Price of Cotton as Related to Its Grade and Staple Length in the United States, Seasons* 1928-29 *to* 1932-33, p. 33. United States Department of Agriculture, Tech. Bul. 59, January 1936.

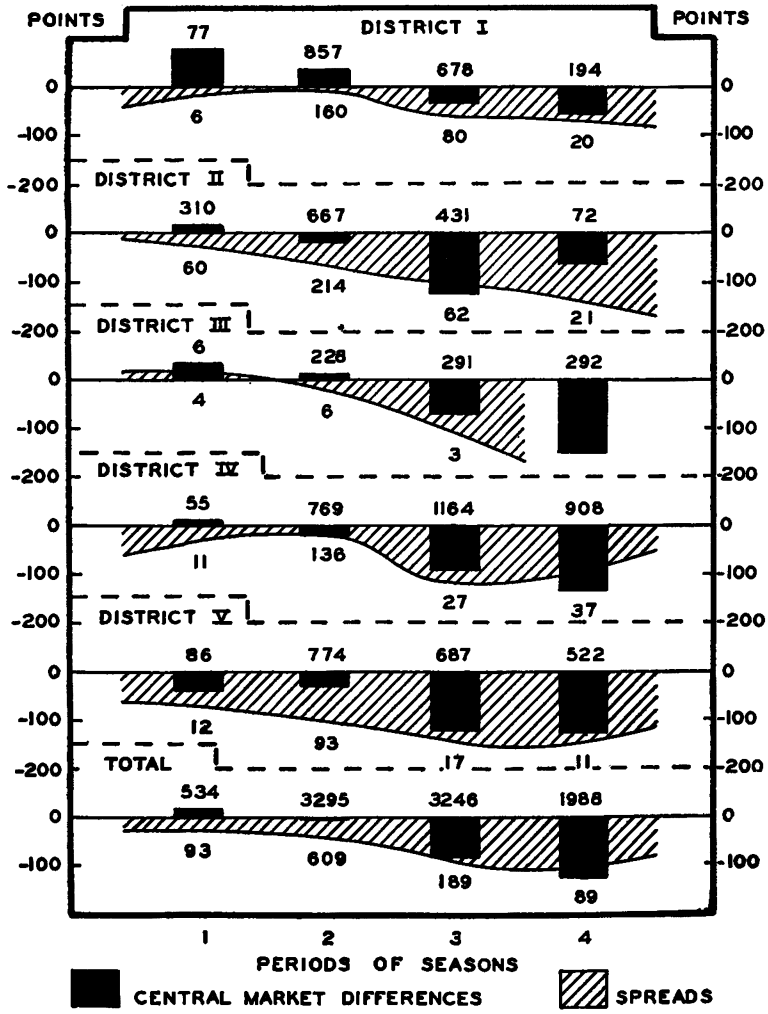

Figure 6. Variations among districts in month-to-month changes in the spread betwen Oklahoma local market and central market prices of white middling 7/8 inch cotton as compared with average central market differences for other cotton sold on local markets; combined total, 1936-37. Data have been adjusted for variations in freight rates among gins and for changes in the price level in 1935.

that central market prices for white middling 7/8 inch cotton rose 46 points per pound during this same period encouraged a greater-than-justified rise in local prices.[11]

The relatively heavier weighting of the average by the 1935-36 data on account of the large number of bales included in that season prevented the wider spread during the second period of 1936-37 from offsetting the narrow spread during 1935-36. The influence of random variations such as those confusing the relationships for Districts I and II was eliminated when data for all districts were combined. It is apparent that there was a consistent tendency for the average spread to widen as average quality deteriorated during the marketing season (Figure 6). However, the spread failed to widen in direct proportion to the reduction in quality of other than basis cotton during the latter part of the season.

Average Quality and Average Local Prices of Cotton Other Than White Middling 7/8 Inch

It appears from the preceding analysis of the relationship of average quality to the local-central market spread on white middling 7/8 inch cotton that farmers producing low quality cotton receive more than their cotton is worth from whatever standpoint considered. Furthermore, the narrow spread on basis quality cotton shows that producers of longer staple and higher grade cotton actually receive prices much more nearly in accordance with central market prices than appears on the surface. This means that producers of low grade cotton were overpaid, while the underpricing of better than basis quality is insufficient to compensate the ginner-buyer for the excess payments which he allows on the lower qualities.

If ginners stay in business, this means that farmers as a group merely are being allowed in price for their lint cotton a portion of what is being taken from them through excessive ginning rates or too low prices for cottonseed. This in itself raises serious problems of equitable charges and returns to each cotton producer. However, another point of far greater importance involved may be expressed by the question: Did the pricing policy followed by Oklahoma gin operators in the 1935-36 and 1936-37 seasons tend eventually to lower the average price received by producers? To answer this question, the relationship between average local prices and average quality of cotton other than basis was examined.

Data showing the season's average central market net differences and local prices for cotton purchased at each of 14 gins in 1935-36, and 10 in 1936-37, were expressed as deviations from the average for all combined. These data then were plotted on a two-way scatter diagram (Figure 7). Dots on this figure represent the location of seasons average data for individual gins according to average quality along the bottom of the chart and average local prices along the side of the chart. Numerals accompaning the dots indicate total bales of other than basis quality cotton purchased at such gins during the season. These values have been rounded with one zero dropped. Roman numerals indicate the location of district averages for each season. The accompanying digits, (5) and (6), serve to differentiate between the 193(5) and the 193(6) seasons.

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[11] Houston-Galveston average monthly prices for white middling 7/8 inch cotton were 10.62 cents per pound during September 11.06 cents during October, 11.84 cents during November, and 11.78 cents during December. *Crops and Markets*, Bureau of Agriculture Economics, United States Department of Agriculture, October 1935 to January 1936.

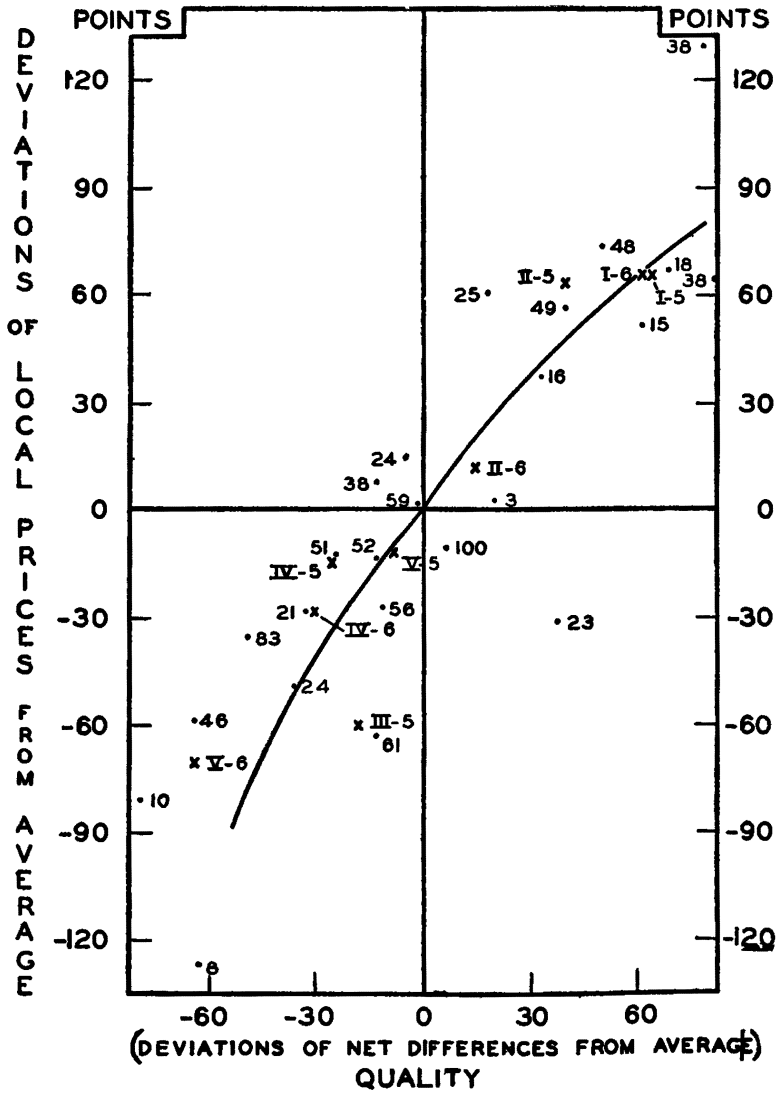

Figure 7. Average Oklahoma local market prices for cotton other than white middling 7/8 inch as compared with net central market differences. Combined total by gins, seasons 1935-36 and 1936-37. Data have been adjusted for variations in freight rates among gins, and for changes in the price level in 1935.

Average price tends to increase as average quality of cotton other than middling 7/8 inch improves. A free-hand curve describing this relationship shows a continuous, smooth outline, and most dots are located close to the line of average relationship.

The only inconsistency in the regularity of this relationship was for District III in 1935-36. This district was fourth in rank according to quality, and fifth in rank according to price. This indicates that buyers on local markets more readily recognize variations in grade than variations in staple length. This is borne out because cotton produced in District III tended to be concentrated in longer staple lengths and in the lower grades, while cotton produced in District V tended to be concentrated in shorter staple lengths although of somewhat higher average grade than cotton in District III.

Gin operators lower prices for cotton below average in quality more than they raise prices for cotton above average in quality. There was a 2.0 point decline in local prices on the average for each 1.0 point decline in the average of quality (Figure 7). On the other hand, the increase in local prices was only 1.7 points for each 1.0 point increase in quality up to the plus-30-point mark on the quality scale, and only 1.4 points increase for each point improvement in quality above the plus-30-point mark.

A similar scatter diagram was prepared to determine the effect of average quality-price on average of other than white middling 7/8 inch cotton at individual gins, by months, during the 1935-36 and 1936-37 seasons. These data were plotted in similar fashion to those shown in Figure 7.

Free-hand curves describing the relationship indicate that a one-point reduction from average quality was associated with declines of approximately 2.0 points from their seasonal average for local average prices. Little curvature is evident in the curves in the lower left hand section of each diagram where quality-price relationships for cotton below the season's average in quality are measured. On the other hand, price does not increase as fast as quality improves above the season's average, as is shown by the tendency of all curves to "break over" soon after rising above the line of average quality for the season. This means that producers as a group were paid according to the average price of the average quality of the cotton ginned in a given locality during a particular period, even though no discrimination was made among individual bales of cotton for variations in quality. Hence, there was a relatively close relationship between average local quality and prices.

These findings are highly significant. These two price policies established as having common usage are detrimental to the cotton industry of Oklahoma and foster serious economic reactions:

(1) The failure of local gin operators to purchase individual bales of cotton according to quality places a premium on lower quality cotton. This stimulates production of such cotton, particularly if the same or a larger amount of the lower quality cotton may be produced and harvested at a lower cost per pound than cotton of the higher grades and longer staple lengths.

(2) Basing the average price for cotton in a given local market on the average quality of cotton available there tends progressively to lower average prices as the average quality is lowered.

FACTORS RESPONSIBLE FOR THE LACK OF RELATIONSHIP BETWEEN QUALITY AND PRICES FOR INDIVIDUAL BALES OF OKLAHOMA COTTON

Ginners as Cotton Buyers

Ginners are the most important buyers of Oklahoma cotton. During the four-year period 1929-1932 they purchased 64 percent of all cotton sold in local markets.[13] By 1935, ginners' purchases amounted to 70 percent of all cotton produced in Oklahoma (Table IV).

Although there was considerable variation among the districts with respect to the amount of cotton bought by ginners during the 1936-37 season, the gin operators were in general the most important buyers in the areas of lighter production, particularly in Districts I, II, and III (Table IV). As

TABLE IV.—Proportion of Total Cotton Sold Which Was Purchased by Ginners in Selected Districts of Oklahoma and in the Entire State During the Season 1935-36*

	Total	District I	District II	District III	District IV	District V
Total cotton ginned	500,747	95,799	30,085	29,225	229,979	106,659
Bought by ginners	348,349	72,272	31,744	22,377	157,465	64,491
Percent	69.6	74.5	81.2	76.6	68.6	60.5

* Calculated from annual reports of individual Oklahoma gin utilities filed with the Oklahoma State Corporation Commission

has been pointed out previously, cotton production is less intensive in these districts. Furthermore, a considerable portion of the cotton in Districts I and II is sold in the seed. No data on this marketing practice are available for either the 1935-36 or the 1936-37 season. However, a study, covering the nine-year period, 1923-1931, indicated that for most of the counties in these two districts from 50 to 100 percent of the cotton commonly is sold in the seed.[13] Obviously, such cotton cannot be sold "on grade and staple." One reason that ginners in Districts IV and V buy relatively less cotton than those in other districts is the greater importance of cooperative gins in these districts.[14]

Since officers of the principal state cotton cooperative estimated that the association handled about 23 percent of all cotton ginned in Oklahoma during 1935-36 and 1936-37, it is evident that for all practical purposes farmers have been limited during recent seasons to two outlets for their cotton. This study is centered upon ginners as cotton buyers because the cooperative association, acting in behalf of its members, hires classers to determine the quality of cotton it handles.

Gin operators are seldom well trained cotton classers and therefore are often seriously handicapped when attempting to buy cotton according to quality. Classing is a highly technical art requiring: (1) proper physical

[13] Ballinger, Roy A., and R. C. Soxman, *Some Economic Problems of Cotton Gins in Oklahoma*, p. 72. Okla. Agri. Exp. Sta. Bul. 231; October, 1936.

[13] Ellis, Lippert S., A. M. Dickson, and Clyde C. McWhorter, *op. cit.* p. 7.

[14] Farmers cooperatives ginned 62,100 bales in District IV during 1935-36 and bought only 45 percent of the total bales ginned. For District V the amount cooperatively ginned was 30,060 bales, of which 34 percent was purchased by ginners.

facilities, particularly light and atmospheric conditions; (2) competent professional training; (3) good judgment and an "eye for cotton" on the part of the classer; and (4) considerable experience as well as constant practice.*

On January 1, 1937, there were only 33 government licensed classers located in the State (Table V). Only one of these classers actually operated a gin. Eleven were employed by the previously mentioned state cooperative organization, four by line gin companies, and seven by cotton brokers. It is

TABLE V. Distribution of Licensed Cotton Classers in Oklahoma on January 1, 1937, According to Employing Agencies.

Agency	Number	Percent
State Cooperative	11	47.8
Line Gin Companies	4	17.4
Brokers and others	8	34.8
Total Licensed Classers	23	100.0

SOURCE: Supervisor of Administration, United States Cotton Standards Act, Bureau of Agricultural Economics, Washington, D. C.

possible that the four employed by line gin companies eventually pass upon a good percentage of the cotton bought by line ginners in Oklahoma. However, this classing is after, not before, its purchase from farmers; hence it can have no bearing upon the bale-to-bale relationship between quality and price in local markets.

A study of Oklahoma gin operators established that only one of 287 was a licensed classer, while 193, or 67 percent, had received some formal training, but were not licensed (Table IV). The formal training received by this latter group varies among individuals from a two- or three-day school for

TABLE VI. Distribution of Oklahoma Gin Operators According to Degree of Training in Cotton Classing.

Training	Number	Percent
Licensed classer	1	.3
Formal training, but unlicensed	193	67.3
Practical experience only	93	32.4
Total ginner-buyers	287	100.0

SOURCE: Replies to questionnaire sent all line gin operators in Oklahoma. Approximately half the cotton-buying gins of the state are included.

most to one- or more two-week cotton schools for a relatively small number. Most of the number with some formal training but no license had so little formal training that it is doubtful whether they were better qualified than those with only practical experience. The lack of special training by Oklahoma gin operators shows that for the most part they buy cotton without accurate knowledge of its grade or staple.

Cotton buying is distinctly a sideline for most gin operators, as only an insignificant percentage purchase more than they gin.[15]

* The Chickasha Cotton Oil Company has adopted the practice of cotton classing schools for their gin operators for a period of one week each year. Other gin operators are invited and encouraged to attend.—Editor.

[15] Only 32 or four percent of the 815 gins included in the previously mentioned study bought more cotton than they ginned. Ballinger, Roy A., and R. C. Soxman, *op. cit.*, p. 70. During 1935, only 32 or 5 percent of the 632 gins bought more cotton than they ginned. Twenty-one of these gins were in District I and seven were in District II. Annual Reports of Gin Public Utilities of Oklahoma filed with the Oklahoma State Corporation Commission.

Nevertheless, cotton buying appears to be practically an indispensable part of the gin business for other than cooperatively-owned gins. Because gin rates are set by the Oklahoma State Corporation Commission, cotton buying is frequently the only way ginners can compete for volume of seed cotton to gin.

This problem of obtaining sufficient volume will continue to be a serious one for ginners, particularly, since more gins than necessary to care for the cotton produced already are established.

The excess in ginning facilities in Oklahoma is indicated by the fact that only a relatively small percentage of gins operating in 1935-36 ginned over 1,000 bales of cotton. The previously mentioned study indicated that during the seasons 1924-25 to 1928-29, and 1929-30 to 1932-33 gins with a volume of 501 to 1,000 bales had average net income of 11 cents and 64 cents per bale, respectively.[16]

The result of keen competition among gins for cotton has been the elimination of price variation among all gins situated in the same locality. The price paid by ginners in a community is soon established at a ceiling above which no one can go for any extended period without sustaining serious losses, and a temporary departure will usually precipitate a price war. Farmers quite commonly transfer their ginning patronage on a moment's notice when the price at any gin "gets out of line."

During years of large production when a considerable proportion of the cotton is of unusually good quality, street buyers have been able to compete with ginners. Large volume eliminates to some degree the competitive buying of ginning. Because of the high level of prices for low grades, the street buyer, who is dependent upon cotton buying operations alone for his earnings, cannot compete with gin operators for the cotton of lower grades and shorter staple. However, if there is enough of the higher grade and longer staple cotton the street buyer often can overbid the gin operator. This "skimming" is the source of considerable annoyance to ginners, as it tends to augment still further the general level of prices. From the standpoint of farmers who are willing to produce quality cotton, the trouble during recent years has been that there has not been enough business to keep street buyers in the local markets.

Farmers as Bargaining Agents

Buying practices of ginners have made it contrary to the interest of producers of low quality cotton to sell according to grade and staple. The producers of better cotton would have profited if cotton had been purchased on a quality basis, but they have exerted little influence toward getting paid according to quality, for several reasons:

(1) Farmers know even less than ginners about the commercial values of cotton. Very few of them have adequate marketing information. Neither do they have the advantage of practical experience, gained by handling a great deal of cotton, to use as a guide in estimating cotton quality. The attitude of farmers is often expressed in the comment, "A bale is a bale if it has bagging and ties."*

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[16] Ballinger, Roy A., and R. C. Soxman, *op. cit.*, p. 37. Data in Footnote 15 show a decrease of 183 in the number of active gins between the four-year average 1929-1932 and the 1935-36 season. It is evident that some force has operated to cause this decrease in numbers, and it is practically certain that this force has been the tendency toward reduced earnings due to lack of volume.

* This, it should be noted, was before the days of the loan. The granting of federal loans on a basis of grade and staple has given many cotton farmers an incentive for learning more about cotton quality.—Editor.

(2) Neither do most farmers have commercial difference sheets available to tell them relative prices of various qualities.** Consequently, even if farmers knew the classification of their cotton, they would still be unable to evaluate this quality accurately in terms of price.

(3) Farmers want to sell their cotton on the same day it is ginned. They do this because, they need the money immediately, fear decline in prices, or because it is easiest to do it that way.

During the 1935-36 season, a comparison of dates of ginning and of sale at selected gins showed that 76 percent of the cotton was sold on the same day that it was ginned, 8.0 percent on the next day, 5.0 percent from two to three days after ginning, and 11 percent four or more days after ginning.

The factor is important because several days are required for classing cotton, when local ginners are not qualified to do it. This usually is true even if samples are classed at a classing office in the same town as the gin, and it certainly is even more true if samples must be sent out of town for classing. Changes in farmers' selling practices will be necessary before it will be possible for any substantial number of producers of higher grades and staples of cotton to obtain the increased bargaining power which accompanies knowledge of the quality of their product. This conclusion is further substantiated by an investigation of the influence of returning classification cards to producers whose ginners requested that such be done. This service, begun in 1935-36 by the Grade and Staple Statistics Section of the Division of Cotton Marketing, had little influence on the bargaining power of farmers.[17]

Quantity of Cotton Handled

The quantity of cotton of various qualities which the ginner receives is a factor determining the relative price which he can pay. Thus the gin manager cannot realize fully on premium cotton unless he receives it in such quantities that he can sell it in lots of 20 or more bales.[18] This statement is not so true for "line gin" companies, where the local manager buys as the agent of the "head office." This central agency usually is able to concentrate cotton in such quantities and qualities as is desired. However, even the line companies reported that they received undesired quantities of short staple and low grade cotton during the 1935-36 and 1936-37 seasons. That is, the relative supplies were not in proportion; there was an oversupply of short staple, low grade cotton.

An investigation of the selling practices of 50 ginners in Oklahoma during the 1936-37 season showed that most ginners not affiliated with a line gin company sell cotton at least once a week. Some sell two to four times per week, a few sell more frequently, and several allow two or more weeks' purchases to accumulate before sale. An analysis of 14 of the 50 gins included in this investigation indicated that there were only a few weeks during the 1935-36 season when any appreciable quantity of premium cotton was purchased by the ginners within the period of one week.

** It is possible, however, for farmers to secure a differential sheet each day from the Agricultural Marketing Service. These sheets are mailed regularly free of charge to anyone who requests them.—Editor.

[17] "In many instances the marketing conditions prevalent in Oklahoma have not allowed the farmer to take full advantage of the information furnished him . . . . . ." Barre, C. B., "Some Effects of Returning Classification Cards . . . . ," *Current Farm Economics*, Vol. 9, No. 3, pp. 74-77. Oklahoma Agr. Exp. Sta., June, 1936.

[18] Statements made by ginners and brokers. Ginners commonly insist that buyers take all the cotton offered in "round lots" with no "cut backs." The broker figures quality-price differences on the lot as a whole in order to arrive at his bid. However, he usually varies the proportion of allowance on premium cotton in accordance with the amount of premium cotton included in a lot.

The most favorable situation for concentration of quality staple cotton was in District I, where in 31 percent of the weeks, the four ginners purchased weekly 16 to 20 bales of white and extra white cotton of 15/16 inch staple length. They also received 16 to 20 bales of inch or better staple of the same grades during 6 percent of the weeks for the season. Similar distribution of marketings according to quality was characteristic of other districts. Independent ginners could not afford to pay full premium for premium staple cotton during any substantial portion of the season 1935-36 if the cotton buying enterprise was to pay its way. Due to the distribution of different staple lengths over the season, one may be certain that similar conclusions would result an analysis of the 1936-37 season.

A similar analysis of distribution of grades by weeks during the 1935-36 season shows that ginners do not receive premium grades in significant quantities for sale at one time. Buyers in District I received 16 to 20 bales of white and extra white cotton of grade 4 and above during only 6 percent of the weeks of the season, while those in District IV received 16 to 20 bales during only 4 percent of the weeks. In no other district was as much bought in any week. On the other hand, in all districts there were substantial quantities of cotton of the lower grades during a good many weeks.

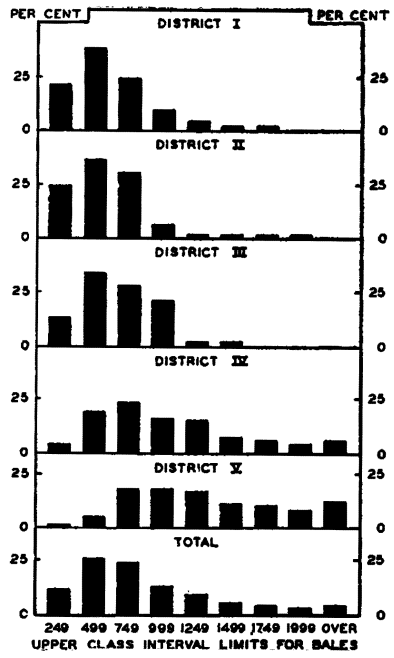

Figure 8. Distribution of gins in selected districts of Oklahoma according to bales of cotton ginned during the season 1935-36. Calculated from anual reports of individual Oklahoma gin utilities filed with the Oklahoma State Corporation Commission.

One of the most significant factors responsible for the lack of volume of premium cotton received by gins in Oklahoma during the 1935-36 season was the small amount of cotton per gin. In the 1935-36 season, 165 gins or 26 percent of the number operating in the state ginned from 250 to 499 bales of cotton, and an additional 24 percent ginned from 500 to 749 bales. (Figure 8.) Seventy-five percent ginned less than one thousand bales of cotton; and as might be expected, practically all the gins with a volume of more than 1,000 bales were located in Districts IV and V in western Oklahoma.

It is unfortunate for producers of premium cotton that the buying of cotton is so completely associated with the ginning business in Oklahoma. This is obviously true in seasons like 1935-36 when three-fourths of the Oklahoma gins ginned less than 1,000 bales of cotton. However, it also is true during years when the bulk of the gins are able to gin sufficient cotton to make their ginning operations profitable. A volume of cotton which will permit profitable operation of a gin may not necessarily be adequate to

permit ginners to buy cotton on an economic basis according to its quality. A quality improvement program which would increase the proportion of premium cotton and reduce lower staples and grades would permit individual gins to get more of the better cotton. Such a program would tend to raise the average price level even under present pricing practices, and would be still more effective if local prices for individual bales could be determined by quality.

THE ECONOMIC SIGNIFICANCE OF NEAR-UNIFORM PRICES AT LOCAL MARKETS

Pricing Practices Encourage Production of Low Quality Cotton

The cotton pricing practices of Oklahoma ginners encourage production of short staple and low grade cotton. This is due to the correlation between short staple and varieties planted, and between low grade and careless harvesting practices. For staple length there is a distinct difference between the short staple varieties, commonly known as "Half-and-Half," "Texas Wonder," and "Western Wonder," and the longer staple varieties, chiefly the Mebane and Acala strains. The Half-and-Half varieties seldom produce cotton longer than 13/16 inch in length, while the Mebane and Acala strains are capable of producing cotton of 15/16 inches and longer in Oklahoma.

However, variety tests conducted by the Oklahoma Agricultural Experiment Station in three cotton-producing sections of the state show that in each instance this short staple variety had a significant advantage over all other varieties in linting percentage.[19]

Such lint percentages mean that a given amount of lint may be produced from a smaller volume of seed cotton. This, in turn, means less cost for harvesting and ginning. Obviously, with similar yields and prices, Half-and-Half has an economic advantage which encourages farmers to change to this variety and produce a shorter staple cotton.

Pricing practices also are closely related to the grade of cotton. This relationship is particularly significant for Districts IV and V in the western portion of Oklahoma where "snapping" is generally practiced. A previous study has shown definitely that snapping results in lowering the grade of cotton.[20] Hence, if pricing practices shield producers from the reduced income accompanying lowering of grade, then such pricing practices encourage snapping. This must be true of any practice which results in prices above market value for a farm product.

Short staple not only is given an economic advantage because of improper adjustment of local prices for variations in staple length, but also because of a similar failure to adjust for variations in grade. It appears clear that the system of nearly uniform local prices regardless of quality serves as a stimulus to further reduction in the quality of cotton.

Trends in the Staple Lengths and Grade of Oklahoma Cotton

An examination of the distribution of Oklahoma cotton among the various staple lengths and grades during recent years should indicate whether the quality is deteriorating. Such data are presented in Tables

[19] The lint percentage for Half-and-Half was 41.86 in District I, as compared with 36.29 for the nearest variety which produced 31/32 inch cotton or longer. The percentage in District II was 40.58 for Half-and-Half, and 38.12 for the nearest competing variety. The percentage in District IV was 39.59 for Half-and-Half and 37.73 for its longer staple competitors. *Science Serving Agriculture.* Report of Oklahoma Agricultural Experiment Station, 1934 to 1936. District I, Table 21 (1926-33), page 103; District II, Table 22 (1930-33), page 109; District IV, Table 23 (1930-35), page 110.

[20] McWhorter, Clyde C., and Ballinger, Roy A., *op. cit.*, p. 3.

VII and VIII for the average of the seasons 1929--1932 and for succeeding seasons up to and including 1936-37.

The previous discussion indicates how an irrational marketing system may encourage farmers to grow short staple varieties of cotton. It is also clear that cotton produced during years of low rainfall may average shorter in staple length than that produced during seasons of normal moisture. Unfortunately, these two factors, variety and moisture, must necessarily be considered together. In a sense, it is appropriate that this be done, as the effect of one reinforces the effect of the other. Dry years appear to give an advantage to Half-and-Half and other short staple varieties because such varieties are also quick maturing. Hence, the economic advantage of short staple varieties during one dry season tends to encourage further shifting to these varieties in subsequent seasons.

The 1929-1932 average covers the most recent period of normal production conditions for which accurate statistics are available.

The 1933 crop was above the base period in length of staple, but the staple length of Oklahoma cotton deteriorated severely in 1934 and 1936. The respective percents of various length for the state as a whole during the four-year period and later seasons are summarized in Table VII.

TABLE VII. Staple Lengths of Cotton Produced in Oklahoma, 1933 to 1936 and Average 1928-1932.

(Percent of total crop.)

	Less than 7/8 Inch (percent)	7/8 Inch (percent)	Over 7/8 Inch (percent)
1928-1932	16	45	39
1933	6	32	62
1934	19	64	17
1935	19	50	31
1936	29	53	18

The increases in the proportion of 7/8 inch and shorter cotton since 1933-34 have resulted from droughty growing seasons and lowered quality of seed.

An examination of changes within individual districts shows that the most noticeable reduction in staple length has been in Districts III and IV, while significant reductions also have occurred in Districts II and V. Little consistent change occurred in District I. Lowered quality of seed planted was an important factor causing the increases in the proportion of short staple cotton in Districts II, III, and IV. The effect of this factor was reinforced and increased by dry growing seasons in 1934 and 1936. Although the heaviest concentration of short staple cotton in 1936 was in District V, an examination of the data covering production in this district in previous years shows that less consistent trend is evident than for other districts. Use of short staple varieties has been so firmly established in this district since grade and staple statistics first became available that most of the year-to-year variation in staple length is due to moisture factors.

During the seasons 1929-1932, 9 percent of Oklahoma cotton was untenderable because of grade, 30 percent graded white 6 and 7, 9 percent was in spotted grades 3 to 5, inclusive, and 62 percent was of white grade 5 or better. The average grade of Oklahoma cotton has not been up to the level of the four-year base period during any following season up to and including 1936-37. Data in Table VIII show a definite trend toward increased

TABLE VIII. Grades of Cotton Produced in Oklahoma, 1933 to 1936, and Average 1928-32.

(Percent of total crop.)

	Untenderable grades (Percent)	White 6 and 7 (Percent)	Spotted 3 to 5 (Percent)	White 2 to 5 (Percent)
1928-1932	9	30	9	52
1933	9	12	61	18
1934	17	28	26	29
1935	36	27	14	23
1936	20	28	19	33

proportions of untenderable cotton and a tendency toward increases in the proportion of tenderable spotted grades. Since the percentage in white strict low middling and low middling remained practically the same during the period, it is evident that increases in all untenderable cotton and in spotted grades were accompanied by a tendency toward reduced production of white cotton grading middling and above.

Because of the revision of grade standards, data for 1936-37 are not directly comparable with previous data as presented in Table VIII. Combining the data for untenderable cotton and white and extra white strict low middling and low middling for the various seasons permits a reliable comparison of 1936-37 data with those of earlier seasons. Such a comparison indicates that the grade of Oklahoma cotton improved between 1935-36 and 1936-37. These two grade groups included 63 percent of the crop for the previous season and only 48 percent for the latter. However, the grade was poorer in 1936-37 than in 1934-35, when 45 percent of the crop was classed in these two groups.

It is probable that the improvement in grade in 1936-37 as compared with 1935-36 was a result of improved weather conditions at harvest time, combined with a small crop, which allowed producers more choice in time of harvesting. During the 1935-36 harvesting season, when too much moisture was present, the local pricing policies encouraged farmers to snap their cotton rather than pick it, and frequently to snap it while too damp. This caused even more deterioration of grade than would have occurred as a result of excessive moisture alone.

The data for individual districts show that the most serious declines in grade of Oklahoma cotton during recent seasons have been in the western part of the state in Districts III, IV, and V. A significant increase in the proportion of lower white grades also occurred in District II in Eastern Oklahoma, but the greatest percentage decline was in the western portion where the greater portion of the state's cotton is produced. Consequently, the reduction in grades has applied to most of the cotton. Furthermore, the most significant reductions in staple length also were found in this same area. As has been indicated throughout the discussion, dry weather during growing seasons has contributed toward shorter staple, and damp weather during the 1935-36 harvesting period was a factor in lowering grade. However, use of seed from longer staple varieties could have prevented much of the extreme deterioration in staple length, and better harvesting methods could have avoided much lowering of grade during the harvesting and ginning

operations. For Districts III and V in particular there have been substantial increases in snapping during recent seasons.[21]

It was indicated above that pricing policies used by gin operators have tended to encourage snapping. There are various other harvesting practices besides snapping which lower the grade of cotton. Among these are harvesting while damp, piling cotton in the field or wagons while damp, and failure to use care in harvesting so as to avoid including dirt and other foreign material. The failure of local pricing to recognize differences in grade undoubtedly has caused producers to follow these objectionable practices more than they would have done if gin operators had bought individual bales according to grade.

Attitude of Cotton Trade Toward Oklahoma Cotton

During 1935-36 and 1936-37, cotton merchants and mill buyers were extremely critical of Oklahoma cotton. A survey of the principal brokers operating in Oklahoma indicates that the more important foreign outlets demand that Oklahoma cotton be of staple lengths from 15/16 inch to 1 1/32 inches. Only one merchant mentioned 7/8 inch as the minimum staple length which his clients requested, and relatively few mentioned 29/32. The remainder specified 15/16. Domestic mill buyers are asking for staple lengths about 1/32 inch longer than foreign buyers.

Foreign consumers want mostly middling to strict middling grade Oklahoma cotton (grade 5 to 4), although three brokers mentioned higher grades. Domestic mills have been willing to use somewhat lower grades than foreign consumers: strict low middling to strict middling (grades 6 to 4.)[22]

A comparison of these mill-buyers' requirements with the staple lengths and grades for most cotton produced in Oklahoma during recent years shows the importance of determining local prices for individual bales by their quality in order to prevent further deterioration and to encourage improvement in the staple length and grade of cotton produced. During only one year since 1933 has over 18 percent of Oklahoma's total cotton production been of the staple lengths in greatest demand by cotton merchants.

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[21] The average percentage of snapped cotton in District III during 1935-36 was 80 percent; that for District V, 74 percent. These represent increases of approximately 15 and 11 percent, respectively, over comparable percentages for the period 1924-1932. Calculated from Corporation Commission Reports.

[22] Demand of buyers was as follows:

Staple Lengths	Brokers answering	GRADES Range	GRADES Brokers answering
	Foreign		
7/8 to 1 1/32 inches	1	5 to 4	7
29/32 to 31/32 inches	1	5 to 2	2
29/32 to 1 inch	1		
15/16 to 1 inch	4		
15/16 to 1 1/32 inches	2		
	Domestic		
7/8 to 1 1/8 inches	2	6 to 4	5
15/16 to 1 inch	1	5	2
15/16 to 1 1/32 inches	5	5 to 4	2
31/32 to 1 1/32 inches	1		

The bulk of the crops since 1933 has also been below white middling grade: 77 percent for 1934, 77 percent for 1935, and 67 percent for 1936. It is not surprising that a number of cotton merchants and brokers have withdrawn entirely from Oklahoma markets, while others have stopped buying from certain specific markets, principally in District V, and to some extent in District IV. Practically all who are in a position to do so—in other words, can get in other producing areas—have reduced the proportion of Oklahoma cotton which they handle.[33] Brokers also have reduced sharply the average price paid gin operators for cotton sold in round lots because of low average staple length.

Although a substantial proportion of Oklahoma cotton has long been exported and probably will continue to be when there are important exports of American cotton, production of the quantities of short staple cotton which have been grown during recent seasons puts producers at a disadvantage upon export markets. Thus the above quoted requests from foreign buyers with respect to staple length and grade indicate that foreign as well as domestic mills find the bulk of Oklahoma cotton of shorter staple and poorer grade than they wish. Obviously, the low quality cotton can be sold at some price; however, this price may prove extremely unsatisfactory to producers. Furthermore, when producing extremely short staple cotton, Oklahoma producers come in direct competition with those in India, where the bulk of the commercial short staple cotton in the world is grown.

It appears evident that every possible economic production practice for the purpose of maintaining and improving the staple length and grade of Oklahoma cotton should be followed. The buying of individual bales of such cotton strictly on the basis of its quality would do much to make such production practices economical.

[33] All brokers included in the study stated that they had had to reduce purchases of Oklahoma cotton since 1933. Four had completely stopped buying Oklahoma cotton. All were extremely critical of cotton produced in District V and in the western portion of District IV.