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# Farm Prices and Quality of Missouri Cotton\*

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\*In Cooperation with  
UNITED STATES DEPARTMENT OF AGRICULTURE  
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# Farm Prices and Quality of Missouri Cotton<sup>1</sup>

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## INTRODUCTION

Cotton is one of the leading crops of Missouri, with a farm value in 1934 of about \$18,500,000, and an average value for the crop years 1924 to 1934 of about \$15,000,000. During the last ten years approximately 95 per cent of the crop was produced in six counties in the southeastern part of the State, and about 78 per cent in Dunklin, Pemiscot, and New Madrid counties. In these six cotton producing counties the gross income from cotton generally is greater than the combined income from all other crops and livestock.

With any given level of cotton prices in the United States, the average market value of cotton in any section or community depends to a considerable extent upon its quality. The quality of cotton produced, in turn, is greatly influenced by marketing methods and price relationships. The primary purposes of this investigation were to determine: (1) the extent to which prices received by individual producers varied with the grade and staple length of the cotton; (2) the relation between the average grade and staple length of cotton produced in different communities and average prices received by growers for cotton in those communities; (3) differences between prices to growers for seed cotton and for cotton custom ginned; and (4) the relation between these marketing and pricing practices and the quality of cotton produced and the income to growers in Missouri. Data on the grade and staple length of cotton produced in Missouri, and in the United States as a whole, during the period 1928-29 to 1934-35, inclusive, are presented as a background for the study.

These problems of cotton quality have been of particular interest in recent years because of the increased competition from

1. Credit is due Arthur W. Palmer for general supervision; the Grade and Staple Statistics project of the Bureau of Agricultural Economics, United States Department of Agriculture, for supplying data on the classification of the cotton and for cooperation in the collection and tabulation of price data; and to ginners and cotton buyers for making data available.

\*United States Department of Agriculture, Bureau of Agricultural Economics.

cotton produced in foreign countries. In some of these countries increased quantities of the poorer quality, medium and shorter-staple cottons are produced. These developments emphasize the importance of improving the quality of cotton produced in the United States. Missouri shares with other cotton states the responsibility of making needed improvements.

**Sources of Data.**—Estimates of the grade and staple length of cotton ginned in Missouri have been made each year since 1928 by the United States Department of Agriculture in cooperation with the Missouri Agricultural Experiment Station. In obtaining these data, arrangements were made with certain ginners in the State to obtain a press-box sample of about 4 ounces from each bale ginned on their gins during the season. The gins were selected so as to give as nearly as possible a cross-section of grade and staple length of cotton ginned in Missouri. The samples obtained at these gins were sent to Memphis, Tenn., where they were classed, according to the official cotton standards of the United States, by Government specialists in cotton classing. The proportion of the various grades and staple lengths included in the sample for specified gins, obtained in this manner, was applied to the Missouri ginnings, as reported by the Bureau of the Census, in arriving at the grade and staple length of the State crop.

Data on prices received by growers were collected in 4 local markets<sup>2</sup> in 1929-30, 2 each in 1930-31 and 1931-32, and 1 each in 1932-33 and 1933-34. These local markets were selected at points where arrangements already had been made for obtaining samples for estimating the grade and staple length of the Missouri crop.

Data on prices of lint cotton, seed cotton, and cotton seed, and on date of sale, were obtained from local buyers, and were recorded along with the data on Government classifications of the samples obtained as previously indicated. Data on the weights of seed cotton, lint cotton and cotton seed, and on ginning costs, were obtained from the ginner. Before making the analysis of variations in prices for cotton custom ginner in relation to the grade and staple length of the cotton sold, those bales which were sold in "round lots" were separated from the data on cotton sold as individual bales.

<sup>2</sup> Local markets represent that part of the cotton marketing system at which farmers and buyers come into direct contact for the purpose of selling and buying cotton. These markets represent the first step in the movement of cotton from growers to the ultimate consumers. Market places, which in this study are referred to as local markets, are to be found in almost every village and town in the cotton-producing area of the State.

Central market prices used as a basis for comparison were confined to quotations for the Memphis market, with the exception of discounts for 13/16-inch staple which represented an average for the Houston, Galveston, and New Orleans markets<sup>3</sup>.

### QUALITY OF MISSOURI COTTON

The term "quality" as applied to cotton refers to all the physical properties of cotton that affect its usefulness. These properties are described for commercial purposes in terms of grade, staple length, and character<sup>4</sup>. *Grade* is a term denoting a composite of: (1) color, "luster," and "brightness" of the lint; (2) nature and quantity of foreign matter present, such as leaf, shale, "motes," sand, and dust; and (3) condition or preparation resulting from ginning as indicated by smoothness of fiber, "neppiness", "nappiness", and whether or not the fibers are gin-cut or stringy. *Staple length* of cotton means the normal length by measurement of a typical portion of its fibers and is determined commercially by a certain "pulling" of the staple with the hands. *Character* of cotton includes all elements of cotton quality not included in grade or staple length such as fineness of fibers, strength, and uniformity of fiber dimensions.

**Grade.**—Cotton ginned in Missouri averaged considerably lower in grade than that ginned in the United States as a whole. For the period 1928 to 1934, the proportion of the total ginnings in Missouri that graded White Middling and higher amounted to about 44 per cent, compared with 69 per cent for the United States. The proportion of Missouri cotton that was of white grades lower than Middling averaged about 44 per cent, compared with 17 per cent for the United States. "Spotted" cotton represented a somewhat smaller proportion of the total crop in Missouri than for the United States as a whole, but averaged somewhat lower in grade than that for the United States. The proportion of the ginnings represented by the various grades varied irregularly from year to year for the Missouri crop as well as for the United States crop (Tables 1 and 2, and Figs. 1 and 2).

While much of the cotton produced in Missouri is considerably higher in grade than some of the cotton produced in other parts

<sup>3</sup> Central market quotations are used as a basis for indicating differences in the spinning value of the various grades and staples. The use of these quotations as a basis for comparison should not be interpreted to mean that prices to growers in local markets under present conditions might reasonably be expected to reflect full central market premiums and discounts for grade and staple length.

<sup>4</sup> Palmer, Arthur W. 1924. Commercial Classification of American Cotton. U. S. Dept. Agr., Dept. Circ. 278.

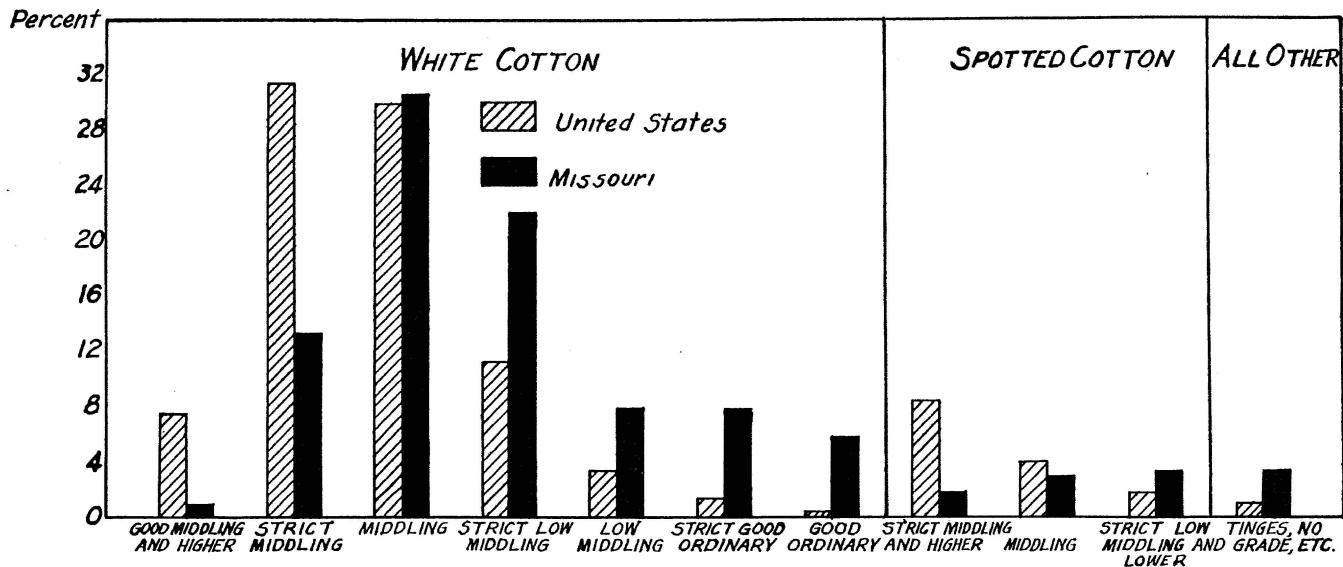


Fig. 1.—Distribution by Grade of Cotton Ginned in Missouri and in the United States as a Whole, Average for Crops of 1928 to 1934, Inclusive.

TABLE 1.—DISTRIBUTION BY GRADE OF COTTON GINNED IN MISSOURI, CROPS 1928 TO 1934<sup>1</sup>

Grade	1928	1929	1930	1931	1932	1933	1934
	<i>1,000 bales</i>	<i>1,000 bales</i>	<i>1,000 bales</i>	<i>1,000 bales</i>	<i>1,000 bales</i>	<i>1,000 bales</i>	<i>1,000 bales</i>
White <sup>2</sup>							
2—Strict Good Middling-----	---	---	---	---	---	---	0.1
3—Good Middling-----	1.6	1.3	5.5	0.8	0.4	---	1.0
4—Strict Middling-----	20.9	33.1	37.3	27.5	28.0	6.6	40.0
5—Middling-----	29.1	70.6	64.1	76.7	112.3	40.8	88.8
6—Strict Low Middling-----	27.8	24.6	20.8	72.2	80.9	86.4	49.3
7—Low Middling-----	7.8	19.0	13.2	23.3	20.1	29.5	10.2
8—Strict Good Ordinary-----	17.2	30.7	6.3	40.2	21.8	4.7	5.2
9—Good Ordinary-----	22.1	12.6	1.0	25.3	20.1	1.7	5.5
Total-----	126.5	191.9	148.2	266.0	283.6	169.7	200.1
Spotted							
3—Good Middling-----	.1	.1	.1	.5	.2	.1	.2
4—Strict Middling-----	2.6	2.6	.9	3.2	1.4	10.7	6.3
5—Middling-----	5.7	3.3	1.0	2.2	1.8	21.7	9.8
6—Strict Low Middling-----	2.2	5.0	.9	.9	.3	12.0	4.6
7—Low Middling-----	2.2	7.3	.1	2.4	4.1	9.3	4.0
Total-----	12.8	18.3	3.0	9.2	7.8	53.8	24.9
Other <sup>3</sup> -----	.1	.9	.1	.1	---	.3	.2
No Grade <sup>4</sup> -----	7.5	9.8	2.0	5.1	9.3	14.1	5.3
Grand Total-----	146.9	220.9	153.3	280.4	300.7	237.9	230.5

<sup>1</sup>U. S. Dept. Agriculture Statistical Bull. 52. Data for 1934 from U. S. Dept. Agriculture preliminary report.

<sup>2</sup>Extra White cotton included.

<sup>3</sup>Includes grades of Yellow Tinged and Gray standards.

<sup>4</sup>Includes bales not otherwise classified above.

of the Cotton Belt, the value of the Missouri crop probably could be materially increased by improving the grade of the cotton. Grade is largely influenced by weather conditions prior to harvesting, time and care of harvesting, conditions at time of ginning, the kind and condition of ginning equipment used, and the methods of its operation. Farmers should realize that cotton picked will give considerably higher grade than cotton from the same field snapped or sledged; that cotton picked early will give considerably higher grade than the same cotton left in the field for several weeks after it is open; and that cotton ginned too wet will give a considerably lower grade than the same cotton properly conditioned before ginning. While weather conditions prior to and during harvest time are beyond the control of farmers, they can prevent deterioration in grade to some extent by early and careful harvesting, by seeing that cotton is not too wet at the time of ginning, and by having it properly ginned. Farmers can profit by using these means of improving the grade of their cotton up to the point where increases in value as a result of improvements in grade are counterbalanced by increased costs involved.

**Staple Length.**—The staple length of cotton ginned in Missouri averaged somewhat longer than for the United States crop as a whole each year from 1928 to 1934, inclusive, with the exception

TABLE 2.—PERCENTAGE DISTRIBUTION BY GRADE OF COTTON GINNED IN MISSOURI AND IN THE UNITED STATES AS A WHOLE, CROPS 1928 TO 1934<sup>1</sup>

Grade	1928		1929		1930		1931		1932		1933		1934	
	Mo.	U. S.	Mo.	U. S.	Mo.	U. S.	Mo.	U. S.	Mo.	U. S.	Mo.	U. S.	Mo.	U. S.
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
White <sup>2</sup>														
1—Middling Fair-----	----	3.0	----	0.3	----	0.1	----	0.1	----	3	----	----	----	0.1
2—Strict Good Middling-----	----	0.3	----	0.3	----	0.1	----	0.1	----	3	----	----	----	0.1
3—Good Middling-----	1.1	12.4	0.6	7.1	3.6	7.4	0.3	6.2	0.1	2.8	----	5.1	.5	11.0
4—Strict Middling-----	14.2	35.0	15.0	27.8	24.3	33.4	9.8	36.3	9.3	25.9	2.8	24.0	17.4	36.7
5—Middling-----	19.8	23.5	32.0	30.9	41.8	31.5	27.4	32.0	37.4	35.9	17.2	26.1	38.5	28.6
6—Strict Low Middling-----	18.9	9.9	11.1	13.2	13.6	12.9	25.8	11.0	26.9	13.2	36.3	10.5	21.4	7.8
7—Low Middling-----	5.3	3.1	8.6	5.6	8.6	4.2	8.3	4.1	6.7	2.8	12.4	2.3	4.4	1.8
8—Strict Good Ordinary-----	11.7	1.7	13.9	2.0	4.1	1.0	14.3	2.5	7.2	.9	2.0	.4	2.3	.3
9—Good Ordinary-----	15.1	.6	5.7	.6	.7	.1	9.0	1.0	6.7	.4	.7	.1	2.4	.1
Total-----	86.1	86.5	86.9	87.5	96.7	90.6	94.9	93.2	94.3	81.9	71.4	68.5	86.9	86.4
Spotted														
3—Good Middling-----	.1	1.0	3	.3	3	1.1	.2	.7	.1	1.5	3	3.8	.1	1.4
4—Strict Middling-----	1.7	5.5	1.2	4.5	.6	4.1	1.1	2.6	.4	8.3	4.5	16.8	2.7	7.0
5—Middling-----	3.9	3.3	1.5	3.9	.7	2.4	.8	1.5	.6	5.3	9.1	8.2	4.2	3.6
6—Strict Low Middling-----	1.5	1.4	2.3	1.6	.6	1.0	.3	1.1	.1	1.7	5.1	1.8	2.0	1.0
7—Low Middling-----	1.5	.6	3.3	.5	3	.2	.9	.4	1.4	.6	3.9	.5	1.7	.3
Total-----	8.7	11.8	8.3	10.8	2.0	8.8	3.3	6.3	2.6	17.4	22.6	31.1	10.7	13.3
Other <sup>4</sup> -----	.1	.5	.4	1.4	3	.5	3	.2	----	.4	.1	.2	.1	.2
No grade <sup>5</sup> -----	5.1	1.2	4.4	.3	1.3	.1	1.8	.3	3.1	.3	5.9	.2	2.3	.1
Grand total-----	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

<sup>1</sup>U. S. Dept. of Agriculture Statistical Bulletin 52. Data for 1934 from U. S. Dept. Agriculture preliminary reports.<sup>2</sup>Extra White cotton included.<sup>3</sup>Less than 0.05 per cent.<sup>4</sup>Includes grades of Yellow Tinged and Gray standards.<sup>5</sup>Includes bales not otherwise classified above.



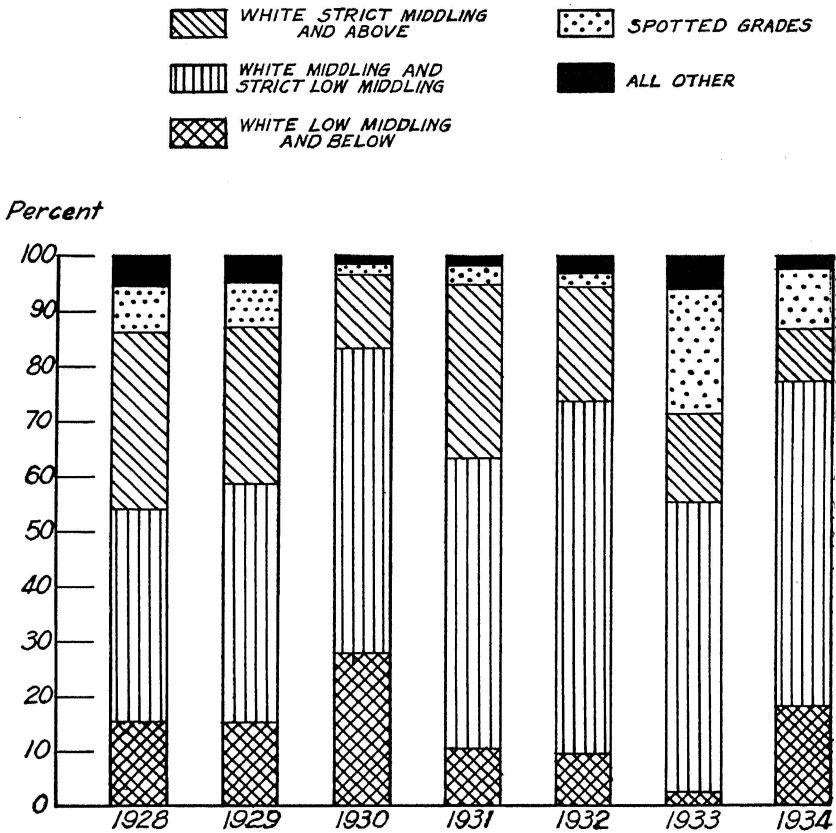


Fig. 2.—Distribution by Grades of Cotton Ginned in Missouri, by Crop Years 1928 to 1934, Inclusive.

of 1931 when the averages were about the same. During this period the proportion of the Missouri crop that was of the medium staple lengths (15/16-inch to 1-3/32 inches, inclusive) averaged about 73 per cent as compared with an average of about 46 per cent for the United States. The proportion of the Missouri crop with staples 29-32 inch and shorter averaged about 26 per cent compared with 49 per cent for the United States. Less than 1 per cent of the Missouri cotton had staples 1-1/8 inches and longer, while for the United States about 5 per cent of the ginnings were of these longer staples. The proportions of the various staple lengths ginned in Missouri, as well as for the United States as a whole, varied somewhat irregularly from year to year. The average staple length of cotton ginned in Missouri showed no definite trend, and in 1934 was about the same as in 1928. The average staple length for the

United States, however, has increased each year since 1929 (Tables 3 and 4, and Figs. 3 and 4).

TABLE 3.—DISTRIBUTION BY STAPLE LENGTHS OF COTTON GINNED IN MISSOURI, CROPS 1928 TO 1934<sup>1</sup>

Staple length (inches)	1928	1929	1930	1931	1932	1933	1934
	1,000 bales	1,000 bales	1,000 bales	1,000 bales	1,000 bales	1,000 bales	1,000 bales
Shorter than $\frac{7}{8}$ .....	8.8	3.1	11.2	2.6	2.0	3.1	8.3
$\frac{7}{8}$ and $\frac{29}{32}$ .....	30.2	57.5	56.0	85.9	52.1	38.8	55.3
$\frac{15}{16}$ and $\frac{31}{32}$ .....	32.2	88.4	55.6	128.0	114.9	94.1	82.2
1 and $1\frac{1}{32}$ .....	39.3	56.2	22.4	53.9	107.7	90.3	59.7
$1\frac{1}{16}$ and $1\frac{3}{32}$ .....	14.3	13.7	7.1	9.5	23.0	11.5	22.2
$1\frac{1}{8}$ and $1\frac{5}{32}$ .....	1.7	1.8	1.0	.5	1.0	.1	2.3
$1\frac{3}{16}$ and $1\frac{7}{32}$ .....	.4	.2	-----	-----	-----	-----	.3
$1\frac{1}{4}$ and longer.....	-----	-----	-----	-----	-----	-----	.2
Total.....	146.9	220.9	153.3	280.4	300.7	237.9	230.5

<sup>1</sup>U. S. Dept. Agriculture Statistical Bull. 52. Data for 1934 from U. S. Dept. Agriculture preliminary report.

The value of the Missouri cotton crop probably could be increased, and the incomes of many Missouri cotton growers raised, by producing longer-staple cotton, provided the improvements in staple are reflected in higher prices to growers. The most effective means of improving staple length are to obtain good seed of suitable, high-yielding, early-maturing, longer-staple varieties, and to

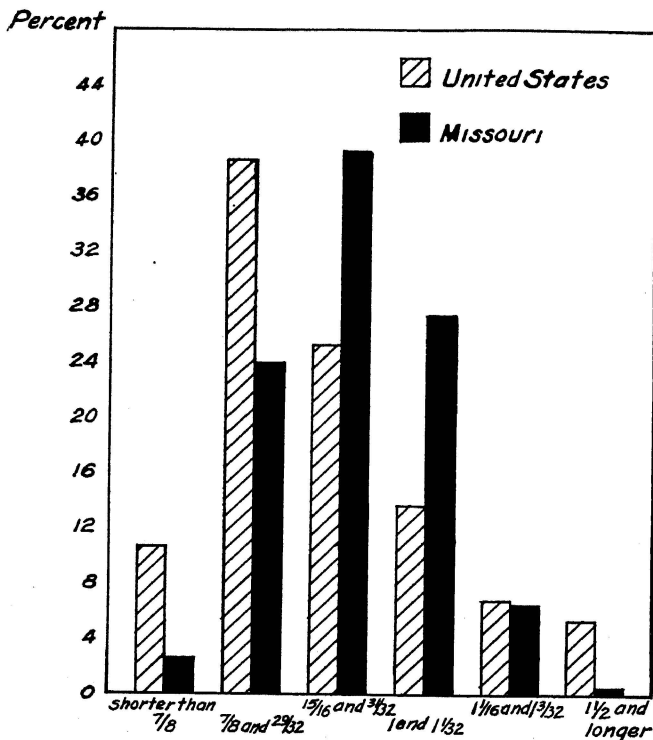


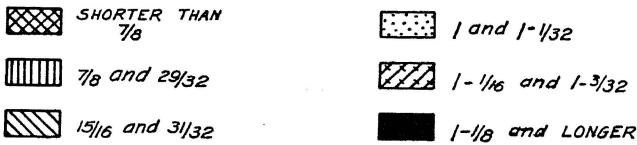
Fig. 3.—Distribution by Staple Lengths of Cotton Ginned in Missouri and in the United States as a Whole, Average for Crops of 1928 to 1934, Inclusive.

TABLE 4.—PERCENTAGE DISTRIBUTION BY STAPLE LENGTH OF COTTON GINNED IN MISSOURI AND IN THE UNITED STATES AS A WHOLE, CROPS 1928 TO 1934<sup>1</sup>

Staple length (inches)	1928		1929		1930		1931		1932		1933		1934	
	Mo.	U. S.	Mo.	U. S.	Mo.	U. S.	Mo.	U. S.	Mo.	U. S.	Mo.	U. S.	Mo.	U. S.
	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
Shorter than 3/8-----	6.0	14.5	1.4	20.1	7.3	13.3	0.9	6.1	0.7	6.6	1.3	4.3	3.6	8.3
3/8 and 29/32-----	20.6	41.5	26.0	38.1	36.5	38.8	30.6	39.7	17.3	37.7	16.3	35.6	24.0	36.8
15/16 and 31/32-----	35.5	22.6	40.0	18.9	36.3	24.9	45.7	27.1	38.2	28.9	39.6	31.6	35.7	21.7
1 and 1-1/32-----	26.7	11.0	25.5	11.7	14.6	12.6	19.2	15.4	35.8	14.3	38.0	15.8	25.9	15.0
1-1/16 and 1-3/32-----	9.7	5.6	6.2	6.5	4.6	7.1	3.4	6.5	7.7	6.9	4.8	6.5	9.6	9.4
1-3/8 and 1-5/32-----	1.2	3.4	.8	3.8	.7	2.9	.2	3.6	.3	4.9	<sup>2</sup>	5.1	1.0	7.3
1-3/16 and 1-7/32-----	.3	1.2	.1	.8	----	.4	----	1.4	----	.7	----	1.1	.1	1.3
1-3/4 and longer-----	----	.2	----	.1	----	<sup>2</sup>	----	.2	----	<sup>2</sup>	----	<sup>2</sup>	.1	.2
Total-----	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

<sup>1</sup>U. S. Department Agriculture Statistical Bulletin 52. Data for 1934 from U. S. Department Agriculture preliminary reports.

<sup>2</sup>Less than 0.05 per cent.



Percent

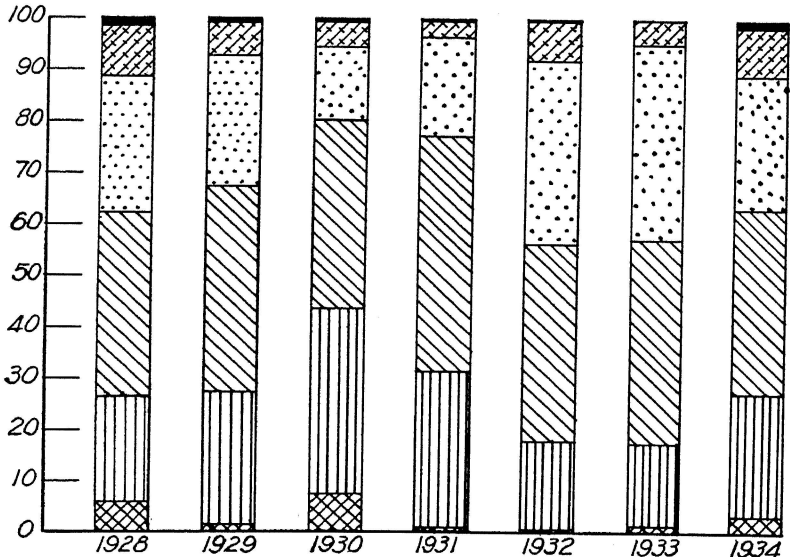


Fig. 4.—Distribution by Staple Lengths of Cotton Ginned in Missouri, Crop Years 1928 to 1934.

have the cotton carefully ginned so as to preserve the fiber lengths. These means of improving the staple of the cotton can be used profitably by growers up to the point where increases in value as a result of improvements in staple are offset by increases in costs involved, due largely to differences in yield.

**Character.**—Although the character of cotton is of importance in determining the spinning quality of the fibers, the factors affecting the character of cotton are not very definitely known. Differences in character are recognized in the markets, and the prices paid doubtless reflect differences in character to some extent, but in the absence of standards for character no attempt was made in this study to determine the character of Missouri cotton or to relate the prices received by growers to the character of the cotton.

**Variations in grade and staple length of cotton produced in different communities.**—Considerable differences in the grade and staple length of cotton produced in different communities in Missouri

in any one year were indicated by the classifications of cotton ginned. The grade and staple length of the cotton ginned in the same communities also varied considerably from year to year. These differences in grade and staple length were due largely to differences in varieties grown, in growing conditions, in harvesting methods, and in condition of the cotton at the time of ginning.

### RELATION BETWEEN PRICES AND THE GRADE AND STAPLE LENGTH OF INDIVIDUAL BALES OF CUSTOM GINNED COTTON

**Premiums and discounts for grade.**—Prices received by growers for the higher grades of cotton in selected local markets in Missouri were generally about the same as those received for the lower grades sold in the same local markets on the same days; while in the Memphis market prices of the higher grades were considerably higher than those of the lower grades. For example, no significant premiums on the average were received by Missouri growers for Strict Middling over prices received for Middling; while average premiums for Strict Middling quoted in the Memphis market varied from 0.21 cent a pound in 1931-32 to 0.29 cent a pound in 1933-34. On the other hand, no significant discounts on the average were made to growers for Strict Low Middling from the prices of Middling; while in the Memphis market average discounts for Strict Low Middling varied from 0.27 cent a pound in 1932-33 to 0.75 cent a pound in 1929-30 and in 1930-31 (Table 5 and Fig. 5).

Although the average prices received by growers were approximately the same for the various grades of cotton sold, prices of individual bales varied so irregularly on the basis of grade that it was not unusual for some farmers to receive higher prices for lower-grade cotton than other farmers received for higher-grade cotton of the same staple length sold in the same local markets on the same day. During the seasons 1929-30 to 1933-34, the prices received for 15 per cent of the Strict Middling cotton were lower and the prices received for 8 per cent of the Strict Low Middling were higher than the average price paid for Middling cotton of the same staple length (Table 6). The distribution of variations in prices for each year were, in general, more or less similar to those for all seasons combined.

**Premiums and Discounts for Staple Length.**—Prices received by growers in selected local markets in Missouri were generally

TABLE 5.—AVERAGE PREMIUMS AND DISCOUNTS<sup>1</sup> FOR SPECIFIED GRADES OF 7/8-INCH WHITE COTTON IN SELECTED LOCAL MARKETS IN MISSOURI AND IN CENTRAL MARKETS<sup>2</sup>, SEASONS 1929-30 TO 1933-34

	Season 1929-30			Season 1932-33		
	Local market		Central market	Local market		Central market
	Size of sample	Premiums (+) and discounts (-)	Premiums (+) and discounts (-)	Size of sample	Premiums (+) and discounts (-)	Premiums (+) and discounts (-)
4—Strict Middling-----	Bales 3	Cents 0.00	Cents 0.25	Bales 62	Cents 0.00	Cents 0.21
5—Middling (Basis)-----	21	.00	.00	265	.00	.00
6—Strict Low Middling-----	3	-.04	-.75	65	-.01	-.27
7—Low Middling-----	--	-----	-----	4	-.62	-.58
	Season 1930-31			Season 1933-34		
4—Strict Middling-----	76	.02	.25	15	.00	.29
5—Middling (Basis)-----	118	.00	.00	112	.00	.00
6—Strict Low Middling-----	8	-.22	-.75	63	.00	-.40
7—Low Middling-----	5	-.20	-1.75	8	-.70	-.75
	Season 1931-32			Total		
4—Strict Middling-----	56	.02	.23	212	.01	.24
5—Middling (Basis)-----	154	.00	.00	670	.00	.00
6—Strict Low Middling-----	47	.02	-.35	186	-.01	-.36
7—Low Middling-----	1	-.02	-.85	18	-.51	-1.00

<sup>1</sup>Premiums and discounts in cents per pound from the price of Middling 7/8-inch White cotton. The price of Middling 7/8-inch White cotton in selected local markets averaged 17.12 cents per pound in 1929-30, 9.10 cents per pound in 1930-31, 5.56 cents per pound in 1931-32, 6.35 cents per pound in 1932-33, 9.20 cents per pound in 1933-34, and 7.47 cents per pound for the five seasons combined. Central market quotations averaged 16.28, 9.31, 5.58, 6.31, 9.11 and 7.45 cents per pound respectively.

<sup>2</sup>Average quoted prices for Middling 7/8-inch cotton and average premiums and discounts for grade at Memphis were weighted by the number of bales of cotton of the same grade and staple length designation sold on the same day and included in the sample of cotton shown for local markets.

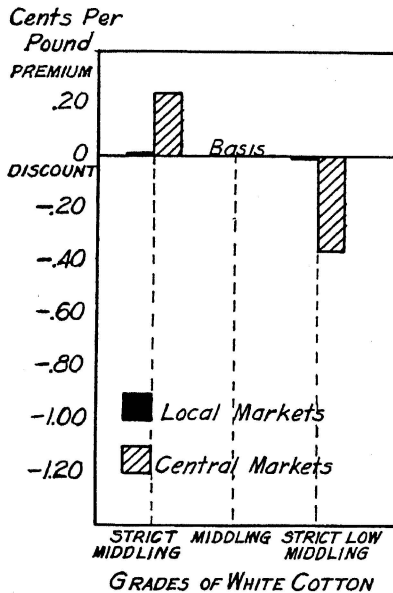


Fig. 5.—Average Premiums and Discounts for Specified Grades of 7/8 Inch Cotton in Selected Local Markets in Missouri and in the Memphis Market, Seasons 1929-30 to 1933-34, Inclusive.

TABLE 6.—FREQUENCY DISTRIBUTION OF VARIATIONS IN PRICES<sup>1</sup> PER POUND RECEIVED BY GROWERS FOR INDIVIDUAL BALES OF SPECIFIED GRADES OF WHITE COTTON OF 7/8-INCH STAPLE FROM THE AVERAGE PRICE RECEIVED FOR MIDDLING WHITE COTTON OF THE SAME STAPLE LENGTH IN SELECTED LOCAL MARKETS IN MISSOURI, SEASONS 1929-30 TO 1933-34 COMBINED

Variation (cents)	4-Strict Middling		5-Middling		6-Strict Low Middling		7-Low Middling	
	Bales	Per cent	Bales	Per cent	Bales	Per cent	Bales	Per cent
-1.550 to -1.451	----	----	----	----	----	----	2	11.1
-1.450 to -1.351	----	----	----	----	----	----	1	5.6
-1.350 to -1.251	----	----	----	----	----	----	----	----
-1.250 to -1.151	----	----	----	----	----	----	1	5.6
-1.150 to -1.051	----	----	----	----	----	----	----	----
-1.050 to -.951	----	----	----	----	1	0.5	3	16.7
-.950 to -.851	----	----	----	----	----	----	----	----
-.850 to -.751	----	----	----	----	1	.5	----	----
-.750 to -.651	----	----	1	0.2	1	.5	----	----
-.650 to -.551	----	----	1	.2	----	----	1	5.5
-.550 to -.451	1	0.5	----	----	1	.5	1	5.5
-.450 to -.351	1	.5	----	----	----	----	----	----
-.350 to -.251	----	----	7	1.0	2	1.1	----	----
-.250 to -.151	12	5.6	11	1.6	5	2.7	----	----
-.150 to -.051	18	8.5	44	6.6	19	10.2	----	----
-.050 to .049	128	60.4	524	78.2	141	75.8	9	50.0
.050 to .149	21	9.9	51	7.6	3	1.6	1	5.5
.150 to .249	20	9.4	23	3.4	7	3.8	----	----
.250 to .349	7	3.3	3	.4	4	2.2	----	----
.350 to .449	3	1.4	4	.6	2	1.1	----	----
.450 and over	1	.5	1	.2	----	----	----	----
Total	212	100.0	670	100.0	186	100.0	18	100.0
Mean	Cents 0.01		Cents 0.00		Cents -0.01		Cents -0.51	
Standard error of mean	.03		.00		.03		.47	
Average deviation	.08		.03		.06		.57	
Appropriate range <sup>2</sup>	1.30		1.20		1.40		1.60	

<sup>1</sup>Minus sign (-) means below the average price for Middling White cotton.  
<sup>2</sup>The appropriate range was measured from the mid-point of the extreme classes.

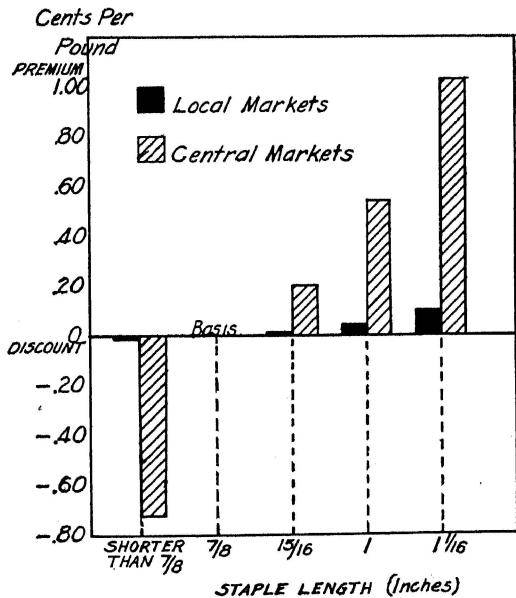


Fig. 6.—Average Premiums and Discounts for Specified Staple Lengths of Middling Cotton in Selected Local Markets and in Central Markets, Seasons 1929-30 to 1933-34, Inclusive.

TABLE 7.—AVERAGE PREMIUMS AND DISCOUNTS<sup>1</sup> FOR SPECIFIED STAPLE LENGTHS OF MIDDLING WHITE COTTON IN SELECTED LOCAL MARKETS IN MISSOURI AND IN CENTRAL MARKETS<sup>2</sup>, SEASONS 1929-30 TO 1933-34

Staple length (inches) <sup>3</sup>	Season 1929-30			Season 1932-33		
	Local market		Central market	Local market		Central market
	Size of sample	Premiums (+) and discounts (-)	Premiums (+) and discounts (-)	Size of sample	Premiums (+) and discounts (-)	Premiums (+) and discounts (-)
Shorter than ¾	<i>Bales</i>	<i>Cents</i>	<i>Cents</i>	<i>Bales</i>	<i>Cents</i>	<i>Cents</i>
¾ (Basis)	21	0.00	0.00	16	-0.01	4-0.27
15/16	13	.00	.60	265	.00	.00
1	6	-.04	1.10	141	.00	.19
1-1/16	--	----	----	65	.01	.47
				3	.08	.88
	Season 1930-31			Season 1933-34		
Shorter than ¾	34	-.02	4-1.00	--	----	----
¾ (Basis)	118	.00	.00	112	.00	.00
15/16	52	.00	.34	190	.02	.16
1	5	.02	.92	65	.02	.60
1-1/16	4	.01	1.50	9	.11	.95
	Season 1931-32			Total		
Shorter than ¾	9	.04	4-.45	59	-.01	4-.72
¾ (Basis)	154	.00	.00	670	.00	.00
15/16	66	.04	.14	462	.01	.20
1	35	.17	.40	176	.04	.54
1-1/16	10	.14	.95	26	.10	1.03

<sup>1</sup>Premiums and discounts in cents per pound from the price of Middling ¾-inch cotton. The price of Middling ¾-inch White cotton in selected local markets averaged 17.12 cents per pound in 1929-30, 9.10 cents per pound in 1930-31, 5.56 cents per pound in 1931-32, 6.35 cents per pound in 1932-33, 9.20 cents per pound in 1933-34, and 7.47 cents per pound for the five seasons combined. Central market quotations averaged 16.28, 9.31, 5.58, 6.31, 9.11 and 7.45 cents per pound respectively.

<sup>2</sup>Memphis quotations for Middling ¾-inch cotton and premiums for 15/16-inch, 1-inch, and 1-1/16-inches at Memphis, and average discounts for 13/16-inch at Houston, Galveston, and New Orleans were weighted by the number of bales of cotton of the same grade and staple length designation sold on the same day and included in the sample of cotton shown for local markets.

<sup>3</sup>Bales sold in local markets, when classed in odd numbered thirty-seconds of an inch, have been tabulated as of the next lower sixteenth of an inch.

<sup>4</sup>13/16-inch cotton only.

about the same for cotton of the various staple lengths sold in the same local markets on the same days; while in the Memphis market the longer staples brought considerable premiums over the prices of 7/8-inch cotton. For example, no significant premiums on the average were received by growers for 1-inch cotton over the price received for 7/8-inch cotton; while in the Memphis market average premiums for 1-inch cotton varied from 0.47 cent a pound in 1932-33 to 1.10 cents a pound in 1929-30. On the other hand, no significant discounts, on the average, were made to growers for cotton shorter than 7/8-inch in staple; whereas in central markets<sup>5</sup> the average discount for cotton with staples 13/16-inch varied from

<sup>5</sup> Average discounts for 13/16 inch at Houston, Galveston, and New Orleans were used in the absence of official quotations for this length for the Memphis market.



0.27 cent a pound in 1931-33 to 1.0 cent a pound in 1930-31 (Table 7 and Fig. 6).

Although on the average no significant premiums for the longer staples and no significant discounts for the shorter staples were reflected in the prices received by growers, in a number of instances prices received for individual bales by some farmers differed considerably from prices received by other farmers for cotton of the same grade and staple length sold in the same local market on the same day. In addition, some farmers received considerably higher prices for shorter-staple cotton than other farmers received for longer-staple cotton of the same grade sold in the same local market on the same day. During the seasons 1929-30 to 1933-34, the prices received for over 6 per cent of the 15/16-inch cotton were lower and the prices received for about 18 per cent of the cotton shorter than 7/8-inch were higher than the prices paid for 7/8-inch cotton of the same grade (Table 8). The distribution of variations in prices for each year were, in general, more or less similar to those for all seasons combined.

TABLE 8.—FREQUENCY DISTRIBUTION OF VARIATIONS IN PRICES<sup>1</sup> PER POUND RECEIVED BY GROWERS FOR INDIVIDUAL BALES OF SPECIFIED STAPLE LENGTHS OF MIDDLING WHITE COTTON FROM THE AVERAGE PRICE RECEIVED FOR 7/8-INCH COTTON OF THE SAME GRADE IN SELECTED LOCAL MARKETS IN MISSOURI, SEASONS 1929-30 TO 1933-34 COMBINED

Variation (cents)	Shorter than 7/8-inch		7/8-inch		15/16-inch		1-inch		1-1/16- inches	
	Bales	Per cent	Bales	Per cent	Bales	Per cent	Bales	Per cent	Bales	Per cent
Under —.650	1	1.7	1	0.2	---	---	---	---	---	---
—.650 to —.551	---	---	1	.2	---	---	---	---	---	---
—.550 to —.451	---	---	---	---	2	0.4	---	---	---	---
—.450 to —.351	---	---	---	---	---	---	---	---	---	---
—.350 to —.251	2	3.4	7	1.0	---	---	---	---	---	---
—.250 to —.151	2	3.4	11	1.6	8	1.7	5	2.9	---	---
—.150 to —.051	8	13.5	44	6.6	17	3.7	3	1.7	2	7.7
—0.050 to .049	35	59.3	524	78.2	367	79.4	128	72.7	12	46.1
.050 to .149	5	8.5	51	7.6	21	4.6	3	1.7	2	7.7
.150 to .249	3	5.1	23	3.4	9	2.0	15	8.5	---	---
.250 to .349	2	3.4	3	4	34	7.4	20	11.4	10	38.5
.350 to .449	1	1.7	4	.6	2	2	2	1.1	---	---
.450 to .549	---	---	1	.2	1	.4	---	---	---	---
.550 to .649	---	---	---	---	1	.2	---	---	---	---
Total	59	100.0	670	100.0	462	100.0	176	100.0	26	100.0
Mean	Cents —0.01		Cents 0.00		Cents 0.01		Cents 0.04		Cents 0.10	
Standard error of mean	.08		.00		.02		.03		.10	
Average deviation	.09		.03		.05		.09		.14	
Approximate range <sup>2</sup>	1.60		1.20		1.10		.60		.40	

<sup>1</sup>Minus sign (—) means below the average price for 7/8-inch White cotton.

<sup>2</sup>The approximate range was measured from the mid-point of the extreme classes.

## FACTORS AFFECTING PREMIUMS AND DISCOUNTS FOR GRADES AND STAPLE LENGTH IN LOCAL MARKETS

A number of factors may help to explain the failure of prices received by growers in local markets in Missouri for custom ginned cotton to reflect a larger proportion of the premiums for the higher grades and longer staples and discounts for the lower grades and shorter staples quoted in central markets. The practice of selling cotton in the seed, because of the difficulties of classifying the cotton before it is ginned, makes it even more difficult than in the case of custom ginned cotton to vary prices on the basis of grade and staple length. As subsequently noted in greater detail, the practice of buying and selling seed cotton was followed rather generally in Missouri up to the season of 1933-34. This practice, along with the difficulty of classifying seed cotton, was one of the most important factors responsible for only a small proportion of central market premiums and discounts for grade and staple length being reflected in prices received by growers.

Factors that help to explain the failure of local market premiums and discounts for grade and staple length for custom ginned cotton to reflect a larger proportion of those quoted in central markets including the following:

(1) **Differences in Classification.**—There may have been considerable differences in the grade and staple length of individual bales as classed by local buyers, upon the basis of which the cotton was sold, from that of Government classers. Data showing comparisons of the classification by Government classers with those of local buyers in selected local markets in Missouri are not available, but data collected in local markets in other States show that the local buyers' classification varied considerably from that of Government classers<sup>6</sup>. These differences in classification were so great that premiums and discounts for grade and staple length made to growers on the basis of local buyers' classification were somewhat greater than those calculated on the basis of Government classification, but were materially less than those quoted in central markets. Differences in the classification of local buyers from that of Government classers may be due to a number of factors. The classification of cotton, being an art and not a science, is subject to considerable variations on the part of most all classers. Moreover,

<sup>6</sup> Howell, L. D., and Burgess, John S., Jr. 1935. Farm Prices of Cotton Related to Its Grade and Staple Length in the United States, Seasons 1928-29—1932-33. U. S. Dept. Agr. Tech. Bul. 493.

many of the local buyers were not thoroughly trained in the classification of cotton on the basis of the official cotton standards. The conditions in local markets, such as light and humidity, were not always conducive to accurate classification on the basis of the official cotton standards. The samples upon the basis of which the cotton was sold were cut from the bales, whereas the classifications of Government classers were based on loose samples taken at the gin press box. Where the cotton is not uniform in quality throughout the bale, a sample taken from the press box and one cut from the bale may show a difference in the grade and staple length as a result of their being taken from different parts of the bale and of possible differences in the physical condition of the sample.

(2) **Differences in Character:** Prices of cotton of the same grade and staple length sold in the same local market on the same day may also differ because of differences in character. In the absence of standards for character, no attempt was made to determine the extent to which differences in price received by growers resulted from differences in character of cotton. Differences in character of cotton sold in a given local market on the same day, however, were thought to be not great enough to account for more than a small part, if any, of the variations noted.

(3) **Inadequate volume:** Cotton of the higher grades and longer staples could not always be had in sufficient quantities in local markets to justify local buyers in paying the same grade and staple premiums as were paid for similar qualities of cotton sold in even-running lots in the central markets. The failure of the local buyers to discount the lower grades and shorter staples as much as they were discounted in central markets, however, is not accounted for by increased costs of handling this cotton in small lots.

(4) **Risks from fluctuations in prices:** Fluctuations in central market premiums and discounts for grade and staple length increase the risk which buyers in local markets must assume and may account in part for the relatively small proportion of central market premiums and discounts reflected in the prices paid to growers.

Fluctuations in cotton prices in local markets during the day result in irregular variation in the prices received by growers on the basis of the grade and staple length of cotton sold. It is believed that these irregular variations tend to compensate each other when averaged, and that only a small part, if any, of the failure of average prices in local markets to reflect greater proportions of central market premium and discounts is thus accounted for. A

part of the irregular variation shown in frequency distributions, however, may be accounted for by changes in prices during the day.

(5) **Differences in Bargaining Power:** Differences in bargaining power of farmers and local buyers no doubt account for at least a part of the wide and irregular variation in prices received by growers for cotton of the same grade and staple length sold in the same local market on the same day. Differences in bargaining power result from differences in general business ability; differences in knowledge of the quality and commercial value of cotton; differences in financial obligations; etc. While these tend to compensate one another when averaged, they undoubtedly account for a considerable proportion of the irregular variation previously shown.

### RELATION BETWEEN AVERAGE PRICES AND AVERAGE GRADE AND STAPLE LENGTH

Another problem was to determine to what extent prices to growers reflected differences in quality on a community basis. Average prices to growers in local markets may reflect differences in the quality of cotton sold in these markets even when prices of individual bales do not vary appreciably with the grade and staple length of the cotton. To the extent that the average prices of cotton in different markets reflect the differences in average quality of the cotton sold in these markets, the production of the higher grades and longer staples is rewarded on a community basis. In order to determine the extent to which production of the higher-grade and longer-staple cotton was rewarded on a community basis, comparisons were made of differences in average prices<sup>7</sup> actually received by growers in Missouri local markets with differences in average central market values of the cotton sold in these local markets resulting from differences in grades and staple length<sup>8</sup>.

The results show that in general during the period 1929-30 to 1933-34, inclusive, the average prices received by growers in the selected local markets where the cotton averaged higher in grade and longer in staple were somewhat higher than the average prices

<sup>7</sup> Since the transportation costs from the selected local markets in Missouri to Memphis were approximately the same, no adjustments were made in prices for differences in location of the markets studied.

<sup>8</sup> Differences in average central market values of the cotton sold in these markets were arrived at by weighting the number of bales of each grade and staple length by central market premiums and discounts.

*Variations In  
Average Price  
(Cents Per  
Pound)*

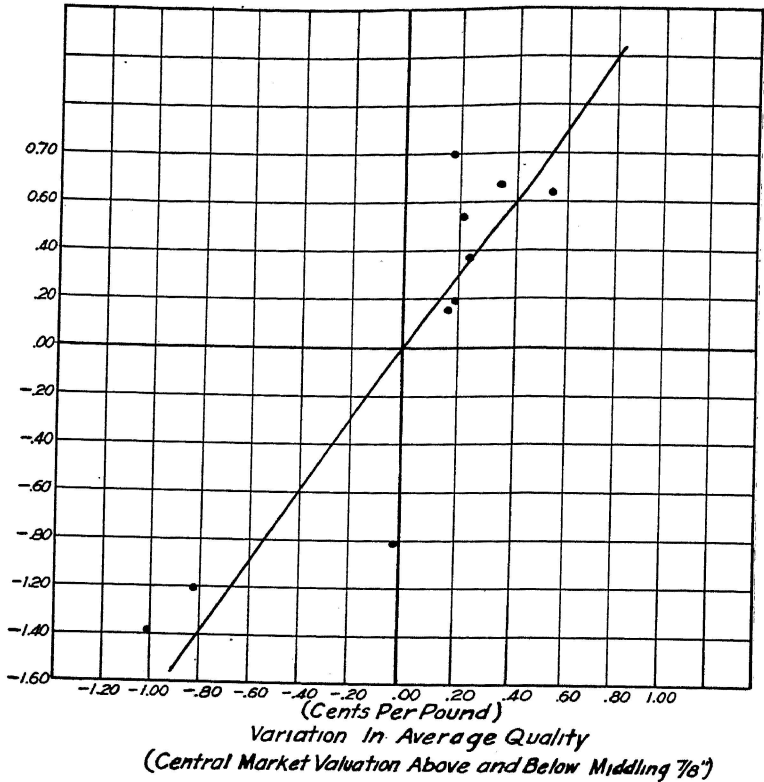


Fig. 7.—Relation of Average Price to Average Quality of Cotton in Selected Local Markets in Missouri, Seasons 1929-30 to 1933-34.

received by growers in local markets where the cotton averaged lower in grade and shorter in staple (Fig. 7). Considerable irregularity was found in the relationship of average prices received by growers for cotton sold in different local markets to the average central market value of this cotton. These irregularities, no doubt, are accounted for largely by variation in the conditions encountered in these local markets, such as differences in the kind and amount of local competition, in outlet for the cotton, in weights on which the cotton was sold, in bargaining power of farmers and local buyers, and in character of the cotton sold.

## PRICES OF SEED COTTON COMPARED WITH PRICES OF CUSTOM-GINNED COTTON

**Volume and Distribution of Sales.**—Most of the cotton produced in the United States is custom ginned and baled before it is sold by growers. In Missouri, as well as in sections of Oklahoma, Arkansas, Tennessee, North Carolina, and Virginia, considerable proportions of the cotton produced were sold in the seed prior to 1933. In other sections of the Cotton Belt the sale of cotton in the seed is largely confined to remnants. While data showing the volume and distribution of the sale of cotton in the seed for all cotton-producing counties in Missouri are not available, the results of a survey<sup>9</sup> made in Pemiscot County indicate that in 1929-30 and in 1930-31 about three-fourths of the cotton produced in that county was sold in the seed. Data on the proportion of the cotton sold in the seed in selected markets and other information indicate that large proportions of the cotton produced in other Missouri counties were also sold in the seed prior to 1933. Since the beginning of the cotton adjustment program under the Agricultural Adjustment Administration in 1933, the sale of cotton in the seed in Missouri has declined to negligible proportions.

**Grade and Staple Length of the Cotton.**—Data on the grade and staple length of the cotton sold in selected local markets during the seasons 1929-30 to 1932-33, inclusive, show that cotton sold in the seed averaged slightly lower in grade but slightly longer in staple than that custom ginned. Considerable proportions of the cotton sold in the seed, however, were higher in grade and shorter in staple than much of the cotton custom ginned (Table 9).

**Percentage of Lint to Seed Cotton.**—The lower grades and the longer staples were found to be generally associated with relatively low percentages of lint to seed cotton. The data analyzed show that while some of the cotton sold in the seed had a relatively high gin turnout, the amount of lint per 100 pounds of seed cotton averaged about 3 pounds greater for cotton custom ginned than for cotton sold as seed cotton.

**Prices Received by Growers.**—The returns to growers for cotton sold in the seed in selected local markets in Missouri in 1931-32 and 1932-33 averaged about \$1.20 a 500-pound bale higher than those for cotton custom ginned and sold in the same local markets on the same days. Only a small proportion, if any, of this differ-

<sup>9</sup> Amburgey, M. D.; Some Economic Phases of Cotton Production in Southeast Missouri; Master's thesis, University of Missouri 1932.

TABLE 9.—PERCENTAGE DISTRIBUTION BY GRADE AND BY STAPLE LENGTH FOR COTTON CUSTOM GINNED AND FOR COTTON SOLD IN THE SEED AT SELECTED LOCAL MARKETS<sup>1</sup> IN MISSOURI—1929-30-1933-34<sup>2</sup>

Item	1929-30		1930-31		1931-32		1932-33		1933-34	
	Custom ginned	Sold in seed	Custom ginned	Sold in seed	Custom ginned	Sold in seed	Custom ginned	Sold in seed	Custom ginned	Sold in seed
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
<i>Grade</i>										
White <sup>3</sup> -----	89.0	85.4	99.3	99.5	95.8	92.3	96.8	96.6	60.4	-----
G. M.-----	-----	.8	4.5	1.3	2.7	.6	-----	.6	-----	-----
S. M.-----	13.9	30.8	28.6	20.0	19.8	7.8	12.9	18.0	5.1	-----
M.-----	34.3	21.4	42.2	43.7	46.3	28.4	58.7	46.5	28.5	-----
S. L. M.-----	21.9	7.3	12.3	18.7	18.1	17.7	18.2	21.5	21.0	-----
L. M.-----	10.0	9.9	10.6	11.9	3.8	7.5	3.0	2.8	2.6	-----
S. G. O.-----	7.4	13.4	1.1	3.7	4.4	25.9	3.1	3.3	2.3	-----
G. O.-----	1.5	1.8	-----	.2	.7	4.4	.9	3.9	.9	-----
Spotted-----	11.0	14.6	.7	.5	4.2	7.7	3.2	3.4	39.6	-----
G. M.-----	-----	.4	-----	-----	.6	.7	.3	.1	.1	-----
S. M.-----	1.0	2.2	.2	-----	1.8	1.9	1.3	2.6	13.2	-----
M.-----	3.5	4.7	.3	.5	1.4	1.4	.9	.6	16.9	-----
S. L. M.-----	5.5	2.9	.2	-----	.2	1.0	-----	-----	3.6	-----
L. M.-----	1.0	4.8	-----	-----	.2	2.7	.7	.1	5.8	-----
Total-----	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-----
<i>Staple</i>										
Shorter than 7/8-----	-----	-----	12.8	11.2	2.8	1.3	3.9	.3	-----	-----
7/8 & 29/32-----	30.8	2.4	44.2	42.1	42.7	36.8	53.9	32.6	.9	-----
15/16 & 31/32-----	46.8	37.2	32.8	36.3	33.0	45.9	28.5	38.6	32.7	-----
1 & 1-1/32-----	17.4	39.2	8.8	9.7	16.0	14.0	12.6	24.1	46.0	-----
1-1/16 & 1-3/32-----	4.5	17.2	1.2	.7	5.4	1.9	1.0	4.3	17.3	-----
1-3/8 & 1-5/32-----	.5	3.6	.2	-----	.1	.1	.1	.1	3.1	-----
1-3/16 & 1-7/32-----	-----	.4	-----	-----	-----	-----	-----	-----	-----	-----
1-3/4 & longer-----	-----	.4	-----	-----	-----	-----	-----	-----	-----	-----
Total-----	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-----

<sup>1</sup>The number of markets included were 4 in 1929-30; 2 each in 1930-31 and 1931-32; and 1 each in 1932-33 and in 1933-34.

<sup>2</sup>The number of bales included for custom ginned and for cotton sold in the seed amounted to 201 and 4,536 bales respectively in 1929-30; 640 and 1,468 bales in 1930-31; 825 and 2,281 bales in 1931-32; 869 and 690 bales in 1932-33; and 1,625 bales of custom ginned in 1933-34.

<sup>3</sup>Includes Extra White cotton.

<sup>4</sup>Less than 0.05 per cent.

ence was accounted for by differences in grade and staple length of the cotton sold. On the other hand, the returns to growers for cotton custom ginned averaged \$1.73 a bale higher than they would have been if this same cotton had been sold in the seed in the same local markets on the same days at the prevailing prices of seed cotton. These apparently inconsistent differences are largely accounted for by a somewhat higher average percentage of lint to seed cotton for cotton custom ginned than for cotton sold in the seed. The influence of these differences in percentage of lint to seed cotton was only partially reflected in seed cotton prices so that under the conditions prevailing in the markets at that time growers apparently found it advantageous to sell the low-turnout cotton in the seed and to have the higher-turnout cotton custom ginned.

The daily average lint equivalent prices<sup>10</sup> of cotton sold in the seed were higher than prices of 65 per cent of the cotton custom ginned in 1931-32, and higher than prices of 75 per cent of the cotton custom ginned in 1932-33 and sold in the same local markets on the same days. For the two seasons combined, the daily average lint equivalent prices of cotton sold in the seed exceeded prices of 22 per cent of the custom-ginned cotton by more than \$3.00 a bale of 500 pounds; 31 per cent by more than \$2.00 a bale; and 52 per cent by more than \$1.00 a bale. On the other hand, returns to growers for cotton sold in the seed were \$3.00 or more a bale lower than 7 per cent of the custom-ginned cotton; \$2.00 or more a bale lower than 12 per cent of the custom-ginned cotton; and \$1.00 or more a bale lower than 21 per cent of the custom-ginned cotton sold in the same markets on the same days. In arriving at these differences, no adjustments were made for differences in grade and staple length, but, as already noted, prices received by growers in the selected local markets did not vary appreciably with grade and staple length.

While the comparisons of average lint equivalent prices received by growers for seed cotton with average prices received for cotton custom ginned and sold in the bale showed that the former were higher, similar comparisons on the basis of the seed cotton price equivalent<sup>11</sup> for the cotton custom ginned and sold in the bale showed that the seed cotton price equivalent for the latter averaged somewhat higher than the prevailing prices of seed cotton. The seed cotton price equivalent for cotton custom ginned averaged 5 cents per 100 pounds in 1931-32 and 17 cents per 100 pounds in 1932-33 more than the prevailing prices paid for seed cotton. The average daily seed cotton equivalent prices for cotton custom ginned exceeded the prevailing prices of seed cotton on about 68 per cent of the days during which data were collected in 1932-33. For the two seasons combined, the average daily seed cotton price equivalents for cotton custom ginned exceeded the prevailing prices of seed cotton more than 20 cents per 100 pounds during 16 per cent of the time, and more than 10 cents per 100 pounds 48 per cent of the time. They were below prevailing seed cotton prices 10 or more cents per 100 pounds 3 per cent of the time.

10 Lint equivalent prices were obtained by dividing the value of the seed cotton plus the costs of ginning (including bagging and ties) less the value of the cottonseed by the weight of the bale.

11 The seed equivalent price was obtained by dividing the sum of the value of the lint plus the value of the cottonseed less the cost of ginning (including bagging and ties) by the weight of the seed cotton.



In making comparisons of seed cotton equivalent prices with prevailing prices of seed cotton, it may be misleading to assume that seed cotton prices were the same as they would have been if all cotton had been sold in the seed. To the extent that prevailing prices of seed cotton are based upon the average quality and average gin turnout of the cotton bought in the seed, an increase in the proportion of the better quality and higher-gin-turnout cotton would tend to result in higher average prices for seed cotton, even if prices did not vary with the quality and turnout of individual loads. The difficulty of accurately determining from an examination of the seed cotton the quality of the lint and the percentage of lint to seed cotton complicates the problem of varying the prices of seed cotton with the quality of the lint and with the gin turnout for individual loads of cotton.

The somewhat higher lint equivalent prices for cotton sold in the seed than the prices of custom-ginned cotton sold in the same local markets on the same days, and, on the other hand, the somewhat higher seed cotton price equivalents for cotton custom ginned than the prevailing prices of seed cotton, are largely accounted for by differences in percentage of lint to seed cotton. With the same prices for seed cotton, lint equivalent prices vary inversely with the percentage of lint to seed cotton. For example, it was found that (with prices of seed cotton at \$2.00 a 100 pounds, ginning costs at 25c a 100 pounds of seed cotton plus \$1.50 a bale for bagging and ties, and cottonseed at \$9.00 a ton, and with 10 per cent of trash) an increase in percentage of lint to seed cotton from 30 to 35 decreased the lint equivalent price about 0.84 cent a pound, or an average of about 0.17 cent a pound for each increase of 1 per cent in gin turnout. As previously shown, the amount of lint per 100 pounds of seed cotton averaged about 3 pounds less for the cotton sold as seed cotton than for the cotton custom ginned. This difference in percentage of lint to seed cotton was enough to account for a difference of about \$2.60 a bale in lint equivalent prices. The fact that the average lint equivalent price of the cotton sold as seed cotton was only about \$1.20 a bale higher than the average price of custom-ginned cotton, indicates that the differences in percentage of lint to seed cotton were only partially reflected in seed cotton prices, so that farmers were offered an inducement to sell their low-turnout cotton in the seed and to have their high-turnout cotton custom ginned.

**Other Advantages and Disadvantages to Growers.**—The practice of selling cotton in the seed is convenient for the grower. It

minimizes delays in unloading during the busy season when the farmer's time is in greatest demand. During the height of the harvesting season it is often necessary for the grower to wait several hours and sometimes overnight to have his bale custom ginned. Selling in the seed enables farmers to market any quantity of cotton readily. At two Missouri gins during the season 1929-30 to 1931-32, inclusive, 23 per cent of the loads weighed 1,100 pounds or less and 42 per cent of the loads weighed 1,800 pounds or more. This method of selling makes it unnecessary for growers to advance the costs of ginning. Less trouble and knowledge is involved in selling as the farmer merely takes whatever price is offered him regardless of quality and other considerations. Hence, it has been called the "lazy man's method of selling cotton".

These advantages, however, appear in many cases to be more than offset by the disadvantages to the producers of selling cotton in the seed. No other method of selling cotton so definitely precludes pricing on the basis of quality, because of the difficulties of determining the quality of cotton before it is ginned. The practice of selling in the seed encourages careless harvesting and the marketing of wet, green, dirty, and trashy cotton, at the expense of those who market clean and dry cotton. It results in mixing in the bale of cotton of different varieties, harvested in different ways and in different parts of the season. This mixing reduces the springing value of the higher-quality cotton. The farmer selling in the seed is encouraged to grow the varieties producing the largest yield of seed cotton per acre, regardless of other important considerations. All of these conditions contribute to lower total returns from cotton for the area as a whole and for most individual producers.

**Advantages and Disadvantages to Ginners.**—Buying of cotton in the seed is advantageous to ginners in a number of ways. During the rushed part of the harvesting season ginners can receive cotton faster than it can be ginned and the excess cotton received can be stored and ginned during the slack part of the season. Cotton which is too wet for ginning when received can be stored for drying. The necessity of keeping the gin and labor force ready for ginning when the quantity of cotton is not adequate for full-time operation is eliminated. The amount of bookkeeping required is reduced somewhat and losses from advances to growers of the ginning costs are eliminated. In addition, the purchase of cotton in the seed is used as a means of increasing the volume of cotton ginned and of obtaining a larger volume of cotton seed.

On the other hand, the purchase of cotton in the seed involves considerable risks on the part of the ginner, which, along with the relatively high prices paid for seed cotton as a result of competition between ginners, may more than offset the advantages of this practice to the ginners. A study of the income tax returns of certain ginners located in southeastern Missouri<sup>12</sup> for the years 1929, 1930, and 1931 indicated that in about half of the cases losses were sustained from the purchases of seed cotton. In Oklahoma it was found that ginners who bought cotton in the seed paid prices which, on the average, were somewhat higher than the Houston prices less the costs of transportation from the local market to Houston<sup>13</sup>. It is generally known that purchases of seed cotton have not been profitable to gins operated at a number of points. Why, under these conditions, have ginners continued in the past years to purchase cotton in the seed? Ginners were apparently willing to purchase cotton in the seed at prices high enough to permit only small profits, or to sustain losses, in order to attract a larger volume of cotton to the gin. As the volume of ginnings increased, gross income from the ginning operations and profits from cottonseed also increased, and the overhead cost per bale decreased. The influence of purchasing seed cotton at relatively high prices on the volume of cotton attracted to the gin is largely offset by the competition of other ginners who follow the same practice. Under such conditions, the volume of cotton ginned by any gin is not likely to be materially different from what it would be if no ginners bought cotton in the seed, but so long as some ginners buy cotton in the seed as a means of attracting cotton to their gin, others may be forced to do likewise in self-protection.

### INFLUENCE OF FARM PRICES ON QUALITY OF COTTON PRODUCED

The apparent indifference on the part of many growers in Missouri to improvement in the quality of their cotton may be accounted for, in part at least, by the fact that differences in prices received in local markets offer little inducement to the individual farmer to attempt such improvement. If a large proportion of central market premiums for the higher grades and longer staples and discounts for the lower grades and shorter staples were reflected in the prices received by growers, farmers would have an inducement for improving the grade and staple length of the cotton produced.

<sup>12</sup> Amburgey M. D.; Some Economic Phases of Cotton Production in Southeast Missouri; Master's thesis, Univ. of Mo., 1932.

<sup>13</sup> Ellis, L. S., Dickson, A. M., and McWhorter, C. C., The Sale of Cotton in the Seed in Oklahoma; Oklahoma Experiment Station Bulletin 219.

Under such conditions, farmers would be rewarded for exercising more care in the selection of the improved, longer-staple varieties as a means of improving staple length and for harvesting the crop with greater care as a means of improving grade.

When prices received by growers fail to vary appreciably with the grade and staple of the cotton sold, farmers are naturally more interested in yields than in quality. Under such conditions, relatively high yields of seed cotton are sought if the cotton is to be sold in the seed; whereas, if the cotton is to be custom ginned and sold in the bale, the primary aim of the grower is to obtain relatively high yields of lint cotton. These higher yields without regard to quality in many cases result in smaller total values per acre on the basis of central market prices, and these lower values tend to be reflected in lower price levels in local markets and in reduced incomes to growers.

Premiums and discounts for grade and staple length, along with differences in costs of production arising largely from differences in yield, determine the kind of cotton which growers can produce most profitably. Farmers can well afford to improve the quality of the cotton produced up the point where the additional costs involved, resulting largely from differences in yield, are just balanced by the additional premiums received for the higher-quality cotton. The failure of prices received by growers in local markets in Missouri to reflect a larger proportion of central market premiums and discounts for grade and staple length inevitably tends to result in the production of larger proportions of the lower grades and shorter staples and to reduce net income to growers as a group. On the other hand, improvements in the quality of cotton produced in Missouri more nearly in line with mill demand as reflected in central market prices would tend to increase net income to cotton growers as a group.

### MEANS OF ADJUSTING THE QUALITY OF COTTON PRODUCED TO MILL REQUIREMENTS

The results presented in this study are accounted for largely by conditions prevailing in local markets. Needed adjustments in cotton production in Missouri can be brought about by improving the marketing system so that a greater proportion of central market premiums and discounts for grade and staple length will be reflected in prices received by growers. Improvements can also be made by developing or improving varieties especially suited to conditions in Missouri and by giving farmers accurate information regarding the varieties of cotton relatively best adapted to condi-

tions in each locality, including data to show differences between the quality and yields of these and other varieties available, and by making readily available at reasonable costs to growers an adequate supply of good planting seed of the varieties of cotton relatively best adapted to conditions in each community. The opportunities for profit from improving the quality of cotton produced in Missouri by growing cotton of the improved varieties that are now available can be materially increased by perfecting the marketing system so as to insure discriminate buying on the basis of quality.

Conditions in local markets can be improved by:

(1) **Classification of Cotton Before It Is Sold by Growers.**—In order that farmers may sell their cotton in local markets strictly on a quality basis, under the present marketing system, it would be necessary that both growers and local buyers know the quality and commercial value of the cotton at the time of making the transaction. Since farmers and many local cotton buyers are not able to classify cotton accurately, a means of improvement would be to have disinterested, competent, and reliable persons classify the cotton according to a uniform standard and issue a certificate showing the grade, staple length, and character of each bale before it is sold. This classification and certification of cotton while it is in the possession of the growers would increase the bargaining power of farmers who produce the higher qualities of cotton, reduce the waste from resampling, improve the use of cotton-warehouse receipts as collateral for loans, and result in other economies in cotton marketing. Difficulties such as assembling the cotton in sufficient volume and providing adequate facilities for classing the cotton accurately and economically, securing competent classifiers and providing for their supervision, developing standards for character, developing the confidence and cooperation of growers and buyers in the markets so as to bring about trading on the basis of this classification, and other problems would be encountered. Although considerable time and effort would probably be required to overcome these difficulties, they are not insurmountable.

(2) **Producing Cotton of More Uniform Quality in Each Community.**—Discriminate buying in local markets on the basis of quality can be facilitated by producing cotton of more uniform quality in each community so that the volume of cotton of each grade and staple length produced in each community will be large enough to be handled more economically. Such action also permits the adjusting of gin machinery to the customary staple length of cotton produced in the community, thereby reducing damage

to cotton from ginning. This is being accomplished at the present time in some communities by the standardization of varieties and by reducing the number of varieties grown. Increased profits can be obtained in many communities by standardizing the production of longer-staple varieties. Information regarding varieties relatively best adapted to conditions in the various localities in Missouri may be obtained from county agricultural agents and from the Missouri Agricultural Experiment Station.

**(3) Supplying Farmers With Adequate Information On Cotton Prices.**—Farmers in each community need information on cotton prices in central markets and in nearby points of concentration, including prices for Middling 7/8-inch cotton and premiums and discounts for the various other grades and staple lengths. With this information on prices and a knowledge of the quality of cotton before it is sold, farmers who produce the higher qualities will be in a better position to bargain more effectively with buyers.

### SUMMARY AND CONCLUSIONS

Cotton produced in Missouri in recent years has averaged considerably lower in grade but somewhat longer in staple than that for the United States as a whole. The average staple length of cotton ginned in Missouri has shown no definite trend in recent years and in 1934 was about the same as in 1928; while for the United States as a whole the average staple length has increased each year since 1929. Increased competition from cotton produced in foreign countries emphasizes the importance of improving the quality of the cotton produced in Missouri as well as in other parts of the United States.

Cotton prices to growers in selected local markets in Missouri varied so irregularly on the basis of grade and staple length during the seasons 1929-30 to 1933-34 that it was not unusual for some farmers to receive considerably higher prices for lower grades and shorter staples than other farmers received for higher grades and longer staples sold in the same local markets on the same day. On the average, prices received by growers for the lower-grade and shorter-staple cotton were about the same as the prices received for cotton of higher grade and longer staple sold in the same markets on the same days; while in central markets prices for the higher grades and longer staples were considerably higher than for the lower grades and shorter staples.

Lack of knowledge of the correct classification and commercial value of cotton, inadequate volume of some of the grades and staple

lengths, differences in bargaining power of farmers and of local buyers, and the former practice of selling seed cotton, are considered the principal factors responsible for growers not receiving in local markets a larger proportion of central market premiums and discounts for grade and staple length.

Although local market prices varied irregularly on the basis of the grade and staple length of individual bales, average prices were generally somewhat higher in selected local markets where the cotton sold was of higher average grade and longer staple than they were in those local markets in which the cotton sold averaged lower in grade and shorter in staple.

While most of the cotton produced in the United States is custom ginned and baled before it is sold by growers, large proportions of the cotton produced in Missouri prior to 1933 were sold in the seed. Since the beginning of the cotton adjustment program under the Agricultural Adjustment Administration in 1933, however, the sale of cotton in the seed in Missouri has declined to negligible proportions. Data collected in selected local markets in Missouri during the seasons 1929-30 to 1932-33, inclusive, indicate that cotton sold in the seed averaged slightly lower in grade but slightly longer in staple, and had a somewhat lower percentage of lint to seed, than the relatively small amount of cotton that was custom ginned.

Returns to growers for cotton sold in the seed in selected local markets in Missouri in 1931-32 and in 1932-33 averaged about \$1.20 a bale higher than those for custom-ginned cotton sold in the same local markets on the same days; while, on the other hand, returns to growers for cotton custom ginned averaged \$1.73 a bale higher than they would have averaged if this same cotton had been sold in the seed in the same markets on the same days at the prevailing prices of seed cotton. These apparently inconsistent differences are attributed to differences in the percentage of lint to seed cotton, which were only partially reflected in seed cotton prices so that farmers found an inducement to sell their low-turnout cotton in the seed and to have their high-turnout cotton custom ginned. The advantage of selling cotton in the seed most frequently referred to is that of convenience; while the disadvantage most frequently referred to is that the practice of selling cotton in the seed discourages quality improvement.

The failure of local market prices to reflect a larger proportion of central-market premiums and discounts for different grades and staple lengths makes it impossible for growers who could other-

wise afford to produce the higher grades and longer staples to realize the full benefits of their favorable positions. It results in the production of larger proportions of the lower grades and shorter staples than would be the case if production were better adjusted to mill demand as reflected in central market prices. Such conditions tend to reduce net income to growers as a group.

Needed improvements in the quality of cotton produced in Missouri can be brought about: (1) by improving the marketing system so that a greater proportion of the differences in spinning value of cotton of different grades and staple lengths will be reflected in the prices received by growers, thus furnishing an incentive to growers to adapt their production methods to quality production; (2) by developing or improving varieties especially suited to conditions in Missouri; (3) by giving farmers accurate information regarding the relative profitableness of producing cotton of different varieties in each locality; and (4) by making readily available at reasonable cost to growers an adequate supply of good planting seed of the varieties of cotton relatively best adapted to conditions in each locality.

The present local marketing practices can be improved: (1) by having disinterested, competent, and reliable persons classify the cotton according to a uniform standard and issue a certificate showing the grade, staple length, and character of each bale before it is sold by the grower; (2) by supplying farmers with more adequate information on cotton prices in central markets and in nearby points of concentration, including prices for Middling 7/8-inch cotton and premiums and discounts for the various other grades and staple lengths; and (3) by encouraging the production of cotton of more uniform quality in each community so that the volume of cotton of each grade and staple length produced in each community will be large enough to be handled more economically.

Although the classification and certification of cotton while it is in the possession of the grower would no doubt result in a number of improvements in local cotton marketing, difficulties such as assembling the cotton in sufficient volume and providing adequate facilities for classing the cotton accurately and economically; securing competent classers and providing for their supervision; developing standards for character; developing the confidence and cooperation of growers and buyers in the market so as to bring about trading on the basis of this classification; and other problems would be encountered. While considerable time and effort would be required to overcome these difficulties, they are not considered insurmountable.