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UNITED STATES DEPARTMENT OF AGRICULTURE BULLETIN No. 594

Contribution from the Bureau of Crop Estimates L. M. ESTABROOK, Chief

V

Washington, D. C.

F

February 21, 1918

GEOGRAPHY OF WHEAT PRICES

SUMMARY OF CONDITIONS AFFECTING FARM PRICES OF WHEAT IN DIFFERENT PARTS OF THE UNITED STATES

By

L. B. ZAPOLEON, Division of Crop Records

CONTENTS

Page

| Significance of Regional Price Differences | 1 | Fre |
|--|----|-----|
| Survey of Geography of Wheat Prices | 3 | Ot |
| Wheat Versus Corn and Oats-Price | | Su |
| Zones Compared | 4 | |
| Principal Causes Underlying Price Dif- | | Fa |
| ferences | 4 | 1 |
| Sectional Price Ratios Shifting | 11 | Re |
| Detail Farm Price Map and Local Con- | | Tr |
| ditions | 13 | 1 |
| Effect of Markets on Local Farm Price | | Ap |
| Variations | 14 | 1 |

| | Page |
|---|------|
| Freight Rates | 16 |
| Other Price Factors | 19 |
| Summary: Price Variations and Attend- | |
| ant Conditions | 19 |
| Farm Prices Correlated with Costs of | |
| Production, by States and Sections | 20 |
| Retrospective View, 1871 to 1915 | 24 |
| Trend of Wheat Production in Relation | |
| to Population, by States and Sections . | 32 |
| Appendix: Average Farm Prices of | , |
| Wheat, by Countles, 1910-1914 | 34 |



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CONTENTS.

| Page. | |
|-------|--|
|-------|--|

| | | T up o |
|-----|---|--|
| 1 | Other price factors | 19 |
| 3 | Summary: Price variations and attendant | |
| 3 | conditions | 19 |
| 4 | Farm prices correlated with costs of produc- | |
| . 4 | tion, by States and sections | 20 |
| 11 | Retrospective view, 1871 to 1915 | 24 |
| 13 | Trend of wheat production in relation to pop- | |
| | ulation, by States and sections. | 32 |
| 14 | Appendix: Average farm prices of wheat, by | |
| 16 | counties, 1910-1914 | 34 |
| | | |
| | 1 3 4 4 11 13 14 16 | Other price factors |

SIGNIFICANCE OF REGIONAL PRICE DIFFERENCES.

Extreme geographic differences prevail in prices paid to farmers.

Farm prices increase or decrease in well-defined directions, varying with each item of production.

Character of the data employed; counties the basis of measurement.

The prices paid to farmers for a given product vary so greatly throughout the United States, and the variations are so closely interwoven with changing economic conditions as to indicate a field of research of practical value and economic interest. That wide differences should be found throughout the country in the prices of certain perishable farm products is to be expected. But agricultural staples not perishable in character, and of general consumption, exhibit a like disparity; even when price differences due to grade or quality are relatively small, more than 100 per cent variation frequently obtains throughout producing regions of the United States. Neighboring counties often show distinct differences in price.

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Two sets of factors are concerned in producing variations in farm or producers' price. One set has to do with the general price level of a given product; the other set is regional in its effect and divides the United States into sections according to price disparities. Climatic changes (affecting the outcome of the harvest), the outbreak of war, changes in the purchasing value of money, and other factors produce price changes that are nation-wide in extent. But differences in freight rates and transportation facilities, proximity to or remoteness from consuming territories, and other factors in the relationship of local to general distributive conditions, though affecting smaller areas, are equally potent and more stable in their influence. The latter class of factors—those dividing the United States into zones according to the price paid farmers for a given product—presents a field that is only partially developed.

Obviously farm price is a potent factor in adjustments of agricultural production. Just as climatic limitations on agriculture are shown on maps, so do farm prices, on sufficiently detailed maps, align themselves into zones, since price variations increase or decrease in well-defined directions. But this local price advantage or disadvantage varies with each product, according to its characteristics and commercial movement; the extent and regularity of zones having equal price figures change with each crop, and so also do the direction and rate of increase. Thus, southern farmers, raising varieties of wheat mostly softer than those of the North and West, receive on an average up to 60 cents per bushel more. The lowest wheat prices occur in regions marked by high prices of corn. Eastern farmers receive decidedly higher price averages for bulky commodities, such as hay, than for cereals. Much irregularity occurs in the prices of products wherein local consumption is important, such as corn or vegetables; greater stability, however, prevails in prices of wheat and oats. Within each State there is usually a variation of at least 20 cents per bushel in corn prices, which is about the cost of sending corn from Chicago to Liverpool, under normal conditions.

This publication deals with the wide variation in the producers' price of wheat throughout the continental United States. State price averages usually embrace large areas and dissimilar conditions; therefore the county has been used as the smallest available working area wherein approximately similar conditions of supply and demand prevail. As the ratios of sectional prices fluctuate with unusual market conditions, an average for the five years, 1910–1914, was employed to differentiate normal from spasmodic differences. Basic figures for each of the five years were compiled from an annual total of about 30,000 township reports. The result constitutes, in effect, a survey of the geography of wheat prices and price factors.

In assembling the material herein, a threefold plan has been pursued:

First, a tabular presentation of the price averages, by counties (Appendix, p. 34) is supplemented by maps and graphs, to show geographic price zones and related factors.

Second, the most suggestive bearings of the indicated price differences are outlined. In an empirical method of treatment only is this phase attempted, for price factors are complex, frequently interdependent, and are not susceptible of absolute measurement. To this has been added a brief retrospective view of price factors from 1871 to 1915, for the purpose of showing present tendencies through their indicated development.

Finally, gross price has been contrasted with actual returns by coordinating prices, yields, and cost of production per bushel and per acre.

SURVEY OF GEOGRAPHY OF WHEAT PRICES.

From a minimum in Idaho and Montana, prices paid wheat growers graduate upward toward the coasts, with maximum price in the southeast.

Price increases follow direction of commercial wheat movement from exporting to importing regions.

Map 1, which is given opposite, has been condensed to a 10 cent price unit, in order to delimit the general price zones without the intrusion of minor local variations. Blank spaces indicate areas of little or no production, according to the 1909 census. Figures within each State show estimated wheat surplus or deficiency (i. e., difference between production and consumption within the State), indicating the direction of the commercial wheat movement.

The minimum price paid wheat growers occurs within the areas of surplus wheat production, in central Montana and eastern Idaho. With a high rail and lower ocean freight rate eastward, and a shorter rail but higher ocean freight westward, this territory is most disadvantageously situated as to foreign and domestic wheat markets. Radiating from this region, prices graduate upward in every direction until the maximum, toward the coasts, is reached. Generally speaking, the surplus-producing areas have the lowest prices, and the converse also is true. From the described region of lowest prices two main currents, Pacific and eastward, are apparent, following closely the direction of wheat shipments.

The Pacific wheat movement is of much smaller volume than the eastward traffic. The surplus is concentrated in a relatively small area in the Northwest. Westward from this area prices increase steadily toward the Pacific seaboard. Prices rise also southward toward areas of insufficient wheat production, the maximum price being reached in southern California. BULLETIN 594, U. S. DEPARTMENT OF AGRICULTURE.

The wheat movement eastward attains much larger proportions. The surplus swells to tremendous volume, progressing through the trans-Mississippi wheat belt. This surplus, in the form either of wheat or of wheat flour, supplements deficient production to the east and south, and comprises the bulk of the export wheat. Here again prices augment in the direction of the wheat flow, increasing slowly eastward, much more rapidly and irregularly southward, in which direction the wheat movement is of less volume. The highest farm prices of wheat are reached in the southeast.

WHEAT VERSUS CORN AND OATS-PRICE ZONES COMPARED.

Corn—Area of minimum farm price in adjoining sections of Iowa, Nebraska, South Dakota, and Minnesota.

Oats-Area of minimum farm price immediately north of that of corn.

Comparison of the farm price zones of wheat with those of corn and oats discloses suggestive differences. The production of corn and oats is much greater, yet a smaller percentage enters into the commercial movement, the major part being retained on the farms. Population requirements do not directly dominate price progressions of corn and oats as they do those of wheat.

The region of lowest corn price is seen in the adjoining sections of Iowa, Nebraska, South Dakota, and Minnesota. From this area prices increase in every direction at a much more rapid rate than in the case of wheat and with much greater local variation. Within most States a consistent variation of at least 20 cents per bushel obtains in corn prices. From the region where corn is cheapest prices augment in the direction of the lowest wheat prices; that is, westward and northward, as well as to the other points of the compass, with highest corn prices in the southeast and southwest.

Although more widely diffused, oats are somewhat similar to wheat in being a northern crop. The lowest price areas, directly north of those of corn, are in western Minnesota and eastern North Dakota; from this area prices increase in every direction. The price accretions of oats are more notable toward the south, rather than east or west; and price differences are less marked, region by region.

PRINCIPAL CAUSES UNDERLYING PRICE DIFFERENCES.

Connection between wheat prices and movement of wheat from sparsely populated surplus areas to those of deficient production.

Population, wheat production, requirements, surplus or deficiency, wheat milled; general review.

Analysis of elements in distributive movement; by States and divisions.

In the price graduations of wheat the basic consideration appears in that, whereas wheat is destined for human consumption, wheat growing has been steadily relegated to the less densely populated

.4



s direction of commercial

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Poiots of largest wheat accumulation.

wheat movement.



regions. The flow of wheat is then from these areas to those of denser population and deficient supply. Price maps reflect regularly geographic relationship to this movement, the lowest prices appearing in the surplus-producing areas farthest from European markets or in those most unfavorably placed in the distributive channels.

Map 2 shows the distribution of wheat production in the census year 1909. It will be noted that while wheat raising is generally diffused from ocean to ocean (except in the southernmost tier of States), only certain States which may be roughly described as lying west of the Mississippi and north of the thirty-seventh parallel produce more than their requirements for food and seed.

Table I (p. 8) presents in condensed form data relating to the geographic price alignments of wheat. To obtain representative measurements a five-year average was employed (1911–1915). States have also been grouped by sections of the country to permit of a general view. Population, wheat production, wheat requirements for food and seed, and surplus or deficiency are given in absolute figures as well as percentages of the United States totals. The relation of production to population in each unit is indicated by the per capita figures. Commercial movement of wheat (with which farm prices are closely identified) is indicated by "shipments out of counties where grown;" and a rough characterization of this traffic, whether it be in the form of wheat or wheat flour, is obtained by comparing the census data regarding wheat ground in merchant mills during the calendar year 1914 with figures for production and average requirements.

A striking feature of this sectional grouping is the degree of the national dependence for wheat supplies upon the West North Central States, constituting about 17 per cent of the total area, and the concentration of production within a few States west of the Missisippi. The entire region east of the Mississippi, in addition to the southwest, produces much less wheat than it consumes. Here, too, the highest farm prices prevail. The North Atlantic States grow only about one-fifth of their requirements, comparing with Great Britain in this respect. Most notably deficient in production (showing also the lowest per capita consumption) is the territory comprised in the Atlantic and the Southern States (bounded by the Ohio and the Mississippi Rivers) and the West South Central section, 25 States in all. These regions grow only 16 per cent of the national wheat (1911–1915), but contain 56 per cent of the total farm lands, 49 per cent of the total improved land (1910 census), and 60 per cent of the total population. In round numbers they total: Wheat requirements, 305 million bushels; production, 129 million; and deficiency, 176 million bushels. To the wheat drawn here to supply this shortage should be added an approximately equal quantity, on an average, going to the seaports for export, also less than 100 million bushels of Canadian wheat shipped in bond. The deficit would be considerably augmented by omitting Oklahoma with its production of 26 million and surplus of 12 million bushels. A total of the States raising insufficient wheat, regardless of sectional grouping, gives less than 19 per cent of the wheat production and 68 per cent of the population.

It is noteworthy that the merchant flour mills in the Atlantic and the Southern States mill over 25 per cent of the total wheat, as against 16 per cent of the wheat produced. These figures would be increased considerably by the addition of wheat ground in custom mills, particularly important in the South, but figures for which are not available. In this section the fraction which is shipped out of counties where grown is small, indicating that the bulk of the wheat raised is retained for local use and does not enter into trade channels.

The production in the East North Central States is about offset by the requirements; the single surplus State of Indiana brings up the average for the section, other States in this division usually being deficiency States.

The residual territory west of the Mississippi, embracing the surplus wheat areas, produces some 550 out of the total 800 million bushels, or about 69 per cent, though it has but 38 per cent of the farm lands and 20 per cent of the total population. In this surplus wheat region the vast area in the Mountain States, of which only about 2 per cent was improved in 1909, is as yet relatively unimportant as to surplus wheat, although developing at a rapid pace. The western surplus supplies the deficiency of the other sections as well as the bulk of the export wheat. A very small percentage is shipped via Canada, an increasing proportion moves toward the Gulf ports, and by far the larger part moves eastward, either milled en route or as wheat.

Figure 1 is added to throw into relief the proportionate significance of factors in the table discussed.

Reference to Table I will show that per capita wheat consumption declines as prices increase, ranging from 4 bushels per capita in some Southern States to 7.2 bushels in Montana and South Dakota.

Note.—Differences in price as shown or discussed in this bulletinare not intended to refer to present war conditions; they are based upon prices for the years 1910 to 1914.

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Reproduced from Statistical Atlas of the United States, 1914 (Bureau of the Census).

Sulletin 594 U. S. Department of Agriculture.





| | Popula- | Produce | Wheat | Shipments | out of | Requirements, aver- age, 1911-1915. | | |
|--------------------------------|--|------------------------------------|---|--|---|--|---------------------------------|--|
| State and geographic division. | tion July 1,1913 (median of 1911–1915). | tion (aver- age 1911- 1915). | ground in merchant mills in 1914. ¹ | grown (approxi- mate commercial movement). Av- erage 1911-1915. | | For food. | For food and seed. | |
| | | | | | | | | |
| United States | Thousands. 97,163 | Thousand bushels. 803,501 | Thousand bushels. 543,970 | Thousand bushels. 476,986 | Per cent of pro- duction. 59.4 | Thousand bushels. 515,937 | Thousand bushels. 595.713 | |
| New England | 6 865 | 107 | 519 | (2) | (3) | 33 245 | 23 405 | |
| Middle Atlantic | 20, 570 | 30,798 | 56,604 | 10, 516 | 34.1 | 113, 223 | 117,318 | |
| South Atlantic ⁵ | 12,764 | 37,187 | 25,232 | 11,688 | 31.4 | 58,448 | 62,574 | |
| West North Central | 13,957 | 416 425 | 242 970 | 273 765 | 51.8 65.7 | 71 237 | 120,372 | |
| East South Central | 8,690 | 19, 196 | 27,808 | 5,509 | 28.7 | 36,151 | 38,444 | |
| West South Central | 9,516 | 41,381 | 29,971 | 27,118 | 63.5 | 48,656 | 53,424 | |
| Pacific | 2,940 | 59,765 74 597 | 35 761 | 51,172 52,914 | 52.2 70.9 | 18,939 | 24,377 | |
| New England: | 1,000 | | | 02,011 | | 20,001 | | |
| Maine | 758 | 80 | 44 | (2) | (3) | 3,562 | 3,574 | |
| New Hampshire | 437 | | 402 | (2) | (3) | 2,184 | 2,189 | |
| Massachusetts | 3, 549 | 21 | 57 | | (3) | 17,744 | 1,940 17,838 | |
| Rhode Island | 579 | | | (2) | (3) | 2,493 | 2,511 | |
| Connecticut | 1,182 | • • • • • • • • • • • • • | 1 | (2) | (3) | 5,318 | 5,347 | |
| New York | 9,713 | 7.348 | 36,427 | 2,465 | 33.5 | 52,450 | 53, 513 | |
| New Jersey. | 2,749 | 1,463 | 833 | 412 | 28.2 | 13,747 | 14,028 | |
| Pennsylvania | 8,108 | 21,987 | 19,344 | 7,639 | 34.7 | 47,026 | 49,777 | |
| Delaware | 208 | 1,936 | 735 | 1,112 | 57.4 | 1,040 | 1,271 | |
| Maryland | 1,330 | 9,981 | 5,310 | 5,971 | 59.8 | 6,651 | 9,070 | |
| Virginia Wost Virginia | 2,129 | 11,295 | 10,232 | 3,618 512 | 32.0 | 9,581 | 11,003 | |
| North Carolina. | 2,308 | 7,345 | 4,703 | 366 | 5.0 | 10,385 | 11.333 | |
| South Carolina | 1,572 | 1, 199 | 190 | 18 | 1.5 | 6,760 | 6,950 | |
| Georgia | 2,737 | 1,989 | 1,617 | 91 | 4.6 | 10,947 | 11,242 3,770 | |
| East North Central: | 020 | ••••• | | | ••••••• | 5,111 | 5,110 | |
| Ohio. | 4,965 | 31,566 | 27,780 | 14,551 | 46.1 | 31,281 | 34,941 | |
| Tilinois. | 2,701 | 38,631 | 31,021 | 22,600 | 58.5 | 33,063 | 19,479 36,799 | |
| Michigan | 2,937 | 15, 198 | 14,621 | 7,154 | 47.1 | 14,683 | 16,187 | |
| Wisconsin | 2,420 | 3,700 | 13,806 | 883 | 23.9 | 12,583 | 12,966 | |
| Minnesota | 2, 181 | 59,081 | 124, 339 | 35,969 | 60.9 | 15,704 | 21,982 | |
| Iowa | 2,222 | 14,098 | 7,118 | 9,159 | 65.0 | 11,779 | 13,215 | |
| Missouri | 3,354 | 35,377 | 25,278 | 73 970 | 49.8 | 4 758 | 20,813 14 502 | |
| South Dakota | 643 | 39,258 | 4,488 | 26,938 | 68.6 | 4,180 | 9,078 | |
| Nebraska | 1,233 | 59,844 | 11,405 | 40, 126 | 67.1 | 7,152 | 11,884 | |
| East South Central: | 1,705 | 102,080 | 39,943 | . 09, 911 | 00.0 | 10, 223 | 20,020 | |
| Kentucky | 2,336 | 9,813 | 13, 114 | 2,892 | 29.5 | 10, 513 | 11,650 | |
| Tennessee | 2,238 | 8,789 | 14,579 | 2,575 | 29.3 | 9,176 | 10,168 | |
| Mississippi | 1,877 | 66 | 110 | 15 | 22.7 | 7,508 | 7,549 | |
| West South Central: | | | | | | 7.0** | | |
| Louisiana Texas | 1,745 | 13,637 | 18,979 | 7.477 | 54.8 | 22,529 | 24,099 | |
| Oklahoma | 1, 939 | 26,217 | 9,591 | 19,366 | 73.9 | 11,633 | 14, 533 | |
| Arkansas | 1,660 | 1,527 | 1,401 | 275 | 18.0 | 6,639 | 6,885 | |
| Montana | 419 | 20,900 | 4,143 | 13,025 | 62.3 | 2,515 | 5.284 | |
| Wyoming | 163 | 2,366 | 492 | 490 | 20.7 | 1,029 | 1,248 | |
| Colorado | 883 | 10,709 | 5,738 | 5,558 | 51.9 | 5,300 | 6,107 | |
| Arizona | 231 | 879 | 386 | 79 | 9.0 | 1,662 | 1,740 | |
| Utah | 405 | 6,601 | 2,525 | 2,221 | 33.6 | 2,469 | 2,951 | |
| Nevada Idaho | 95 | 1,246 | 2 900 | 262 0 233 | 21.0 | 2 462 | 676 3 310 | |
| Pacific: | 019 | 10,022 | 2,005 | 0, 200 | 00.0 | 2, 102 | 0,010 | |
| Washington | 1,345 | 49,985 | 17,567 | 37,749 | 75.5 | 8,068 | 10,940 | |
| California | 2.667 | 6, 594 | 8,639 | 3, 826 | 52.9 58.0 | 4,618 | 6,007 16,752 | |
| United States | 97, 163 | 803, 501 | 543,970 | 476,986 | 59.4 | 515,937 | 595,713 | |
| Net surplus | | | | | | | | |
| Exports (domestic wheat) | | | | | | | | |

TABLE I.—Wheat: Basic elements in geographic price differences:

¹ From census of manufactures, calendar year 1914. Grain ground in custom mills is not included. The figures indicate roughly the trade movement, wheat versus wheat flour. ² Less than 500 bushels.

population, production, requirements, and indicated trade movement.

Ģ

| Average s | surplus or | | Per capita | | Distrib | ution in | percent- | 2 | |
|---|---|---|--|--|--|---|--|---|--|
| deficiency, | ,1911-1915. | | Requir | ements. | State | s totals. | Ontou | | |
| Surplus. | Defi- ciency. | Produc- tion. | For food. | For food and seed. | Popu- lation. | Pro- duc- tion. | Re- quire- ments for food and seed. | State and geographic division. | |
| Thousand bushels. 207,788 | Thousand bushels. | Bushels. 8.3 | Bushels. 5.31 | Bushels. 6.13 | Per cent. 100 | Per cent. 100 | Per cent. 100 | United States. | |
| 3,673 304,325 35,388 40,898 | 33,298 86,520 25,387 19,248 12,043 | $(4) \\ 1.5 \\ 2.9 \\ 6.5 \\ 34.5 \\ 2.2 \\ 4.3 \\ 20.3 \\ 15.6 \\ (4)$ | $\begin{array}{r} 4.8\\ 5.5\\ 4.6\\ 5.7\\ 5.9\\ 4.2\\ 5.1\\ 6.4\\ 6.0\end{array}$ | $ \begin{array}{r} 4.9 \\ 5.7 \\ 4.9 \\ 6.3 \\ 9.3 \\ 4.4 \\ 5.6 \\ 8.3 \\ 7.1 \\ \hline 7.1 \end{array} $ | $\begin{array}{r} 7.1 \\ 21.2 \\ 13.1 \\ 19.5 \\ 12.4 \\ 9.0 \\ 9.8 \\ 3.0 \\ 4.9 \end{array}$ | (3) 3.8 4.6 15.4 51.8 2.4 5.2 7.5 9.3 | 5.619.710.520.218.86.49.04.15.7 | New England. Middle Atlantic. South Atlantic. ⁵ East North Central. West North Central. West South Central. West South Central. Mountain. Pacific. | |
| | 3,494 2,189 1,919 17,838 2,511 5,347 | $\begin{array}{c} & .1 \\ (^{(4)}) \\ (^{(4)}) \\ (^{(4)}) \\ (^{(4)}) \end{array}$ | $\begin{array}{r} 4.7\\ 5.0\\ 5.4\\ 5.0\\ 4.3\\ 4.5\end{array}$ | $\begin{array}{r} 4.7\\ 5.0\\ 5.4\\ 5.0\\ 4.3\\ 4.5\end{array}$ | .8 .4 .4 3.7 .6 1.2 | (3) (3) (3) (3) (3) (3) (3) | .6 .4 .3 3.0 .4 .9 | New England: Maine. New Hampshire. Vermont. Rhode Islan d. Connecticut. Middle Atlantic: | |
| | 46,165 12,565 27,790 | .8 .5 2.7 | 5.4 5.0 5.8 | $5.5 \\ 5.1 \\ 6.1$ | $10.0 \\ 2.8 \\ 8.4$ | .9 .2 2.7 | 9.0 2.3 8.4 | New York. New Jersey. Pennsylvania. South Atlantic: | |
| 665 911 292 | 4,493 3,988 5,751 9,253 3,770 | 9.3 7.5 5.3 2.6 3.2 .8 .7 (4) | $5.0 \\ 5.0 \\ 4.5 \\ 5.7 \\ 4.5 \\ 4.3 \\ 4.0 \\ 4.5$ | $\begin{array}{c} 6.1 \\ 6.8 \\ 5.2 \\ 6.1 \\ 4.9 \\ 4.4 \\ 4.1 \\ 4.6 \end{array}$ | $\begin{array}{r} .2\\ 1.4\\ 2.2\\ 1.3\\ 2.4\\ 1.6\\ 2.8\\ .8\end{array}$ | .2 1.2 1.4 .4 .9 .2 .3 (⁸) | $\begin{array}{r} .2 \\ 1.5 \\ 1.9 \\ 1.3 \\ 1.9 \\ 1.2 \\ 1.9 \\ 1.6 \\ 0.6 \\ $ | Delaware. Maryland. Virginia. West Virginia. North Carolina. South Carolina. Georgia. Florida. | |
| $15,471 \\ 1,832$ | 3,375 | $\begin{array}{c} 6.4 \\ 12.7 \\ 6.5 \\ 5.2 \\ 1.5 \end{array}$ | $\begin{array}{c} 6.3\\ 5.7\\ 5.6\\ 5.0\\ 5.2\end{array}$ | $7.0 \\ 7.1 \\ 6.2 \\ 5.5 \\ 5.4$ | 5.1 2.8 6.1 3.0 2.5 | 3.9 4.3 4.8 1.9 .5 | 5.8 3.3 6.2 2.7 2.2 | East North Central. Ohio. Indiana. Illinois. Michigan. Wisconsin. | |
| 37,099 883 $14,564$ $91,385$ $30,180$ $47,960$ $82,254$ | | $27.1 \\ 6.3 \\ 10.5 \\ 160.2 \\ 61.1 \\ 48.5 \\ 58.4$ | $7.2 \\ 5.3 \\ 5.2 \\ 7.2 \\ 6.5 \\ 5.8 $ | $10.1 \\ 5.9 \\ 6.2 \\ 21.9 \\ 14.1 \\ 9.6 \\ 11.7$ | 2.22.33.4.7.71.31.8 | $7.4 \\ 1.8 \\ 4.4 \\ 13.1 \\ 4.9 \\ 7.4 \\ 12.8$ | 3.72.23.52.41.52.03.5 | West North Central: Minnesota. Iowa. Missouri. North Dakota. South Dakota. Nebraska. Kansas. | |
| | 1,837 1,379 8,549 7,483 | 4.2 3.9 .2 (⁴) | $\begin{array}{c} 4.5 \\ 4.1 \\ 4.0 \\ 4.0 \end{array}$ | 5.0 4.5 4.1 4.0 | $ \begin{array}{c c} 2.4\\ 2.3\\ 2.3\\ 2.0 \end{array} $ | 1.2 1.1 .1 (³) | $1.9 \\ 1.7 \\ 1.5 \\ 1.3$ | East South Central: Kentucky. Tennessee. Alabama. Mississippi. | |
| 11,684 | 7,907 10,462 5,358 | (4) 3.3 13.5 .9 | $\begin{array}{c} 4.5 \\ 5.4 \\ 6.0 \\ 4.0 \end{array}$ | $4.5 \\ 5.8 \\ 7.5 \\ 4.1$ | $1.8 \\ 4.3 \\ 2.0 \\ 1.7$ | (3) 1.7 3.3 .2 | $1.3 \\ 4.1 \\ 2.4 \\ 1.2$ | West South Central: Louisiana. Texas. Oklahoma. Arkansas. | |
| 15,616 1,118 4,602 3,650 570 12,212 | 1,519 861 | $\begin{array}{c} 49.9\\ 14.5\\ 12.1\\ 4.2\\ 3.8\\ 16.3\\ 13.1\\ 41.0\end{array}$ | $\begin{array}{c} 6.0\\ 6.3\\ 6.0\\ 7.9\\ 7.2\\ 6.1\\ 6.1\\ 6.5\end{array}$ | $12.6 \\ 7.6 \\ 6.9 \\ 8.3 \\ 7.5 \\ 7.3 \\ 7.1 \\ 8.7$ | .4 .2 .9 .4 .2 .4 .1 .1 | $2.6 \\ 1.9 \\ .3 \\ 1.4 \\ .2 \\ .1 \\ .8 \\ .8 \\ .2 \\ .1 \\ .8 \\ .8 \\ .2 \\ .1 \\ .8 \\ .8 \\ .8 \\ .8 \\ .8 \\ .8 \\ .8$ | $ \begin{array}{r} .9\\ .2\\ 1.0\\ .5\\ .3\\ .5\\ .1\\ 6 \end{array} $ | Mountain: Montana. Wyoming. Colorado. New Mexico. Arizona Utah. Nevada. Idabo. | |
| 39,045 12,011 6424,004 | . 10,158 ⁶ 216,216 | 37. 2 23. 8 2. 5 8. 3 | 6.0 6.1 6.0 5.31 | | $ \begin{array}{r} $ | $ \begin{array}{r} 6.2 \\ 2.2 \\ .9 \\ 100 \end{array} $ | $ \begin{array}{r} 1.9 \\ 1.0 \\ 2.8 \\ \overline{100} \end{array} $ | Pacific: Washington. Oregon. California. United States. | |
| 207,788 188,748 | | | | | | | | Net surplus. Exp'ts (domestic whea average 1911-1915. | |

³ Less than one-tenth of 1 per cent.
⁴ Less than one-tenth of 1 bushel.

9578°—18—Bull. 594—2

⁵ Includes the District of Columbia.
⁶ Gross surplus and deficiency.

New ENGLAND STATES.—This section is almost completely dependent for its wheat supplies upon shipments from the West. The small quantity of wheat ground indicates that practically the entire deficit is supplied in the form of wheat flour. The movement to this division consists not only of some 33 million bushels required for its consumption, but includes also an additional 25 million bushels of wheat exported from its seaports, less than 3 million bushels more in the form of wheat flour, and a few million bushels of Canadian transit wheat.

MIDDLE ATLANTIC STATES.—The dominating influence of the three States in this section is shown by the fact that half the gross surplus of the country is drawn here for consumption and export, as well as millions of bushels of Canadian wheat. The section contains the largest population but produces scarcely one-fourth of its requirements for food and seed. Only a third of its production enters into the shipments out of counties where grown, indicating local consumption for seed, in custom nulls, etc. Its flour nulls grind about twice the quantity of wheat produced. Shipments to this group of States, supplying a deficit of 117 million bushels, are augmented by 50 million bushels in the form of wheat flour and 65 million bushels of wheat for export, chiefly via New York; also by nearly 50 million bushels of Canadian wheat, shipped in bond.

SOUTH ATLANTIC STATES.—The requirements are about double the local production. Virginia and Maryland produce about 60 per cent of the wheat in the eight States of this section and bring up the average. The small fraction of the crop shipped out of counties where grown suggests local consumption for seed and in custom flour mills, nodata for the latter being available. Wheat ground in merchant mills is less than production. The two northern ports in this section, Baltimore and Newport News, draw in addition about 20 million bushels for export.

EAST SOUTH CENTRAL STATES.—The two States of Kentucky and Tennessee produce practically all of the wheat in this division, and also mill nearly all of the product that enters into merchant mills. As a section, the figures show production equal to half of the requirements; the small percentage of shipments out of counties where grown indicates local consumption and use in custom mills. The wheat flow to this section is largely in the form of wheat flour. Very little wheat is exported from its ports.

WEST SOUTH CENTRAL STATES.—Oklahoma produces nearly 60 per cent of the crop of this section, and the small percentage which is ground in Oklahoma merchant mills indicates its shipment unmilled. The section considered in its entirety raises about 80 per cent of its requirements for food and seed. The trade current to this group supplies a net deficit of some 12 million bushels and includes some 35 million bushels of wheat and 7 million bushels equivalent of wheat flour, moving to New Orleans and Galveston for export. The export movement through the Gulf ports is increasing rapidly.

EAST NORTH CENTRAL STATES.—The figures for Indiana in the production column bring up production to about an equality with the requirements. Wisconsin grinds several times its production, the other States less than their production.

WEST NORTH CENTRAL STATES.—This is the great surplus wheat area, growing 51.8 per cent of the national wheat, or 416 out of 803 million bushels, with only 12 per cent of the national population and 17 per cent of the land area—or less than four times the requirements for food and seed. North Dakota (160 bushels per capita) and Kansas (58 bushels per capita) contribute about 60 per cent of the wheat grown in the seven States of this section, which supplies not only the greater part of the domestic deficiencies east of the Rockies, but also most of the export wheat. Deducting the Pacific wheat, which normally enters into a distinct trade westward, this division furnishes nearly 80 per cent of the gross surplus of the United States. The one State of Minnesota grinds more than half of the wheat milled in this area several times the State production. The aggregate figures suggest an export movement of wheat and wheat flour in about equal proportions.

MOUNTAIN STATES.—The per capita production in these States is very high; only in Montana and Idaho, however, does the local production attain relative importance. The southern part of the division grows insufficient wheat for its needs. Population and wheat production are widely scattered, and the region is still in a developmental state, the census of 1910 reporting only 2 per cent of its area as being improved. Only a small proportion of the export wheat is milled, part moving westward and the major portion finding its way to markets east of the Rockies.

PACIFIC STATES.—The bulk of the Pacific wheat production is concentrated in eastern Washington and northeastern Oregon, as will be seen from Map 2. California's production has declined to a fraction of the State's requirements. The surplus wheat from eastern Washington and Oregon, with some from adjoining Mountain States, supplies deficiencies in this section, the major part seeking a market in Europe and the Orient. Pacific mills grind less than half the local crop, surplus wheat being shipped, as a rule, unmilled.

SECTIONAL PRICE RATIOS SHIFTING.

- Price maps based upon averages for five years, 1910–1914, to determine normal conditions.
- Geographic price differences change slowly with economic transformations. Spasmodic deviations from usual price relationships due to unusual local conditions.

Application to specific purposes of the maps and local price alignments to which attention is now addressed is in a measure contingent

upon an understanding of the data upon which they are based. Emphasis is laid upon the fact that the price zones as mapped and given in tabular form within the appendix represent normal conditions determined by a five-year average (1910–1914), showing regular and definable tendencies, both general and local.

These geographic price differences are not fixed; they are slowly changing with other economic conditions. This phase is more fully treated on pages 24–27, wherein are shown the steadily diminishing price differences in wheat between exporting western and importing eastern sections, coincident with the decline in transportation charges, attended also by a decreasing wheat production in the East. Similarly, marked changes occurred in Mountain States disadvantageously situated as to markets, in which formerly—when deficient in wheat supplies—very high prices prevailed, and where now there are low prices, since these States have eventually come to produce a surplus of wheat.

Subordinate to the general price movement, temporary deviations from the usual price relationships are found. A local crop failure may occur, or the crop may be of poor quality, and a region, usually exporting, must bring in supplies. The Kansas corn crop was practically a failure in 1913, because of a severe drought; large quantities of corn had to be brought in for local needs. As a result, the farm price ratios were disrupted, the Kansas farm price becoming considerably higher than that of adjoining States, even exceeding that of Pennsylvania, although usually about 10 cents per bushel less. (See fig. 2.)



A very striking illustration of deviation from the usual sectional farm price ratio is afforded by the situation in the Pacific Coast States in 1916. The Pacific wheat surplus could not follow its usual course to Europe because of the scarcity of ocean tonnage, hence it was shipped by rail to eastern markets. The ordinary price progression of the far western States gives higher prices as the Pacific ports are reached; Idaho and Montana, at a geographical disadvantage to eastern and Pacific markets, represent areas of lowest price. Because of the eastward rail movement in 1916 the geographic situation was reversed, and Montana wheat brought higher farm prices; similarly, the price disparity between Pacific and eastern surpluses was widened, the higher rail freight being substituted for cheaper ocean rates. (See fig. 3.) Notwithstanding the apparently bewildering lack of regularity in the individual price quotations, the application of statistical method to the great mass of numerical data which have been made the basis of the maps, and the use of a 5-cent unit to overcome minor differences such as are due to grades, develop a sustained regularity in the geographic price comparisons. The regional differences in farm prices reflect current economic conditions; they are changing slowly with the development of the country; subordinate to this general movement spasmodic deviations arise.



FIG. 3.-Deviation from usual farm-price ratio, per bushel of wheat, Montana, Washington, and Kansas.

DETAIL FARM PRICE MAP AND LOCAL PRICE CONDITIONS.

- Stability of farm prices where wheat traffic is in great volume, across Northern States.
- Mountainous regions and areas disadvantageously placed as to transportation facilities; irregularity of prices therein; surplus wheat areas show lowest prices; deficient areas highest prices.

Map 3 is designed to show local variations in the general price zones through the use of a 5-cent unit.

Previous paragraphs have treated of the general direction of the price progressions. An examination of the price maps will disclose many small areas in which farm prices are higher or lower than in the surrounding territory. Greatest stability and slowest rate of increase attend the direction wherein grain traffic is in largest volume-across the Mississippi, through Illinois and Ohio, toward the North Atlantic ports. Similarly, in the Pacific northwest, price levels rise steadily toward the seaboard. On the other hand, prices paid to farmers reach higher and more irregular levels within the arid interior and southwest, sections deficient in wheat production, with scanty population, having no points of large concentration, and drawing wheat in relatively small quantities. High figures usually obtain in regions of little or no wheat production. It will be noted that in importing areas—as in the Appalachian region—not well served by transportation facilities, prices are high and irregular. Surplus areas not favorably situated as to transportation and markets show lowest farm prices, notwithstanding proximity to areas of higher prices, as will be seen in parts of Idaho and Colorado.

EFFECT OF MARKETS ON LOCAL FARM PRICE VARIATIONS.

Price elevations around wheat markets; influence of markets on farm price gradations; large wheat consumption of grain centers.

Wheat receipts, shipments, exports, and flour production at chief markets in relation to total commercial movement.

Consideration of price zones in connection with the great wheat markets located on Map 3 will indicate the relationship between grain centers and farm prices. In a report of the Industrial Commission¹ the grain territory tributary to the leading markets was mapped. In Map 4 this map is reproduced with the price zones of Map 3 superimposed. The effect on farm prices of proximity to the great wheat markets is apparent. On the north farm prices rise to a maximum around Minneapolis; slightly farther south they graduate upward toward Chicago and Milwaukee. Likewise, subordinate to the general price direction, higher levels obtain around Kansas City, St. Louis, San Francisco, and other important markets. Reports indicate that sections deficient in supply, east and south, draw the greater part of their wheat from these "primary markets"the points in which wheat is concentrated in the first stages of its movement. Each of the markets has a territory from which it usually derives its wheat, freight rates being the determining factor, and farm prices tend to graduate in proportion thereto. A difference of a fraction of a cent in freight, elevating charges, etc., will alter the course of the wheat traffic.

The great wheat markets are important, not only as commercial centers and points of wheat concentration, but also as eventually consuming a large part of the domestic wheat. A score of the largest markets represent about one-fifth of the total consumption of the country. It is estimated that the metropolitan district of New York consumes 30 million bushels annually—equal to the entire production of the Middle Atlantic States or the average surplus of South Dakota. A few of the western primary markets are simply reshipping points, with little local consumption.

In Table II (p. 15) data have been assembled explanatory of the importance of the markets on geographic phases of farm prices of wheat. It will be noted that 13 primary markets receive some 481 million bushels of wheat and wheat flour. Comparing with the figures in Table I, the North Central States (in which these markets are located) grow 540 million bushels, with shipments out of counties where grown aggregating 337 million. Allowing for considerable duplication and inaccuracies in reports of receipts, the degree of concentration is evident. Exclusive of the Canadian shipments, Buffalo alone handles somewhat less than one-fifth of the total wheat production of the country and the major part of the wheat

destined for the east and northeast. In six Atlantic and Gulf seaports, receipts total one-half of the wheat east of the Rockies entering into commercial channels. To this should be added about 60 million bushels of Canadian wheat and wheat flour shipped in bond via Atlantic ports. A dozen cities around the Great Lakes mill one-fourth of the total wheat flour.

1

TABLE II.-Leading wheat markets: Receipts, shipments, and flour production, in fiveyear averages (1911-1915).

[Taken from unofficial returns. Figures for some markets are incomplete; allowance must also be made for duplication, intermediate markets crediting themselves with through shipments, etc.]

| | | Wheat. | | V | Vheat flou | Wheat and wheat flour. ¹ | | | |
|---|---------------------------------------|------------------------------|---------------------------------------|------------------------------|-----------------------------|--|--|--|--|
| Principal wheat markets. | Re- | Dispos | | Re- | Pro- | Ship | Be- | Shin- | |
| | ceipts. | Milled.1 | Re- shipped. | ceipts. | duction. | ments. | ceipts. | ments. | |
| EASTERN AND SOUTHERN SHIPMENTS. | | | | | | | | | |
| Primary markets: Minneapolis Duluth | Bushels. 116,056 65,453 | Bushels. 77,724 4,851 | Bushels. 34,445 60,684 | Barrels. 665 5,274 | Barrels. 17,272 1,078 | Barrels. 17,776 6,356 | Bushels. 119,049 89,186 | Bushels. 114,437 89,284 | |
| (Caladian singlifents in bond) ² Chicago Kansas City St. Louis | (6,828) 58,680 46,549 29,539 | 4,694 10,292 5,643 | (6,676) 49,222 34,528 22,463 | $* \\ 8,394 \\ 193 \\ 3,290$ | 1,043 2,287 1,254 | $^{*}_{6,671}$ 1,929 3,806 | (6,828) 96,453 47,417 44 344 | (6, 676) 79,243 43,208 39,588 | |
| Milwaukee Omaha Cincinnati Toledo | 8,892 16,964 4,433 6,856 | 3,812 * 6,278 | 4,861 11,079 3,185 3,925 | 3,320 * 1,501 * | 847 * * 1,395 | 3,641 * 1,095 | $ \begin{array}{c} 23,832 \\ 16,964 \\ 11,187 \\ 6.856 \end{array} $ | 21,245 11,079 8,113 3,925 | |
| Cleveland Detroit Indianapolis Peoria | 2,939 2,235 3,194 2,390 | 1,476 3,298 2,151 * | 961 1,066 1,140 2,269 | 2,363 | 328 733 478 * | | 6,071 3,792 3,194 13,023 | 1,717 2,848 1,140 15,319 | |
| Total | 364,180 | 120, 219 | 229,828 | 26,042 | 26,715 | 44,738 | 481,368 | 431,146 | |
| Other markets: | | | | | | | | | |
| Domestic wheat Canadian shipments | ³ 111,392 | 24,314 | * | ³ 8, 330 | 5,403 | * | 148,877 | * | |
| in bond New York— | 46, 497 | ••••• | ••••• | ••••• | | ••••• | 46, 497 | •••••• | |
| Domestic wheat Canadian shipments | 55,444 | 4,842 | 4 48,120 | 10,102 | 1,076 | 4 4,929 | 100,903 | 4 70,300 | |
| in bond Philadelphia— | 24,000 | ••••• | ••••• | 972 | ••••• | • • • • • • • • • • • | 28,374 | • • • • • • • • • • | |
| Canadian shipments | 22,694 | 2,826 | 4 19, 445 | 2,385 | 628 | 41,056 | 33,426 | 4 24, 197 | |
| Baltimore— | 8,820 | ••••• | 4.10.050 | 1 000 | · | | 9,706 | 4.04.105 | |
| Canadian shipments | 21,752 | Ŧ | * 19,950 | 1,920 | 4 | * 930 | 30,392 | ⁹ 24,135 | |
| Boston— Domestic wheat | 14 273 | * | 4 1 4 301 | 1 061 | * | 4 668 | 0,200 23.007 | 4 17 307 | |
| Canadian shipments | 10,490 | | 11,001 | 284 | | 000 | 11.768 | 11,001 | |
| New Orleans. Newport News and Nor- | 18,005 | * | 4 16,886 | 2,087 | * | 4 1,362 | 27,397 | 4 23,015 | |
| folk. Galveston | 19,818 | * | 43,159 18,107 | | * | 4 218 297 | 19,818 | 4 4,140 19,443 | |

(In figure columns 000 omitted.)

* No reports.

¹ Flour converted to wheat at 4¹/₂ bushels per barrel. ² Canadian shipments in bond are in addition to other figures.

³ Lake receipts only.

4 Exports.

| | Wheat. | | | - 7 | Vheat flou | Wheat and wheat flour. | | |
|--|---|---------------------|-----------------------------------|--------------------------|----------------|---|---|--|
| Principal wheat markets. | Re- | Disposition. | | Be- | Pro- | Ship- | Re- | Shin- |
| | ceipts. | Milled. | Re- shipped. | ceipts. | duction. | ments. | ceipts. | ments. |
| EASTERN AND SOUTHERN SHIPMENTS-Continued. | | | | | | | | |
| Other markets—Continued. Portland, Me.— Domestic wheat | Bushels. * | Bushels. | Bushels. 17,887 | Barrels. | Barrels. | Barrels. 1143 | Bushels. | Bushels. ¹ 8, 531 |
| in bond Mobile | 7,074 | * | * 1 31 135 | 197 2 144 | * | * 1 533 2 1 108 | 7,960 | 12,429 5.121 |
| Denver PACIFIC COAST WHEAT. | 3,316 | | | | | | 3,316 | •,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |
| Seattle ³ Tacoma ³ San Francisco. Portland ² Spokane ² | $9,349 \\11,902 \\6,215 \\17,419 \\1,334$ | 5,020 6,044 * | 4,678 4,600 1,248 13,853 | 548 * 1,260 496 | 1,049 1,343 | 1,243 1,496 ¹ 210 997 | 11,815 11,902 11,885 19,651 1,334 | 10,271 11,332 ¹ 1,193 18,339 |

TABLE II.—Leading wheat markets: Receipts, shipments, and flour production, in fiveyear averages (1911-1915)—Continued.

* No reports.

¹ Exports.

² Figures for 1915 only. ³

³ Averages for 1912-1915.

FREIGHT RATES.

Most important element in price disparities represented by transportation costs. Export prices of wheat influence farm prices.

Wheat takes a special rate; complicated rate structure; effect of reshipping, distance, and milling-in-transit rates on farm prices.

The national wheat surplus, that is, the exports, constituted during the past 10 years, from 11 to 37 per cent of the production. It is the price received for this surplus which, broadly stated, tends to regulate the farm prices of the entire crop. Preceding maps have outlined the gradual elevation in the farm prices of wheat toward the seaboard, with minor increases culminating as each of the great markets is reached. In this progression a preponderant factor is cost of transportation, other items of distributive expense being usually in fractions of 1 cent per bushel. Evidently a definite proportion tends to exist between prices prevailing at the different markets, domestic and foreign, measured principally by differences in freight. In foreign markets tariffs often supervene to disturb this relationship. Prices paid to farmers for wheat tend to graduate from the markets in proportion to freight charges thereto. In surplus wheat areas farm prices decrease steadily with distance from markets, while in areas raising insufficient wheat for home needs prices are apt to be higher than they are near large markets, the increase in price being affected by freight rates from the nearest surplus points.



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Bulletin 594 U. S. Department of Agriculture.

(Nore-The difference in price between any two regions may be regarded as practically stable, regardless of changes in the prices themselves. This map serves as an index of geographic variation in farm prices.)







EFFECT ON FARM PRICES OF WHEAT OF NEARNESS TO OR REMOTENESS FROM GRAIN MARKETS.

(Figures and color areas represent farm prices of wheat as given on Map 3. The territory from which each market or group of markets receives most of its wheat is outlined

Bulletin 594 U. S. Department of Agriculture.

on the map by an etched border.





For the purpose of presenting concretely the effect of transportation charges on regional differences in prices paid to farmers, such charges may here be divided into the two general classes of export (or ocean) and domestic freights. Ocean freights fluctuate greatly, but taking the year 1913 as one in which normal conditions prevailed, the following illustration will serve :

| From— | To Liverpool, England. |
|--------------------------------|---------------------------|
| New York | Cents. |
| Baltimore | 6.6 |
| Columbia River and Puget Sound | 21.0 |

Average ocean freights per bushel of wheat, 1913.

Export wheat, all rail, carload lots, 1913, per bushel.

1

| From | То— | Cents. |
|---------|-----------------------------------|--------------------|
| Chicago | New York do New Orleans | $10 \\ 15 \\ 11.1$ |

Thus the normal difference of about 5 cents per bushel in favor of Chicago, in the total transportation costs to Liverpool, as compared with the rate from Kansas City, represents also the disparity in the farm prices of adjoining territories, as will be seen by reference to map 3.

Similarly, the Pacific Ocean rates quoted above, although considerably cheaper than rail freights eastward, are yet nearly four times the ocean freight from New York. This higher transportation cost to European markets is an important factor in the lower prices received by Pacific wheat growers.

The line of cleavage between Pacific and eastern markets may be noted in the following rates from the area of lowest wheat prices:

Approximate transportation costs from Blackfoot, Idaho, to Liverpool, England (1913), per bushel of wheat.

| Via Pacific: | Cents. | Via Atlantic: | Cents. |
|------------------------------|--------|-----------------------|--------|
| By rail to Seattle or Tacoma | 24 | By rail to New York | 39.2 |
| Ocean freight to Liverpool | 21 | New York to Liverpool | 5.6 |
| Total | 45 | Total | 44.8 |

Transportation costs from Kansas City to Liverpool (1913) were about 20 cents per bushel. This difference of 25 cents, compared with the above, is reflected in the farm prices in surrounding areas—65 cents as against 90 cents.

In the internal commerce, wheat takes a special or commodity rate, with a complicated rate structure adapted to the characteristics of its commercial movement. The freight rates on grain are con-9578°-18-Bull. 594-3 stantly changing, but their main features are constant; also the elaborate rate structure which accounts for many geographic price differences. Only a brief statement of a few phases of wheat rates, in so far as they relate to the geography of farm prices, is possible here.

In connection with large areas of equal price in the wheat belt, it may be noted that although length of haul is an important element, the freight rates are not directly in proportion thereto. The following example is pertinent:

Distance rates between points in Kansas and Oklahoma, Atchison, Topeka & Santa Fe Railway.

| [Rates per bushel of wheat (carload lots) in 1916.] | |
|---|--------|
| 10-14 miles | \$0.03 |
| 96–100 miles | . 069 |
| 196-200 miles | . 093 |

Thus 20 times the distance takes only 3 times the 10-mile rate. The wheat rate from Chicago is the same to all points in New England; the rate to Baltimore applies also to Richmond and Newport News. The freight rate from the trans-Mississippi wheat belt to our southeastern States usually is higher than to England. Export wheat moves to the seaboard at lower freight rates than does wheat intended for domestic consumption.

The natural tendency toward wheat concentration in the great commercial centers is enhanced by their use as rate-basing points, as well as by the reshipping and milling-in-transit rates. Flour usually takes a higher rate than wheat, but by the milling-in-transit privilege wheat may be stopped at some point en route, milled, and the product moved on again at the original rate charged for a through wheat shipment¹ to the eventual destination, instead of paying the local rate to the milling point and local flour rate to the destination. By means of the reshipping rate wheat may be moved into a primary market, say Chicago, and shipped on again, taking the through rate to the final destination instead of the sum of the local rates.

| From | To Buffalo, Wheeling, Pittsburgh. | To Baltimore, Washington, Rochester, Newport News. | To New York. | To Boston, Portland, and New England points. |
|---|---|--|--|--|
| Chicago For domestic use For export Toledo or Delaware, Ohio, through local rate | \$0. 09 .06 .06 | \$0.113 .083 .10 .069 .08 | \$0. 131 .101 .108 .078 .098 | \$0.143 .113 .108 .078 .11 |

All-rail freight rates per bushel of wheat, in 1916 (carload lots).

Thus the local rate applying on wheat originating at or near Delaware, Ohio, or Toledo is about the same as the reshipping rate from Chicago, which applies to practically all shipments from that

¹ In some cases railroads apply the through flour rate to such traffic.

point. Reference to the maps will indicate the effect of this rate, as well as of the low rates via the Great Lakes, in the equality of farm prices near Chicago with those farther east and much nearer the seaports.

Still another complication is the difference in freight rates between carload and less-than-carload lots, which would particularly affect regions in which wheat traffic is small.

OTHER PRICE FACTORS.

Distinct use made of certain varieties of wheat, with individual price conditions. Local value of mill by-products; discriminatory effect of tariffs and freights on flour production.

Another factor affecting farm price is the demand for one kind of wheat compared with the demand for another kind. Thus durum or macaroni wheat meets a distinct demand in export and domestic trade; the hard spring and winter wheat is highly esteemed for bread making, and the softer wheats are considered better adapted for use in pastries. A general practice exists of bringing up the gluten content of the softer wheats by an admixture of the harder varieties. For example, notwithstanding the general easterly and southerly movement of hard Kansas wheat, some of it is shipped westward to Denver, where it is blended with the softer irrigated wheats.

The economic advantages of milling wheat close to the sources of raw material are offset in part by higher freights on flour, in part by local values of mill by-products, and by characteristics of the reshipping and milling-in-transit freight rates. Then, too, foreign tariffs frequently discriminate against flour imports, up to the point of absolute prohibition. It is usually considered that, on an average, 4½ bushels of No. 2 hard wheat produce one barrel of flour (196 pounds) and 70 pounds of feed, with 4 pounds of loss. In concluding it may be added that, manifestly, from the very

In concluding it may be added that, manifestly, from the very nature of the case, only the broad general conditions applying to the regional price differences can be entered into here. No single set of conditions alone determines a price, but each more or less determinable factor is influenced by other elements. Hence the treatment of causes has been intended as merely indicative and concerned primarily with the mention of some of the more noteworthy ones. In a publication of this character it has seemed best merely to set forth facts and conditions, with the avoidance, so far as possible, of discussions of economic theory.

SUMMARY: PRICE VARIATIONS AND ATTENDANT CONDITIONS.

In the selection of crops for which climate and soil are fitted, geographic differences in producers' prices constitute a potent factor. Isothermal lines indicate zones of like temperature; in a similar manner farm prices group themselves geographically into zones, responding to economic conditions attending the transit of wheat from areas of supply to those of demand. These zones vary with each product.

Sectional price ratios are not fixed; dynamic in character, they shift slowly with general economic changes. Moreover, temporary upheavals frequently occur in price relationships, in response to changes in local and general price factors.

The lowest farm prices appear in the surplus areas of Idaho and Montana, with small consuming populations and most disadvantageously situated as to foreign markets, having a short rail but a long ocean haul westward, a long rail and short ocean haul eastward. From this pivotal area wheat prices graduate upward in every direction, following closely the movement of wheat toward the areas of deficient production. Toward the Pacific they increase to the west and south; toward the Atlantic the price graduations flow to the east and south, with maximum prices in the southeast.

Subordinate to the general price current, localities with higher or lower price levels than those in the surrounding territory may be found, responding to peculiarities of the commercial wheat movement. Comparative stability and small local differences in prices appearin the great wheat-producing sections, which have great volume of wheat traffic, competitive primary markets, and elaborate freight adjustments. Where wheat moves in smaller volume, greater price irregularity as well as higher prices obtain. In the mountainous areas raising insufficient wheat, as, for instance, in the Appalachian region, farm prices are higher; on the other hand, western exporting areas unfavorably situated as to transportation show lower prices, notwithstanding geographical proximity to regions of higher price.

A large part of the commercial wheat appears in a limited number of markets, with highly organized distributive systems. Each has a territory from which it ordinarily receives its supplies.

The largest single element in the regional price disparities is represented by freight rates. Though subject to change, in their main features they are constant in their influence on price conditions.

FARM PRICES CORRELATED WITH COSTS OF PRODUCTION, BY STATES AND SECTIONS.

Yields to the acre and costs per acre of wheat qualifying sectional price advantages.

Factors which enable areas with lowest priced wheat to show greatest net return.

A distinction should, of course, be drawn between gross price and net price to producers. Two qualifying factors appear in yields to the acre and costs per acre. Price and cost elements have been assembled in Table III (p. 22).

Costs of producing wheat are on an acreage basis; high yields depress and low yields increase costs per bushel. Figure 4 has been added to throw into relief the proportionate significance of these factors. It will be seen that areas of high price show minimum net returns, higher prices per bushel being offset either by high acreage costs or such relatively low yields to the acre as to make the per bushel cost high. Varying land rental or interest charges, as well as costs of commercial fertilizers, are also shown.

In the South Atlantic States we see the highest price per bushel but lowest yields to the acre, hence highest proportionate cost per bushel, reducing returns per acre (see lower chart) to a point only slightly over costs. The New England and Middle Atlantic States, with high prices and high yields, show large returns per acre, offset



FIG. 4.—Wheat: Farm prices, yields, and costs of production, by geographic divisions. (For details, see Table III, p. 22.)

by highest costs to the acre (in which high fertilizer and land-rental charges enter). On the other hand, the Mountain and Pacific States, with low prices per bushel but high yields, show in the lower chart high returns per acre and lowest costs.

Details follow in Table III. Relationships can best be seen in the percentages, basing the United States figure as 100 per cent. Thus we see in Montana, price per bushel is 85 per cent (compared with the United States as 100), but average yield is 167 per cent, and correlating the two in value per acre, 142 per cent; cost of production, excluding land rental or interest, 117 per cent; finally, ratio of returns to cost 201 per cent. TAMAS 111. - Wheat: Summary, 1911-1915 - Geographic alignments, prices and costs of production."

BULLETIN 594, U. S. DEPARTMENT OF AGRICULTURE. P. cl. 100 212 206 223 140 1131 1121 1103 1103 Cost of produc-Ing Innd rental Measurement of relationships in percentages of the Includ or intion per acro. 212 255 or in-6°. Nelnd 62128 routal hund orost United States as average base. 2 P. cl. 205 Seg22298 Valuo 207 141 122 106 122 122 137 137 137 208 28.28 por nero. Y lold P. ct. 100 167 20 289 333882018 por nere. ing hand rental or Cost per bushel, exclud-P. cl. 3302332023333333 67 42 828 12200238 interest. bushel. ct. 23 116 118 412585113 412585113 Price por 2 per acro of gradu P. cl. 166 Ratio of roturns 001 202 130 2289888 or per bushel (cost == 100 por to cost. con()." Dolls. 0.58 Commortilizer, in costs 3 6.75 2.82 2.25.06 2.25.0 eint for-DOF DOPO. Gross roburns and costs of production per acro. Cost of production, 1900. 2Ó Dolls. 10.23232 10.232 rental or 23.00 68 888 88888888 Trichading land Interest 23. x x e 10 × 0 m + 0 0 Exclud-ing fand rental or Interest. Dolls. 7.85 13.33 10.37 10.37 10.37 10.55 10.53 10.55 14.00 14.01 13.18 12.41 11.57 0.18 0.18 0.28 0.28 0.08 20.00 prod-nets, 1909.1 Dolls. 0.82 8323442288 00 849 85628658 Value je 5 ió ró 5.4 ori ori -i of gradm, 1911-1915 (price × yield). Dolls. 27.27 16.66 15.52 13.26 14.56 13.21 14.41 13.64 A vernge returns 22.23.04 22.23.25 22.23 22.23 22.23 22.23 22.23 22.23 22.23 22.23 22.23 22.23 22.23 22.23 22.23 22.23 22.24 23.24 23.24 23.24 23.24 23.24 23.24 24.25 25.24 25.25 26.75 DOF DOTO 2×9 12.0 12 800020085 33 57 12 81 1222222 A ver--116 yield per vero. 915. Bu. C'18. Price and cost of produc-Cost of produc-Includ lund rentaf or in-90 18 808 125555525 tion, 1909.2 tion (per bushel). Cla. 52 Sxchud-2223333 22224888888 2 282 23 Induaor Inlug 118. 383288888 107 808 2310028 10 farm price, 1911-1915. AVOF Delawaro Maryiuad. Virginia. West Virginia. North Carolina. South Carolina. Florida New Hampshire..... Vermont. Mussachusetts New England Middlo Atlantic South Atlantic East North Control Goorgia. West North Control East South Control West South Control Mountain New Jersey State and goographic division. Pacific Connecticut..... United States. Rhode Island New York Middle Atlantic: South Atlantic: Maine. New England:

 $\overline{22}$

| 129 112 112 121 | 90 93 93 92 92 92 92 | 104 99 103 | 90 83 91 | 112 116 108 129 159 | 125 117 107 97 | collated |
|---|--|--|--|---|---|--|
| 129 112 92 100 | 88 2 2 2 2 2 2 2 3 2 3 2 3 2 3 2 3 3 2 3 3 2 3 3 2 3 3 2 3 3 2 3 | 105 101 115 | 91 85 91 | 117 123 104 111 161 154 | 125 101 99 | ey were o value. vely stał |
| 120 109 114 124 131 | 92 124 106 106 106 106 92 | 99 93 110 112 | 106 79 87 | 142 165 135 157 255 149 207 | 154 145 138 116 | r 1909, th rticular omparati applied. |
| 107 100 113 113 | 93 127 100 87 87 93 93 | 87 80 80 93 | 93 80 80 | 167 173 147 147 200 167 193 | 187 160 147 107 | the yea. ossess pa cre are co |
| 121 113 87 113 79 79 | 100 100 100 100 100 100 100 100 100 100 | 121 127 146 | 92 104 115 | 77 77 92 92 | 67 69 94 | ta apply to her, they p costs per a es of farm |
| 109 107 109 109 | 99 97 93 93 93 93 | 114 116 138 138 | 114 99 109 | 85 95 107 107 107 | $^{83}_{94}$ | th the da ith anot red that by valu |
| 154 162 206 217 217 | 164 233 197 1161 1147 216 175 | 157 153 159 | 207 159 159 | 201 223 216 235 263 263 162 | 205 219- 229 195 | Althoug r section w It is believ t, roughly, |
| 1.76 1.20 .27 .08 | 11 11 11 11 11 11 11 11 12 12 12 12 12 1 | 1.13 1.15 2.04 | .05 .03 .24 | . 22 . 05 . 36 | .07 .08 .08 .02 | 1911, p. 36. ne State or 911-1915. being offse |
| $\begin{array}{c} 14.37\\ 13.59\\ 12.54\\ 13.54\\ 11.56\\ 11.56\end{array}$ | $\begin{array}{c} 10.00\\ 11.47\\ 8.99\\ 8.98\\ 10.08\\ 10.08\\ 10.29\end{array}$ | $11.57 \\ 11.03 \\ 11.45$ | 10.03 9.31 10.14 | 12.47 12.90 12.05 11.85 14.42 17.69 | 13.89 13.10 11.89 10.84 | er," May, litions in o age yield, 1 sidered as |
| 10. 15 8. 80 7. 21 10. 01 7. 87 | 6.33 6.15 6.15 6.15 6.38 6.38 | 8. 21 7. 90 9. 06 | 6.71 6.51 7.15 | 9.22 9.69 8.13 8.72 12.67 12.05 | 9.84 8.67 7.89 7.81 | rop Report e cost cond 1, by avere ts was con |
| $\begin{array}{c} 1.64 \\ 1.18 \\ 1.18 \\ .87 \\ 1.95 \\ 1.51 \end{array}$ | 1.01 1.01 .58 .58 .58 .58 .58 .58 .58 .58 .58 .58 | .75 | .63 .42 .77 | $\begin{array}{c} 1.55\\ 1.72\\ 1.10\\ 1.43\end{array}$ | . 73 . 95 . 59 | es. ("C g average iry cited |
| 15.68 14.25 14.88 16.15 17.10 | 12.04 16.15 13.80 10.92 9.02 13.77 13.77 | 12.87 12.12 14.40 14.56 | 13.86 10.32 11.40 | $\begin{array}{c} 18.50\\ 21.58\\ 17.60\\ 33.30\\ 19.50\\ 19.50\\ 26.97\\ 19.50\\ 19.50\\ 10$ | 20.16 18.96 18.04 15.20 | p Estimat comparin in the inqu |
| 16 15 17 17 19 | 14 15 115 117 117 117 | 13 12 14 | 14 12 12 | 8888888 | 16 22 28 | au of Cro irpose of as given costs. |
| 90 91 80 81 61 | 71 69 82 74 74 | 89 92 95 | 72 78 84 | 55 55 71 71 | 50 55 54 68 | the Bure resent prover acre, |
| 63 59 59 41 | 52 52 56 56 56 56 56 56 56 50 50 50 50 50 50 50 50 50 50 50 50 50 | 63 66 76 | 48 54 60 | 837 87 88 88 88 | 35 36 36 49 | quiry of for the p ng costs p nd land |
| 953358 953358 | 82222258 | 99 101 120 104 | 99 86 95 | 11 11 11 13 88 87 87 87 87 87 87 87 87 87 87 87 87 | 22 22 32 32 | pecial in sis, and y dividir eturns a |
| East North Central: Ono. Indiana. Illinois. Miseonsin. | West North Central: Minnesota Iowa. Missouri North Dakota South Dakota Nortska. Ransaka | East South Central: Kentucky. Tennessee Alabama. Mississippi. West South Central: | Louisiana. Textas Oklahoma. Arkansas. | Mountain: Montaina Wyonning Colorado. New Mexico. Artzona. Utah. Newoda | Pacific: Vashington Oregon California. | ¹ Costs of production from as a uniform and comparable ba a Cost per bushel obtained b ³ Excluding by-products in r |

.

Recent figures for cost of production in the United States are not available for any recent period, hence an old inquiry (1909) has been used. For the present purpose of comparing cost conditions in one section of the country with another the figures still possess value. Prices and yields employed are averages for the five years, 1911-1915.

RETROSPECTIVE VIEW, 1871 TO 1915.

Present tendencies.

- Changing sectional price advantage; minimum price moving west and north; decreasing disparity in prices between surplus and deficient wheat regions; shifting conditions in Mountain States.
- Trend of yields to the acre, by States and sections.
- Trend of value per acre, coordinating price and yield, by States and sections. Geographic changes in population; wheat production and acreage; per capita production.

Importance appears to attach to the fact that the geographic differences in farm prices are not fixed; that, on the contrary, they are dynamic in character, changing with producing and distributive conditions. Each factor herein is variable. The result may be likened to a slowly moving current in which more or less strong eddies are produced by diverse causes, each circle impinging and merging into the general flow. Mere reference is sufficient here to the continuing agricultural readjustments within the United States, coincident with the westward movement of population, grain, and live-stock production and markets; the transitions from surplus grain production, low land values, and relatively low prices, to a more diversified farming, higher land values, prices, etc.; the increasing wheat deficiency of the older regions, and more recently, development through irrigation of the arid interior. The distance between the eastern areas deficient in wheat production and the surplus-producing territories to the west has steadily widened; this has to some extent been offset by cheapening costs of transportation as well as lower marketing expense. Prices have responded to these transformations, and present geographic tendencies therein may be seen through their indicated development.

The reflection of economic changes can be seen in Table IV (p. 26), showing shifting in geographic price advantages of wheat, from 1871 to 1915. A "wave length" of five years was employed to avoid unusual variations. Particular attention is directed to the percentages, based on the United States figure as 100 per cent.

The minimum farm price has moved steadily north and west. In 1871–1875 it appeared in Nebraska; in 1891–1895 in the Dakotas; and in 1911–1915 in Idaho and Montana. During the period covered by Table IV, geographic differences in wheat prices, although still large, have narrowed notably; particularly is this true as between importing eastern and exporting western States. The diminishing price spreads have been attended by decreasing transportation costs and development of distributive methods; also by a decline of wheat growing east of the Mississippi, as well as by comparative concen-

FIG. 5.—Decreasing farm-price differences between Pennsylvania (importing State) and Minnesota (exporting State).

3



tration of the national wheat production within the West North Central group. A steady increase may be seen in the relative prices of

FIG. 6.—Changing farm-price ratios, Idaho (transition from importing to exporting State) and Oregon (exporting State).



the great wheat States of this group compared with the United States as a whole; on the other hand, a rapid decrease took place in the Mountain States. Farmers in wheat-importing States of the Mountain division still receive relatively high prices for their wheat, but in wheat-exporting regions of this division the lowest farm prices prevail.

As an illustration, in figure 5 the course of price differences between Pennsylvania, an importing State, and Minnesota, an exporting wheat State, has been plotted. The difference in the price per bushel at the first period (1871–1875) was 52 cents; at the last (1911–1915), 11 cents.

Similarly, in figure 6 the course of prices in Idaho, showing a transition from a State producing insufficient wheat at the beginning of the period to its present status as an exporting State, has been compared with that of Oregon, an exporting State. When a deficiency State the disadvantage of its position resulted in a wheat price in Idaho 115 per cent of the United States average; and as an exporting State, disadvantageously situated as to wheat markets, its ratio has declined to 83 per cent of the average; but Oregon, a consistently exporting State, has increased its price ratio from 83 to 94 per cent.

Details are shown in Table IV.

TABLE IV.—Farm prices of wheat, 1871 to 1915.

| State and geographic division. | Farm | Farm prices per bushel, in 5-year averages. | | | | | Measurement of changes in percent- ages of the United States average as base (100 per cent). | | | |
|--|---|--|--|---|---|---|---|--|--|---|
| 9-9-1 | 1911– 1915 | 1901– 1905 | 1891- 1895 | 1882 - 18861 | 1871- 1875 ² | 1911- 1915 | 1901- 1905 | 1891- 1895 | 1882– 1886 ¹ | 1871- 1875 |
| United States | Cents. 87 | Cents. 72 | Cents. | Cents. 78 | Cents: 102 | P. ct. 100 | P. ct. 100 | P. ct. 100 | P. ct. 100 | P.ct. 100 |
| New England Middle Atlantic East North Central South Atlantic. East South Central. West South Central. Mountain. Pacific New England: Maine. New Hampshire. Vermont Massachusetts Rhode Island. | 104 99 94 85 110 106 93 86 85 107 101 | 100 86 79 67 93 90 90 79 81 71 99 99 100 | 90 76 62 53 79 76 69 68 59 93 86 | 122 97 81 666 100 98 94 91 75 130 115 | 151 131 102 81 136 124 132 102 158 144 | 120 114 108 98 126 122 107 99 98 123 | 138 119 110 93 125 110 112 99 137 139 | 150 127 103 88 132 126 115 113 98 155 | 156 124 104 85 128 125 121 117 96 167 | 148 128 100 79 133 122 129 100 155 141 |
| Connectaut. Middle Atlantic: New York. New Jersey. Pennsylvania. East North Central: Ohio. Indiana. Illinois. Michigan. Wisconsin. | 99 101 97 98 95 93 95 90 | 87 86 84 83 81 77 81 75 | 78 78 73 65 61 59 65 60 | 97 99 96 87 82 78 83 76 | 131 136 127 110 102 95 114 87 | 114 116 111 113 109 107 109 103 | 121 119 117 115 112 107 112 104 | 130 130 122 108 102 98 108 100 | $124 \\ 127 \\ 123 \\ 112 \\ 105 \\ 100 \\ 106 \\ 97$ | 128 133 125 108 100 93 112 85 |

[A review, by States and sections, of the trend of geographic price differences.]

1882-1886 taken instead of 1881-1885 in view of availability of statistics for a larger number of States

² Values reduced to gold basis.

| State and geographic division. | Farm | Farm prices per bushel in 5 yea averages. | | | | | rement of the ase (100 | of chan United per cer | ges in 1 States nt). | oercent- average |
|---|--|--|--|---|---|---|--|---|--|---|
| | 1911- 1915 | 1901- 1905 | 1891– 1895 | 1882- 18861 | 1871- 1875 ² | 1911- 1915 | 1901– 1905 | 1891– 1895 | 1882- 18861 | 1871 1875 |
| West North Central: Minnesota. Iowa. Missouri. North Dakota. South Dakota. Nebraska. Kansas. | Cents. 86 85 92 84 82 81 86 | Cents. 70 68 75 65 62 62 62 67 | Cents. 57 57 56 49 50 50 51 | Cents. 69 66 75 } 63 57 63 | Cents. 75 71 98 66 94 | $P. ct. \\ 99 \\ 98 \\ 106 \\ \left\{ \begin{array}{c} 97 \\ 94 \\ 93 \\ 99 \end{array} \right.$ | P.ct. 97 94 104 90 86 86 93 | P. ct. 95 95 93 82 83 83 83 | $ \begin{array}{c} P. ct. \\ 88 \\ 85 \\ 96 \\ 81 \\ . \\ 73 \\ 81 \end{array} $ | P. ct. 74 70 96 |
| South Atlantic: Delaware. Maryland. Virginia. West Virginia. North Carolina. South Carolina. Georgia | 98 97 102 104 111 131 124 | 83 82 87 88 98 108 104 | 71 74 72 74 80 95 | 96 94 93 93 103 114 | $ \begin{array}{r} 135 \\ 130 \\ 122 \\ 117 \\ 128 \\ 174 \\ 146 \\ \end{array} $ | $ \begin{array}{r} 113 \\ 111 \\ 117 \\ 120 \\ 128 \\ 151 \\ 143 \\ \end{array} $ | $ \begin{array}{r} 115 \\ 114 \\ 121 \\ 122 \\ 136 \\ 150 \\ 144 \end{array} $ | 118 123 120 123 133 158 150 | $ \begin{array}{r} 123 \\ 121 \\ 119 \\ 119 \\ 132 \\ 146 \\ 140 \\ 140 \\ \end{array} $ | 132 127 120 115 125 171 143 |
| East South Central: Kentucky Tennessee Alabama. Mississippi. West South Central: Arkansas. | 99 101 120 104 95 | 85 87 98 92 83 | 65 66 90 82 70 | 85 86 108 111 96 | 105 109 133 147 128 | 114 116 138 120 109 | 118 121 136 128 115 | 108 110 150 137 117 | 109 110 138 142 123 | 143 103 107 130 144 125 |
| Louisiana. Oklahoma. Texas. Mountain: Montana. Idaho. Wyoming. | 86 99 74 72 83 | 69 86 71 70 77 | 68 68 59 68 | 91 92 90 88 | 137 | 99 114 85 83 95 | 96 119 98 97 107 | 113 113 98 113 | 117 118 115 113 | 134 |
| Colorado New Mexico. Arizona. Utah. Nevada. Pacific: | 80 93 111 78 93 | 74 86 103 76 91 | 61 80 77 59 72 | 80 103 102 78 99 | 164 | 92 107 128 90 107 | 103 119 143 106 126 | 102 133 128 98 120 | $ \begin{array}{r} 103 \\ 132 \\ 131 \\ 100 \\ 127 \end{array} $ | 161 |
| Washington Oregon California | 79 82 95 | 65 69 79 | 52 59 67 | 73 72 80 | 85 120 | 91 94 109 | 90 96 110 | 87 98 112 | 94 92 103 | 83 118 |

| T_{A1} | bre] | [] | 7.—1 | Farm | prices | of | wheat, | 1871 | to | 191 | 5—(| Conti | inue | d. |
|----------|-------|----|------|------|--------|----|--------|------|----|-----|-----|-------|------|----|
|----------|-------|----|------|------|--------|----|--------|------|----|-----|-----|-------|------|----|

1882-1886 taken instead of 1881-1885 in view of availability of statistics for a larger number of States beginning 1882. 2 Values reduced to gold basis.

Data associating shifting geographic differences in farm prices per bushel of wheat with trend of yields to the acre are given in Table V (p. 28), and value per acre in Table VI (p. 29). These tables are self-explanatory. Absolute figures as well as percentages are given, but the changes can be followed more easily through the percentages based upon the United States figure as 100 per cent.

TABLE V.-Wheat: Trend of yields per acre, 1871-1915.

[Limitations of soil and climate, reflected in yields per acre, as qualifying price factors.]

| State and geographic division. | Yield | peracr | e, in 5-y | ear avei | ages. | Comp ages as b | arison of the lase. | f chang United s | es in pe States a | ercent- verage |
|--|---|---|--|---|---|---|--|--|--|--|
| | 1911 1915. | 1901– 1905. | 1891– 1895. | 1882- 1886. | 1871– 1875. | 1911- 1915. | 1901– 1905. | 1891 1895. | 1882– 1886. | 1871– 1875. |
| United States | Bu. 15 | Bu. 14 | Bu. 13 | Bu. 12 | Bu. 12 | P. ct. 100 | P. ct. 100 | P. ct. 100 | P. ct. 100 | P. ct. 100 |
| New England. Middle Atlantic East North Central. West North Central South Atlantic East South Central. West South Central. Mountain Pacific. | $26 \\ 19 \\ 17 \\ 15 \\ 13 \\ 13 \\ 26 \\ 21$ | $22 \\ 16 \\ 15 \\ 14 \\ 10 \\ 9 \\ 10 \\ 23 \\ 18 \\ 18$ | $20 \\ 15 \\ 15 \\ 13 \\ 10 \\ 9 \\ 10 \\ 19 \\ 16$ | $ \begin{array}{r} 16 \\ 14 \\ 13 \\ 13 \\ 8 \\ 6 \\ 8 \\ 17 \\ 15 \\ \end{array} $ | $ \begin{array}{r} 16\\ 14\\ 12\\ 13\\ 9\\ 9\\ 13\\ 16\\ \end{array} $ | $173 \\ 127 \\ 113 \\ 100 \\ 87 \\ 87 \\ 87 \\ 173 \\ 140$ | $157 \\ 114 \\ 107 \\ 100 \\ .71 \\ 64 \\ 71 \\ 164 \\ 129$ | $154 \\ 115 \\ 115 \\ 100 \\ 77 \\ 69 \\ 77 \\ 146 \\ 123$ | $133 \\ 117 \\ 108 \\ 108 \\ 67 \\ 50 \\ 67 \\ 142 \\ 125$ | 133 117 100 108 75 75 108 133 |
| New England: Maine. New Hampshire. Vermont. | 25 | 24 20 | 18 | 14 18 | 14 17 | 167 180 | 171 | 138 161 | 117 | 117 142 |
| Rhode Island | | | | | | | | | | |
| Middle Atlantic: New York New Jersey Pennsylvania | $21 \\ 18 \\ 17$ | $ \begin{array}{c} 16 \\ 15 \\ 16 \end{array} $ | $ \begin{array}{c} 16 \\ 14 \\ 15 \end{array} $ | 15 13 13 | $13 \\ 15 \\ 14$ | $140 \\ 120 \\ 113$ | $114 \\ 107 \\ 114$ | $123 \\ 108 \\ 115$ | $125 \\ 108 \\ 108$ | 108 125 117 |
| Ohio Indiana Illinois Michigan Wisconsin | $ \begin{array}{r} 16 \\ 15 \\ 16 \\ 17 \\ 19 \end{array} $ | $15 \\ 14 \\ 15 \\ 15 \\ 16$ | $16 \\ 15 \\ 15 \\ 15 \\ 15 \\ 14$ | $ \begin{array}{c} 13 \\ 13 \\ 12 \\ 16 \\ 13 \end{array} $ | $12 \\ 11 \\ 12 \\ 13 \\ 14$ | $107 \\ 100 \\ 107 \\ 113 \\ 127$ | $ \begin{array}{r} 107 \\ 100 \\ 107 \\ 107 \\ 114 \end{array} $ | $123 \\ 115 \\ 115 \\ 115 \\ 108$ | $108 \\ 108 \\ 100 \\ 133 \\ 108$ | 100 92 100 108 117 |
| West North Central: Minnesota Iowa Missouri North Dakota South Dakota Nebraska Kansas | $14 \\ 19 \\ 15 \\ 13 \\ 11 \\ 17 \\ 14$ | $13 \\ 13 \\ 14 \\ 14 \\ 12 \\ 17 \\ 14$ | $15 \\ 15 \\ 13 \\ 14 \\ 11 \\ 11 \\ 12$ | $\begin{cases} 13 \\ 11 \\ 11 \\ 14 \\ 13 \\ 15 \\ \end{cases}$ | $15 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 14 \\ 14$ | $\begin{cases} 93 \\ 127 \\ 100 \\ 87 \\ 73 \\ 113 \\ 93 \end{cases}$ | $93 \\ 93 \\ 100 \\ 100 \\ 86 \\ 121 \\ 100$ | $ \begin{array}{r} 115 \\ 115 \\ $ | $ \left. \begin{array}{c} 108 \\ 92 \\ 92 \\ 117 \\ 108 \\ 125 \end{array} \right. $ | 125 100 100 100 117 |
| South Atlantic: Delaware. Maryland | $17 \\ 16 \\ 13 \\ 14 \\ 11 \\ 11 \\ 11 \\ 11 \\ 11 \\ 11$ | - 15 15 9 10 7 7 7 | $ \begin{array}{c} 13 \\ 15 \\ 10 \\ 11 \\ 7 \\ 6 \\ 7 \end{array} $ | $ \begin{array}{c} 11 \\ 12 \\ 8 \\ 10 \\ 6 \\ 6 \\ 6 \\ 6 \end{array} $ | $11 \\ 11 \\ 8 \\ 10 \\ 7 \\ 6 \\ 7 \\ 6 \\ 7 \\ 7 \\ 7 \\ 6 \\ 7 \\ 7$ | 113 107 87 93 73 73 73 73 | $\begin{array}{r} -107\\ 107\\ 64\\ 71\\ 50\\ 50\\ 50\\ 50\end{array}$ | $100 \\ 115 \\ 77 \\ 85 \\ 54 \\ 46 \\ 54 \\ 54$ | $92 \\ 100 \\ 67 \\ 83 \\ 50 \\ 50 \\ 50 \\ 50 \\ 50 \\ 50 \\ 50 \\ 5$ | 92 92 67 83 58 50 58 |
| East South Central: Kentucky. Tennessee. Alabama. Mississippi. West South Central: | $ \begin{array}{r} 13 \\ 12 \\ 12 \\ 12 \\ 14 \end{array} $ | $10 \\ 9 \\ 9 \\ 9 \\ 9 \\ 9$ | 12 9 8 8 | 9 6 5 | 10 8 8 10 | 87 80 80 93 | $71 \\ 64 \\ 64 \\ 64 \\ 64$ | $92 \\ 69 \\ 62 \\ 62 \\ 62 \\ -$ | $75 \\ 50 \\ 50 \\ 42$ | 83 67 67 83 |
| Arkansas. Louisiana | 12 | 9 | 9 | 7 | 10 | -80 | 64 | 69 | 58 | 83 |
| Oklahoma Texas | 12 14 | 12 10 | 11 11 | 10 | 16 | 80 93 | $\frac{86}{71}$ | $\frac{85}{85}$ | 86 | 133 |
| Montana Idaho Wyoming. Colorado. New Mexico. Arizona. Utah. Nevada. Pocifici. | 25 28 26 22 22 30 25 29 | 26 23 23 23 18 23 23 23 23 27 | $22 \\ 20 \\ 20 \\ 19 \\ 16 \\ 17 \\ 19 \\ 19 \\ 19 $ | $ 18 \\ 17 \\ 17 \\ 19 \\ 14 \\ 14 \\ 17 \\ 18 \\ $ | 21 | $167 \\187 \\173 \\147 \\147 \\200 \\167 \\193$ | $186 \\ 164 \\ 164 \\ 129 \\ 164 \\ 164 \\ 164 \\ 193$ | $169 \\ 154 \\ 154 \\ 146 \\ 123 \\ 131 \\ 146 $ | $150 \\ 142 \\ 142 \\ 158 \\ 108 \\ 117 \\ 142 \\ 150 \\$ | 175 |
| Washington Oregon California | $24 \\ 22 \\ 16$ | 24 19 11 | 17 18 13 | $ \begin{array}{c} 16 \\ 16 \\ 12 \end{array} $ | 19 12 | $160 \\ 147 \\ 107$ | $171 \\ 136 \\ 79$ | $ \begin{array}{r} 131 \\ 138 \\ 100 \end{array} $ | 133 133 100 | 158 100 |

TABLE VI.—Wheat: Gross returns per acre.

I.

| testime and the second s | | | | | | | | | | |
|---|--|--|---|--|--|--|---|---|---|---|
| Gete and segmethic division | Gros | s return a | as per a averages | cre, in 5 3. | -year | Comparisons in percentages of the United States average as base (100). | | | | |
| State and geographic division. | 1911 - 1915 | 1901 - 1905 | 1891– 1895 | 1882- 1886 | 1871– 1875 | 1911– 1915 | 1901– 1905 | 1891– 1895 | 1882- 1886 | 1871– 1875 |
| United States | Dolls. 13.05 | Dolls. 10.08 | Dolls. 7.80 | Dolls. 9.36 | Dolls. 12.24 | P. ct. 100 | P. ct. 100 | P. ct. 100 | P. ct. 100 | P. ct. 100 |
| New England. Middle Atlantic East North Central. West North Central. South Atlantic East South Central. West South Central. Mountain. Pacific. | $\begin{array}{c} 27.\ 01\\ 18.\ 49\\ 15.\ 61\\ 12.\ 53\\ 14.\ 32\\ 13.\ 49\\ 11.\ 86\\ 22.\ 26\\ 17.\ 40 \end{array}$ | $\begin{array}{c} 21.88\\ 13.42\\ 11.90\\ 9.27\\ 9.01\\ 8.36\\ 8.12\\ 18.81\\ 12.47 \end{array}$ | $\begin{array}{c} 17.40\\ 11.45\\ 9.31\\ 6.91\\ 7.61\\ 6.88\\ 6.89\\ 12.84\\ 9.39\end{array}$ | $\begin{array}{c} 19.\ 45\\ 13.\ 30\\ 10.\ 90\\ 8.\ 36\\ 8.\ 31\\ 6.\ 21\\ 7.\ 91\\ 15.\ 10\\ 10.\ 93 \end{array}$ | $\begin{array}{c} 23, 30 \\ 18, 40 \\ 12, 56 \\ 10, 52 \\ 11, 46 \\ 11, 14 \\ 17, 36 \\ \hline 15, 28 \end{array}$ | $\begin{array}{c} 207\\ 142\\ 120\\ 96\\ 110\\ 103\\ 91\\ 171\\ 133 \end{array}$ | $217 \\ 133 \\ 118 \\ 92 \\ 89 \\ 83 \\ 81 \\ 187 \\ 124$ | $224 \\ 147 \\ 119 \\ 89 \\ 98 \\ 88 \\ 88 \\ 165 \\ 120$ | $208 \\ 142 \\ 116 \\ 89 \\ 89 \\ 66 \\ 85 \\ 161 \\ 117$ | $ \begin{array}{r} 190\\ 150\\ 103\\ 86\\ 94\\ 91\\ 142\\ 125\\ \end{array} $ |
| New England: Maine | 26.75 | 23, 76 | 16.74 | 18.20 | 22.12 | 205 | 236 | 215 | 194 | 181 |
| New Hamsphire Vermont | 27.27 | 20.00 | 18.06 | 20.70 | 24.48 | 209 | 198 | 232 | 221 | 200 |
| Massachusetts Rhode Island | | | · · · · · · · · | | | ····· | ····· | ····· | | |
| Middle Atlantic: | 20 70 | 13 02 | 12 48 | 14 55 | 17 03 | 150 | 138 | 160 | 155 | 120 |
| New Jersey | 18.18 | 12.90 13.44 | 10.92 10.95 | 12.87 | 20.40 | 139 126 | 128 | 140 | 137 133 | 167 145 |
| East North Central: Ohio | 15.68 | 12.45 | 10.40 | 11.31 | 13.20 | 120 | 124 | 133 | 121 | 108 |
| Indiana Illinois | $14.25 \\ 14.88$ | $11.34 \\ 11.55$ | 9.15 8.85 | 10.66 9.36 | $ \begin{array}{c} 11.22\\ 11.40 \end{array} $ | 109 114 | $\frac{112}{115}$ | 117 113 | 114 100 | 92 93 |
| Michigan. Wisconsin | 16.15 17.10 | $12.15 \\ 12.00$ | 9.75 8.40 | 13.28 9.88 | 14.82 12.18 | 124 131 | $121 \\ 119$ | 125 108 | $ 142 \\ 106 $ | 121 100 |
| West North Central: Minnesota | 12.04 | 9.10 | 8.55 | 8.97 | 11.25 | 92 | 90 | 110 | 96 | 92 |
| Missouri | 16.15 | 8.84 10.50 | 8.55 7.28 | 8.25 | 8.52 | 124 | 88 104 | 93 | 88 | _70 96 |
| South Dakota | 10.92 9.02 | 9.10 | 6.80 5.50 | 8.82 | 7 00 | $\begin{cases} 84 \\ 69 \\ 100 \end{cases}$ | 90 74 | 88 71 | 94 | |
| Kansas. | 13.77 | 9.38 | 6.12 | 9.45 | 13.16 | 92 | 93 | 78 | 101 | 108 |
| Delaware | 16.66 15.52 | 12.45 12.30 | 9.23 | 10.56 | 14.85 | 128 119 | $124 \\ 122$ | 118 142 | 113 121 | 121 |
| Virginia West Virginia | 13.26 14.56 | 7.83 | 7.20 | 7.44 | 9.76 | 102 | 78 | 92 104 | 79 | 80 |
| North Carolina South Carolina | 12.21 14.41 | 6.86 | 5.60 | 6.18 6.84 | 8.96 10.44 | 94 110 | 68 75 | 72 73 | 66 73 | 73 85 |
| Georgia Florida | 13.64 | 7.28 | 6.30 | 6.54 | 10.22 | 105 | 72 | 81 | 70 | 83 |
| East South Central: Kentucky | 12.87 | 8.50 | 7.80 | 7.65 | 10.50 | 99 | 84 | 100 | 82 | 86 |
| Alabama | $ \begin{array}{c c} 12.12 \\ 14.40 \end{array} $ | $7.83 \\ 8.82$ | 5.94 7.20 | 5.16 6.48 | $8.72 \\ 10.64$ | 93 110 | 78 87 | 76 92 | 55 69 | 71 87 |
| West South Central: | 14.56 | 8,28 | 6.56 | 5.55 | 14.70 | 112 | 81 | 84 | 59 | 120 |
| Louisiana. | 11. 40 | 7.4/ | 6.30 | 6.72 | 12.80 | 87 | | 81 | | |
| Texas. | 13.86 | 8.60 | 7.48 | 9.10 | 21.92 | 106 | 85 | 96 | 97 | 179 |
| Montana Idaho. | 18.50 | 18.46 16.10 | 14.96 | 16.56 | | 142 154 | 183 160 | 192 151 | 177 | |
| Wyoming. Colorado | 21.58 | 17.71 17.02 | 13.60 11.59 | 14.96 15.20 | | 165 | 176 | 174 | 160 162 | |
| New Mexico Arizona | 20.46 | $15.48 \\ 23.69$ | 12.80 13.09 | 13.39 14.28 | | 157 255 | 154 235 | 164 168 | 143 153 | |
| Utah. Nevada | $ \begin{array}{r} 19.50 \\ 26.97 \end{array} $ | $\begin{array}{c} 17.48 \\ 24.57 \end{array}$ | $11.21 \\ 13.68$ | 13.26 17.82 | 34.44 | 149 207 | $\begin{array}{c} 173 \\ 244 \end{array}$ | $ 144 \\ 175 $ | 142 190 | 281 |
| Washington | 18.96 | 15.60 | 8.84 | 11.68 | | 145 | 155 | 113 | 125 | |
| California | 15. 20 | 8.69 | 8.71 | 9.60 | 16.15 | 138 | 86 | 136 | 123 | 132 |
| | 1 | | | 1 | | 1 | | | 1 | |

TABLE VII.-Wheat: Review, 1871 to 1915.

[cieographic distribution of wheat production and acreage in absolute and relative figures, adjustments of production to population.]

| im- ceu- | 1879 | 12.4 | $\begin{array}{c} 0.6\\ 7.0\\ 16.1\\ 19.2\\ 3.1\\ 17.7\\ 117.$ | 1.3 .6 .1 | $4.2\\7.1\\10.8$ | $^{111.7}_{110.6}$ | 14.1 18.8 |
|---|---------------------------------|-----------------|--|--|---|--|--|
| of all and c wheat | 1889 | 9.4 | 0.1 0.1 11.8 5.1 5.1 5.1 5.1 5.1 5.1 5.1 5.1 5.1 5.1 | ££\$; | $2.8 \\ 6.1 \\ 10.0$ | (12.4) | 12.4 |
| cent oved d by | 1899 | 12.7 | 0.1 7.2 12.0 18.5 7.4 7.4 7.4 11.2 24.8 | 33373:° | 3.6 6.7 11.5 | 15.7 15.7 9.0 3.0 3.0 (*) | 16.7 |
| Per pro | 1909 | 9.3 | 0.1 15.2 15.2 15.2 | | $ \begin{array}{c} 1.9 \\ 4.6 \\ 9.7 \\ \end{array} $ | 15.6 17.6 7.0 3.8 5.7 5.7 (1) | 9.5 12.3 |
| nited | 1871- 1875 | 100.0 | $\begin{array}{c} 0.3\\ 2.5\\ 0.1\\ 0.1\\ 0.2\\ 0.2\\ 0.2\\ 0.2\\ 0.2\\ 0.2\\ 0.2\\ 0.2$ | T.I.I.S.S.E. | 2.8 5.7 | (). (). (). (). (). (). (). (). (). (). | 7.3 |
| leat pro | 1882- 1886 | 100.0 | $\begin{array}{c} 0.3\\ 7.0\\ 5.9\\ 32.3\\ 34.8\\ 4.6\\ 1.5\\ 1.6\\ 12.0\\ \end{array}$ | | 2.4 .5 4.1 | (,) | 7.6 |
| t of wl centag ds. | 1891- 1895 | 100.0 | $\begin{array}{c} 0.1 \\ 5.9 \\ 5.7 \\ 5.7 \\ 41.3 \\ 41.3 \\ 41.0 \\ 11.6 \\ 11.6 \end{array}$ | 000000 | $1.6 \\ .3 \\ 4.0$ | (+) | 8.3 |
| ibution t in per tes tots | 1901- 1905 | 100.0 | $\begin{array}{c}(4)\\(5,4\\5.0\\5.1\\5.2\\5.2\\2.7\\5.1\\3.4\\10.0\end{array}$ | 0000000 | 1.2 .3 | () () () () () () () () () () () () () (| 4.5 |
| Distri tion Stat | 1911- 1915 | 100.0 | $\begin{smallmatrix} & (4) \\ & (5) \\ & (5) \\ & (5) \\ & (2) \\ & $ | 333333 A | . 9 2. 7 | (*) 1. 4 1. 4 1. 4 1. 2 (*) (*) | 3.9 |
| upita; oplies n. t).1 | 1871- 1875 | 6.5 | $\begin{array}{c} 22.3\\ 15.7\\ 15.7\\ 15.7\\ 3.3\\ 3.0\\ 6.0\\ \end{array}$ | $ \begin{bmatrix} $ | $ \begin{array}{c} 1.6 \\ 2.0 \\ 4.2 \\ \end{array} $ | (3) (3) (3) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4 | 7.0 |
| n per ce cat sup outatio abitan | 1882- 1886 | 8.2 | $\begin{array}{c} 22.8\\ 23.5\\ 37.9\\ 37.9\\ 37.9\\ \end{array}$ | $\begin{array}{c}$ | 2.0 1.6 4.0 | $\overset{6.8}{(3)}$ | 10.1 16.9 |
| duction of who ing pot | $\frac{1891}{1895}$ | P.7 | $\begin{array}{c} 22.2\\ 2.1.7\\ 2.1.7\\ 2.1.7\\ 2.1.7\\ 2.1.8\\ 2.1$ | (3) (3) (3) (3) (3) (6) (3) (6) (3) (6) (3) (6) (3) (6) (3) (6) (3) (6) (3) (6) (3) (6) (3) (6) (3) (6) (3) (6) (6) (6) (6) (6) (6) (6) (6) (6) (6 | $1.2 \\ 1.1 \\ 3.5$ | (3) (3) (3) (3) (3) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4 | 10.6 16.8 |
| l of pro , ratio nereasi shels p | 1901- 1905 | 00. 10 10 | (3) | (3)(3)(3)(3)(3)(3)(3)(3)(3)(3)(3)(3)(3)(| $1.1 \\8 \\ 3.8 \\ 3.8 \\$ | () () () () () () () () () () () () () (| 6.8 10.8 |
| Trend i. e. to i (bu | 1911- 1915 | 8.3 | $\begin{array}{c} (3) \\ (3) \\ (4) \\ (3) \\$ | () () () () () () () () () () () () () (| | () | 6.4 12.7 |
| A verage 1911-1915 as com- pared with | 1901-1905 (100 per cent). | 122 | 47 86 113 116 116 121 121 124 124 124 | 42 | 86 85 85 | 115 86 157 91 167 88 88 | 107 |
| ing geo- | 1871-1875 | 272,443 | $\begin{array}{c} 25,130\\ 220,570\\ 104,777\\ 71,183\\ 11,183\\ 11,183\\ 12,524\\ 2,524\\ 2,648\\ 2,429\end{array}$ | 271 182 411 34 39 | $7,542 \\ 1,923 \\ 15,665$ | 5, 036 6, 192 8, 192 2, 649 2, 533 2, 533 | 19,768 20,003 |
| ages, show tion. | 1882-1886 | 450,480 | $\begin{array}{c} 1, 187\\ 31, 130\\ 26, 566\\ 1145, 855\\ 1145, 855\\ 1256, 639\\ 156, 639\\ 156, 639\\ 639\\ 7, 324\\ 7, 324\\ 53, 967\\ 53, 967\\ \end{array}$ | 584 169 379 19 36 | $10,913 \\ 1,968 \\ 18,549$ | $\begin{array}{c} 1, 062\\ 7, 444\\ 6, 507\\ 3, 307\\ 4, 075\\ 1, 276\\ 2, 805\end{array}$ | 34,296 34,914 |
| -year aver ie distribu 00 omitted | 1891-1895 | 491,721 | $\begin{array}{c} 462\\ 20,232\\ 27,874\\ 136,914\\ 136,914\\ 136,908\\ 9,100\\ 9,100\\ 8,355\\ 56,903\\ 6,903\\ \end{array}$ | 199 63 197 3 | $^{7,897}_{1,765}$ | $\begin{smallmatrix} 1 & 269 \\ 7, 387 \\ 7, 387 \\ 7, 387 \\ 7, 387 \\ 4, 285 \\ 4, 285 \\ 4, 285 \\ 1, 698 $ | 40, 626 38, 442 |
| n, in five graph | 1901-1905 | 660,345 | 226 35, 760 32, 877 345, 102 18, 111 33, 447 345, 102 18, 111 33, 447 35, 563 65, 687 | 192 34 | | $\begin{array}{c} 11,681\\ 11,618\\ 7,108\\ 3,788\\ 3,788\\ 1,949\\ 2,256\\ 2,256\end{array}$ | 29,586 27,858 |
| Productic | 1911-1915 | 803,501 | $\begin{array}{c} 107\\ 30, 708\\ 37, 187\\ 124, 045\\ 416, 425\\ 416, 425\\ 196, 425\\ 19, 735\\ 59, 765\\ 74, 597\end{array}$ | 80 27 | $^{7,348}_{1,463}$ | $\begin{array}{c} 1,936\\ 9,981\\ 11,295\\ 3,442\\ 7,345\\ 1,1999\\ 1,989\end{array}$ | 31, 566 34, 950 |
| State and geographie division. | | United States | New England. Middle Atlantice Bast North Central East North Central West South Central West South Central West South Central Montain Pacific | Vew England: Maine | New York. | outh Atlantide Maryland Mirghin Wirghin Wordt Carolina South Carolina South Carolina Florida | East North Central: Ohio Indiana |

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| Michiga Wiscon | West North Minnes Minsou Missou Missou North J South J Nebras: Karsas | Mest South Louisia | Oklaho Arkans Mountain: | Montan W yomi W yomi W yomi New Mc Utah Nevada | Pacific: Washin Oregon. Californ The Ter | Unite Domestic ex wheat flou Quantit Per ceni |
|--|---|---|------------------------------------|---|--|---|
| - Li | Central: ta. akota. akota. a | vy ee Di Central: a | 1as. | g Xico | ton. | States—Total |
| 38, 631 15, 198 3, 700 | $\begin{array}{c} 59,081\\ 14,098\\ 35,377\\ 35,377\\ 105,887\\ 39,258\\ 59,844\\ 59,844\\ 102,880\end{array}$ | 9, 813 8, 789 528 66 | 26, 217 26, 217 1, 527 | 20,900 2,366 10,709 1,542 1,542 6,601 1,542 6,601 | 49, 985 18, 018 6, 594 | 803, 501 888, 748 23. 5 |
| 26,144 14,759 8,195 | $\begin{array}{c} 74, 257\\ 14, 267\\ 32, 957\\ 61, 388\\ 61, 388\\ 43, 716\\ 74, 835\\ 74, 835\end{array}$ | 8,602 8,497 982 30 | 6 19,600 2,212 | 2,587 560 6,504 4,221 4,221 6,913 | $ \begin{array}{c} 28,567\\ 14,508\\ 22,612\\ \end{array} $ | 660, 345 140, 026 21.2 |
| 26,255 21,890 9,701 | 46, 115 13, 197 21, 541 41, 647 25, 440 13, 596 13, 596 41, 437 | 11, 185 7,855 748 123 | 2,064 2,454 1,562 | 1,173 121 2,262 751 2,986 239 239 239 239 161 161 | 9,482 11,205 36,216 | 491, 721 170, 624 34. 7 |
| 29,014 28,986 18,645 | 37, 050 29, 413 22, 424 21, 707 22, 227 23, 768 | 11,290 7,709 1,530 1,530 | a, 107 1, 649 | 1, 245 43 2, 231 2, 231 1, 594 1, 594 1, 594 959 | 4, 943 13, 135 35, 889 | 450,480 128,057 28.4 |
| $\begin{array}{c} 27,153\\15,713\\22,140\end{array}$ | 22, 362 27, 758 11, 798 11, 798 6, 267 | 7, 210 9, 423 1, 020 | $1, \frac{1}{6})$ (5) 1, 061 | | (5) (5) (5) (5) (5) (2) (40) (2) (420) (2) (420) | 272, 443 66, 037 24. 2 |
| 148 103 45 | 80 96 107 172 138 138 137 137 | 114 103 54 220 | 1134 134 69 | 22195 2076 2076 2076 2076 | 175 124 29 | 122 |
| . 6.5 5.2 1.5 | $\begin{array}{c} 27.1\\ 6.3\\ 6.3\\ 10.5\\ 61.1\\ 48.5\\ 58.4\end{array}$ | 3.9 3.9 (3) (3) (3) | 13.5 | 49.9 14.5 12.1 3.8 3.8 16.3 13.1 | 37.2 23.8 2.5 | 8.3 81.9 |
| 0,00 12 0,00 12 | $\begin{array}{c} 40.2\\ 6.6\\ 10.4\\ 95.9\\ 39.2\\ 39.2\\ 48.7\end{array}$ | 3.9 (3) (3) (3) (3) (3) (3) (3) (3) (3) (3) | 6.8.6 18.6 1.6 | $\begin{smallmatrix} 9.1\\ 0.5\\ 13.8\\ 11.1\\ 13.8\\ 8.2\\ 11.1\\ 12.8\\ 8.8\\ 11.1\\ 11.1\\ 12.8\\ 8.8\\ 11.1\\ 11.1\\ 12.8\\ 12.8\\ 11.1\\ 12.8\\ 1$ | $\begin{array}{c} 40.5\\ 29.5\\ 12.9\end{array}$ | 8.2 (8) 1.7 |
| 6.4 5.4 | 32.3 6.6 69.9 69.9 28.8 28.8 | 5.7 4.3 .1 .1 | 1.3 | 0.4.5.1.6 | 23.4 32.2 28.0 | 7.4 (8) 2.6 |
| 8.6 1 15.9 1 12.7 1 | 37.3 4 16.9 2 9.4 2 73.3 - 22.0 1 20.3 1 | 6.5 4.7 1.1 .2 .2 | 1.8 | 15.4 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 | 26.3 56.6 2 35.7 3 | 8.2 (⁸) 2.3 |
| 0.0 | 6.4 6.4 3.5 11.0 1.3 12 12 | (3) 5.1 .9 .3 .3 .3 | 1.8 1.8 | 000000°0 | (5) (5) (5) (5) (5) (5) (5) | 6.5 10 (⁸⁾ 1.6 |
| 1.98 | 11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | ÷ | 3.3 63 | | | 0.0 100 |
| 22.0 | 00000000000000000000000000000000000000 | (+) (+) (+) (+) (+) (+) (+) (+) (+) (+) | ×0.0 | <u>+1011816</u> | 253 | .0 100. |
| 8 6.4 0 4.1 4.1 | 2.0.0 2.0.0 2.0.0 2.0.0 2.0 2.0 2. | () () () () () () () () () () () () () (| 1.1.2 | (+, -, -, -, -, -, -, -, -, -, -, -, -, -, | 8.2.9 | 0 100.0 |
| 10.0 5.8 8.1 | (°) (°) (°) (°) (°) (°) (°) (°) (°) (°) | (+) (+) (+) (+) (+) | | 00000056 | .9 .9 .9 .9 .9 | 100.0 |
| 6.3 1.2 | $\left\{\begin{array}{c}16.7\\1.8\\2.2\\20.3\\20.0\\20.0\end{array}\right\}$ | (4) (4) (4) (4) (4) | 6.7 | 1.0.00 1.0.00 1.0.00 1.0.00000000 | 33.2 33.2 4.2 | 9.3 |
| $\begin{bmatrix} 6.6\\ 16.3\\ 4.9 \end{bmatrix}$ | $\begin{array}{c} 35.6\\ 5.7\\ 9.0\\ 13.8\\ 15.2\\ 15.2\end{array}$ | 10.4 13.9 1.4 .1 | 5.3 617.8 5.5 | 2.5 13.0 13.0 13.3 18.3 18.3 18.3 18.3 18.3 18.3 18.3 | 31.4 26.2 22.4 | 12.7 |
| $\frac{8.7}{15.2}$ | 2.2.3 2.2.3 2.2.3 2.2.5 7.1.2 | 7.6 9.4 (4) | 1.7 .4 2.6 | 15.6%3000 15.6%30000 | 20.5 15.7 23.2 | 9.4 |
| 21212 | 26. | 10. 14. | ຕໍ່. ເ | 6. 10. 11. 11. | 16. 20. | 12. |

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² From determinal census returns. Less than one-tenth of 1 bushel. 1 Less than one-tenth of 1 per cent. 6 Included in "The Territories." 7 Ratio 1911–1915 compared to 1901–1905. 8 Exports per capita.

TREND OF WHEAT PRODUCTION IN RELATION TO POPULATION, BY STATES AND SECTIONS.

Although production nearly trebled since 1871 in proportion to population, it has remained stationary since 1882–1886.

A generally diminishing proportion of improved acreage in wheat, increased production being due to new brought areas under cultivation.

Increasing wheat deficiency east of the Mississippi.

Only in the Mountain States is wheat production increasing more rapidly than population.

Finally, in Table VII (p. 30), are assembled some of the fundamental factors in this retrospective review of prices and price conditions from 1871 to 1915. Units of measurement are geographic divisions (to permit of a general view) and States. The rate of increase of population in relation to wheat production is given in the per capita figures; the shifting in sources of wheat is indicated by State and sectional percentages of the United States production from decade to decade, as well as by the fractions of the total improved land occupied by wheat.

Although during the period covered by this table the wheat production in the United States almost trebled, in proportion to population it has remained stationary since 1882–1886 (8.2 bushels per capita as against 8.3 bushels in 1911–1915). Moreover, a notable and general decline is registered in the proportion of wheat in the total improved land, even in the wheat belt, showing that the increase in production was due to new areas being brought under cultivation, as well as to some slight progress in the yields to the acre. This would be shown more markedly in the last period but for the unusually large wheat crops of 1914 and 1915, due to the stimulating effect of disturbed international conditions.

The proportion of wheat produced east of the Mississippi dropped from 62.2 per cent of the United States total to 26.2 per cent. The East North Central division shows a decline from 38.5 per cent of the national total to 15.4 per cent (Wisconsin dropping from 19.5 to 1.5 bushels per capita); the West North Central division has a corresponding gain. But even in this last division, now producing over half the total wheat, the rate of increase has suffered a notable decline, and population increase is rapidly outstripping wheat production.

It is only in the Mountain States that any considerable recent growth in the ratio of wheat production to population is shown, but here also it appears to be traceable to new areas brought under cultivation. As yet this region, though gaining at a rapid rate (increase of 265 per cent of 1911–1915 over 1901–1905 as 100 per cent), contributes but 7.5 per cent of the total wheat. According to the 1910 census, 2 per cent of its area was then improved, but within recent years irrigation has added much territory to the producing regions.



MAP 5.-Per capita wheat production, by States, 1871-75.



MAP 6.-Per capita wheat production, by States, 1891-95.



MAP 7.-Per capita wheat production, by States, 1911-15.

[Circles and figures within each State represent wheat production per capita, at 20-year intervals: 1871-75, 1891-95, and 1911-15.]

The three maps on the preceding page (maps 5, 6, and 7) show, through different dimensions of the circles, the per capita wheat production, by States, in 1871–1875, 1891–1895, and 1911–1915; i. e., progress of wheat production in relation to increasing population.

APPENDIX.

AVERAGE FARM PRICES OF WHEAT, BY COUNTIES, 1910-1914.

NOTE.—The data which follow form the bases of maps 1, 3, and 4, and are explained on pages 11 and 24.

Counties have been used as the smallest effective unit of measurement, for the reason that the usual State prices are frequently averages for large expanses of territory with dissimilar physical and price conditions. The basic figures were compiled from returns of some 30,000 township reporters for each of the five years 1910–1914, inclusive, as of December 1. Observations for this period and for a like date of each year were employed to distinguish normal geographic variations from temporary deviations; and to further conduce thereto the price averages have been rounded to a 5-cent unit to overcome occasional minor differences due to such causes as local variations in grade.

As the figures are designed to show geographic variation in prices paid to wheat producers, counties with little or no wheat production have been omitted (those with less than 500 acres in wheat, according to the 1910 census).

| State. | Approxi- mate farm price, per bushel. | Counties. | State. | Approxi- mate farm price, per bushel. | Counties. |
|------------|--|---|------------------------------|--|--|
| Alabama | Cents. 100–104 | Dekalb. Jackson. Lauderdale. | California (con- tinued). | Cents. 95–99 | Napa. Sacramento. San Benito. |
| Arizona | 95-99 | Limestone. Madison. Graham. Maricopa. Pinal. Bonton | · | 100 104 | San Joaquin. San Luis Obispo. Solano. Stanislaus. Tulare. |
| Arkansas | 90-94 | Benton. Boone. | | 100-104 | Contra Costa. |
| | 95–99 | Carroll. Mation. Marion. Washington. Baxter. Clay. Fulton. Greene. Independence. Izard. Newton. Randolph. Searcy. Sharp. Stone. | Colorado | 75-79 80-84 | Los Angeles, Orange, Riverside, Sant Barbara, Ventura, Larimer, Logan, Morgan, Phillips, Sedgwick, Washington, Weld, Yuma, Adams, |
| California | 80–84 85–89 90–94 95–99 | Lassen. Modoc. Shasta. Siskiyou. Butte. Colusa. Glenn. Lake. Sutter. Yolo. Fresno. Kern. Kings. Madera. Monterey. | | 85-89 | Arapahoe. Boulder. Cheyenne. Denver. Douglas. Elbert. El Paso. Jefferson. Kit Carson. Lincoln. Bent. Conejos. Costilla. Crowley. Eagle. Garfield. |

| | termine the second s | | | | | |
|---|---|--|---|---------------------|--|--|
| | State. | Approxi- mate farm price, per bushel. | Counties. | State. | Approxi- mate farm price, per bushel. | Counties. |
| 4 | Colorado (con- tinued). | Cents. 85-89 | Kiowa. Moffat. Otero. Prowers. Rio Blanco. Rio Grande. | Idaho (continued) . | Cents. 75-79 | Adams. Clearwater. Idaho. Kootenai. Latah. Lemhi. |
| | | 90–94 | Routt. Saguache. Delta. Dolores. La Plata. Mesa. Montezuma. Montrose. | Illinois | 80-84 85-89 | Lewis. Nez Perce. Washington. Ada. Boise. Canyon. Elmore. Carroll. |
| | Connecticut. (None) Delaware | 95-99 | San Miguel. Kent. New Castle. Sussex. | | | Coles. Dewitt. Douglas. Henderson. Henry. |
| | Florida.(None.) Georgia | . 105–109 | Catoosa. Dade. Fannin. Gilmer. Gordon. Murray. Pickens. Towns. Union. | | | Jo Daviess. Lee, McDonough. McLean. Macon. Mercer. Moultrie. Ogle. Piatt. Liock Island. |
| | | 110–114 | Waltfield. Bartow. Chattooga. Cherokee. Dawson. Floyd. Forsyth. Hall. | | 90-94 | Warren. Whiteside. Adams. Brown. Bureau. Calhoun. Cass. Christian. Clark. |
| | | 115 or over | Limpkin. White. Clarke. Elbert. Fayette. Franklin. Gwinnett. Haralson. Hart. | | | Crawford. Cumberland. Edgar. Edwards. Ford. Fulton. Greene. Grundy. Hancock. Iroquois. |
| | | | Henry. Jackson. Madison. Mitton. Newton. Oconee. Oglethorpe. Paulding. Pike. Polk. | | | Jasper. Jersey. Kane. Kendall. Knox. La Salle. Lawrence. Livingston. Logan. McHenry. |
| | Idaho | 65-69 70-74 | Spalding. Walton. Bannock. Bear Lake. Bingham. Bonneville. Fremont. Blaine. Cassia. | | | Macoupin. Marshall. Mason. Menard. Montgomery. Morgan. Peoria. Pike. Putnam. |
| | | | Custer. Franklin. Gooding. Lincoln. Minidoka. Oneida. Power. Twin Falls. | | | Sangamon. Schuyler. Scott. Shelby. Stark. Tazewell. Vermilion. Wabash. |

| State. | Approxi- mate farm price, per bushel. | Counties. | State. | Approxi- mate farm price, per bushel. | Counties. |
|-----------------------|--|--|---------------------|--|--|
| Illinois (continued). | Cents. 90-94 95-99 | Wayne. White. Will. Woodford. Alexander. Bond. Clay. Clinton. Cook. Dupage. Effingham. Farette. Franklin. Gallatin. Hardin. Jackson. Jefferson. Johnson. Lake. Madison. | Indiana (continued) | Cents. 90-94 95-99 | Shelby. Spencer. Starke. Sullivan. Tippecanoe. Tipton. Varnelourg. Vermilion. Vigo. Warren. Warrick. Warrick. Warrick. Warrick. Warrick. Warrick. Martholomew. Blackford. Brown. Clark. Decarborn. Declaur. Declaur. Delaware |
| Indiana | 90-94 | Massac. Monroe. Perry. Pope. Pulaski. Randolph. Richland. St. Clair. Saline. Union. Washington. Williamson. Benton. Beone. Carcoll. Cass. Clay. Clay. Clay. Clay. Clay. Clay. Clay. Clay. Clay. Clay. Clay. Carcoll. Cass. Clay. Clay. Clay. Clay. Clay. Clay. Clay. Clay. Crawford. Daviess. Fountain. Fulton. Grant. Greene. Harniton. Hendricks. Henry. Howard. Jasper. Johnson. Knox. Kosciusko. Lake. Lawrence. Madison. Marin. Martin. Martin. Martin. Montgomery. Morgan. Newton. Orange. Owen. Parke. Perry. Pike. Porter. Posey. Pulaski. | Iowa | \$3-89 | Elkhart. Fayette. Floyd. Franklin. Huntington. Jackson. Jay. Jefferson. Sout. Stateson. Scott. Stateson. Scott. Stateson. Scott. Stateson. Scott. Stateson. Scott. Scot |

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| State. | Approxi- mate farm price, per bushel. | Counties. | State. | Approxi- mate farm price, per bushel. | Counties. |
|------------------|--|--|---------------------|--|---|
| Iowa (continued) | Cents. 85-89 | Jefferson. Johnson. Keokuk. Kossuth. Lee. Lucas. Lucas. Lyon. Mahaska. Marion. Manskal. Marshall. Mills. Monroe. Montgomery. Muscatine. Page. Discourth. | Kansas (continued). | Cents. 85-89 | Geary. Gove. Grant. Gray. Greeley. Greenwood. Hamilton. Harvey. Harvey. Harvey. Haskell. Hodgeman. Jackson. Jackson. Jackson. Jackson. Labette. Labette. Labette. Labette. |
| Kansas | 80-84 | Plymouth. Polk. Potkawattame. Poweshiek. Ringgold. Scott. Shelby. Sioux. Story. Tama. Taylor. Union. Van Buren. Wapello. Waren. Wapello. Waren. Washington. Wayne. Webster. Winnebago. Winneshiek. Woodbury. Worth. Winght. Cheyenne. Decatur. Graham. Norton. Osborne. Phillips. Rawlins. Rooks. Sheridan. Smith. | | | Lincoln. Linn, Logan. Lyon, McPherson. Marion. Marion. Marshall. Meade. Mitchell. Montgomery. Morris. Morton. Nemaha. Neosho. Ness. Osage. Ottawa. Patwatomie. Pratt. Reno. Hottawatomie. Pratt. Reno. Republic. Riley. Rush. Russell. Saline. Scott. Sedgwick. Seward. Shawnee. Stafford. Starton. Stevens. |
| | 85-89 | Allen. Anlerson. Barber. Barton. Bourbon. Brown. Butler. Chase. Chautauqua. Cherokee. Clark. Clark. Clark. Clay. Clark. Clay. Comanche. Cowley. Crawford. Dickinson. Doniphan. Edwards. Ells. Finney. Ford. Franklin. | Kentucky | 90–94 90–94 | Summer. Trego. Walace. Walace. Walson. Wichita. Wilson. Douglas. Jefferson. Johnson. Leavenworth. Miami. Wyandotte. Adair. Allen. Adler. Ballard. Barren. Bath. Boone. Bourbon. Boyle. Bracken. Breckenridge. |

| State. | Approxi- mate farm price, per bushel. | Counties. | State. | Approxi- mate farm price, per bushel. | Counties. |
|----------------------------|--|---|--|--|--|
| Kentucky (con- tinued). | Cents. 90–94 95–99 | Bullitt. Butler. Caldwell. Calloway. Campbell. | Kentucky (con- tinued). Louisiana. (None.) | Cents. 95–99 | Washington. Wayne. Webster. Woodford. |
| | | Carlisle. Carroll. Carter. Casey. Christian. Clark. Clinton. | Maine. (None.) Maryland | 95–99 | Allegany. Anne Arundel. Baltimore. Calvert. Caroline. Carroll. |
| | | Crittenden. Cumberland. Daviess. Edmonson. Elliott. Fayette. Fleming. | Mass. (None.) Michigan | 95 -99 | Cecil. Charles. Dorchester. Frederick. Harford. Howard. Kent. Montgomery. |
| • | | Fulton. Gallatin. Garrard. Grant. Graves. Grayson. Green. | | 10 <mark>0–104</mark> | Prince Georges. Queen Annes. St. Marys. Talbot. Washington. Garrett. Somerset. |
| | | Greenup. Hancock. Hardin. Hartson. Hart. Henderson. Henry. Hickman | | ne.) | Wicomico. Worcester. Alcona. Alpena. Antrim. Arenac. Bay |
| | | Hopkins. Jefferson. Jessamine. Kenton. Larue. Laurel. Laurel. | | | Benzie. Charlevoix. Clare. Emmet. Gladwin. Gratiat Gratiat |
| | | Lawrence. Lewis. Lincoln. Livingston. Logan. Lyon. McCraoken. | | | Isso. Isabella. Kalkaska. Lake. Leelanau. Manistee. Mason |
| | | McLean. MacLean. Marion. Marshall. Mason. Meade. Mercer | - 1 | | Mecosta. Midland. Missaukee. Montcalm. Newaygo. Oceana. Ocemaw. |
| | | Mercer. Metcalie. Monroe. Montgomery. Muhlenberg. Nelson. Ohio. | | | Osceola. Presque Isle Wexford. Allegan. Barry. Berrien. Branch. |
| | | Owen. Pendleton. Pulaski. Robertson. Rockcastle. Russell. Scott | | Þ | Calhoun. Cass. Clinton. Eaton. Genesee. Hillsdale. Huron. |
| | | Shelby. Simpson. Spencer. Taylor. Todd. Trigg. Trimble. | | | Ingham. Ionia. Jackson. Kalamazoo. Kent. Lapeer. Lenawee. |
| | | Union. Warren. | | | Livingston. Macomb. |

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| State. | Approxi- mate farm price, per bushel. | Counties. | State. | Approxi- mate farm price, per bushel. | Counties. |
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| Michigan (con- tinued). | būshel. Cents. 95-99 85-89 | Monroe. Muskegon. Oakland. Ottawa. Saginaw. Saginaw. Saginaw. Saginaw. Saginaw. Saginaw. Saginaw. Saginaw. Saginaw. Saginaw. Saginaw. Saginaw. Wayne. Becker. Betrami. Bigstone. Chippewa. Clay. Clearwater. Cottonwood. Dodge. Douglas. Faribault. Fillmore. Freeborn. Grant. Houston. Hubbard. Jackson. Kandiyohi. Kittson. Lac qui Parle. Lincoln. Lyon. Marhomen. Martin. Mower. Murray. Nobles. Norman. Olmsted. Otter Tail. Pennington. Pipestone. Pok. Pope. Bed Lake. | Minnesota (con- tinued). Mississippi. (None.) Missouri | buishel. Cents. 90-94 85-89 90-94 | Pine. Ramsey. Rice, Scott. Sherburne. Sibley. Stearns. Steele. Waseca. Washington. Watonwan. Wright. Andrew. Atchison. Calwell. Carroll. Barton. Batton. Batton. Batton. Bollinger. Boone. Buchanan. Carleau. Carrole. Carrol. |
| | 90-94 | Redwood. Renville. Rock. Roseau. Stevens. Swift. Todd. Traverse. Wabasha. Wadena. Wadena. Walkin. Winona. Yellow Medicinc. Anoka. Benton. Blue Earth. Brown. Carver. Chisago. Crow Wing. Dakota. Goodhue. Hennepin. Isanti. Kanabec. Le Sueur. McLeod. Meeker. Mille Lacs. Morrison. Nicollet. | | | Cass. Cedar. Christian. Clark. Clay. Clark. Cole. Crawford. Dadle. Dallas. Dent. Douglas. Franklin. Gasconade. Greene. Henry. Hickory. Howell. Jackson. Jasper. Jefferson. Johnson. Knox. Laclede. Lawrence. Lewis. Lincoln. McDonald. Macon. |

| State. | Approxi- mate farm price, per bushel. | Counties. | State. | Approxi- mate farm price, per bushel. | Counties. |
|----------------------------|--|--|---------------------------------------|--|--|
| Missouri (con- tinued), | Cents. 90-94 | Maries. Marion. Miller. Monteau. Montgomery. Morgan. Newton. Oregon. Osage. | Montana (con- tinued). Nebraska | Cents. 73–79 73–79 | Sheridan. Silverbow. Valley. Banner Boxbutte. Boyd. Brown. Chary. Cherry. Chereyenne. |
| | 95-99 | Ozark. Perry. Phelps. Pike. Pilatte. Polk. Pulaski. Ralls. Randolph. Ray. Ripley. St. Charles. St. Clair. St. St. Clair. St. St. St. St. St. St. St. St. St. St. | | 80-84 | Dawes. Deuel. Frontier. Gardeu. Gardeu. Garfield. Hayres. Holt. Keyapaha. Kimball. Loup. Mornil. Perkins. Rock. Sottis Bluff. Sheridan. Sheridan. Sheridan. Sheridan. Sheridan. Sheridan. Sheridan. Sheridan. Sheridan. Sheridan. Sheridan. Cabus. Adams. Antelope. Boone. Buffalo. Buthler. Cedar. Clay. Colfax. Conser. Dawson. Dixon. Dodge. Dundy. Franklin. Furmas. Gosper. Greeley. |
| Montana | 70-74 | stoddard. Wayne. Blaine. Carbon. Cascade. Chouteau. Flathead. Gallatin. Hill. Lincoln. Meagher. Park. Sanders. Stillwater. Stillwater. Stillwater. Stillwater. Stillwater. Beaverhead. Big Horn. Broadwater. Custer. Dawson. Deerlodge. Granite. Jefferson. Lewis and Clark. Missoula. Musselshell. Powell. Rosebud. | | 85-89 | Hamilton. Hamilton. Harniton. Harnin. Hitchcock. Howard. Jefferson. Kearney. Knox. Lincoln. Madison. Metrick. Nance. Nuckolls. Phelps. Pierce. Pierce. Pierce. Pierce. Pierce. Pierce. Pierce. Pierce. Saunders. Seward. Stanton. Thayer. Valley. Wayne. Wheeler. York. Burf. Cass. Dakota. Donglas. Gage. |

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| State. | Approxi- mate farm price, per bushel. | Counties. | State. | Approxi- mate farm price, pcr bushel. | Counties. |
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| Nebraska (con- tinued). | Cents. 85-89 | Johnson. Lancaster. Nemaha. Otoe | North Carolina (continued). | Cents. 105–109 | Mitchell. Orange. Person. Polk. |
| Nevada | 90–94 | Pawnee, Richardson, Sarpy, Thurston, Washington, Churchill, Douglas, Humboldt, Lyon, Ormsby, Storey, Washoe, | | 110114 | Rockingham. Rutherford. Swain. Transylvania. Yancey. Alexander. Alexander. Aleghany. Ashe. Burke. Cabarrus. Caldwell. Chathem |
| (None.) New Jersey | 95–99 | Burlington. Camden. Cumberland. Gloucester. Hunterdon. Mercer. | | | Cleveland. Davisdon. Davie. Forsyth. Franklin. Gaston. Granville. |
| New Mexico | 8 5-89 90-94 | Middlesex. Mormouth. Morris. Salem. Somerset. Warren. Mora. San Miguel. Taos. Rio Arriba. | | | Iredell. Johnston. Lee. Lincoln. Mecklenburg. Montgomery. Moore. Randolph. Rowan. Stanly |
| New York | 95-99 100-104 | San Juan. Santa Fe. Bernalillo. Dona Ana. Sandoval. Socorro. Torrance. Valencia. Allegany. Cattarangens. | | 115 or over | Stokes. Surry. Vance. Wake. Warren. Watauga. Wilkes. Yadkin. Anson. Bichmond |
| | | Cayuga, Chautanqua, Chemung, Erie, Genesee, Livingston, Monroe, Niagara, Onondaga, | North Dakota | 80-84 | Union. Adams. Billings. Bowman. Burke. Divide. Dunn. Hettinger. McKenzie. |
| | | Ontario, Orleans, Schuyler, Seneca, Steuben, Tioga, Tompkins, Wayne, Wyoming, | | | McLean. Mercer. Mountrail. Morton. Oliver. Renville. Stark. Ward. Williams. |
| North Carolina | 110-114 105-109 | Yates. Orange. Ulster. Alamance. Buncombe. Caswell. Cherokee. Clay. | | 85–89 | Barnes. Benson. Bottineau. Burleigh. Cass. Cavalier. Dickey. Eddy. |
| | | Graham. Graham. Guilford. Haywood. Henderson. Jackson. McDowell. Macon. Madison. | · | | Emmons. Foster. Golden Valley. Grand Forks. Griggs. Kidder. La Moure. Logan. McHenry. |

| State. | Approxi- mate farm price, per bushel. | Counties. | State. | A pproxi- mate farm price, per bushel. | Counties. |
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| North Dakota (con- tinued). | Cents. 85–89 05–99 | McIntosh. Nelson. Pembina. Pierce. Ramsey. Ransom. Richland. Rolette. Sargent. Sheridan. Stetele. Stutsman. Towner. Traill. Walsh. Wells. Adams. Allen. Ashland. | Ohio (continued) | Cents. 95-99 | Richland. Ross. Sandusky. Scioto. Seneca. Shelby. Stark. Summit. Tuscarawas. Union. Van Wert. Vinton. Warren. Washington. Wayne. Williams. Wyodd. Ashtabula. |
| | | Athens. Auglaize. Belmont. Brown. Butler. Carroll. Champaign. Clark. Clermont. Clinton. Columbiana. Coshocton. Crawford. Dark. Defiance. Delaware. Erie. Fairfield. Fayette. Franklin. Fulton. Gallia. Greene. Guernsey. Hancock. Hardin. Henry. Highland. Hocking. Holmes. Huroo. | Oklahoma | 85-89 | Cuyahoga. Geauga. Hamilton, Lake. Lorain, Trumbull Adair. Alfalfa. Beaver. Beakham. Blaine. Caddo. Canadian. Cherokee. Cimarron. Craig. Custer. Delaware. Dewey. Ellis. Garifield. Grant. Harper. Kay. Kingfisher. Kiowa. Logan. Major. Mayes. Noble. Nowata. Osage. |
| | | Jackson. Jefferson. Knox. Lawrence. Licking. Logan. Lucas. Mahoning. Marion. Medina. Medina. Medina. Medina. Medina. Medina. Medina. Montgomery. Morgan. Montogenery. Morgan. Montogenery. Morgan. Mortow. Mordan. Noble. Ottawa. Paulding. Perry. Pickaway. Pike. Portage. Preble. Putnam. | Oregon | 90-94 75-79 80-84 | Ottawa, Pawnee, Pawnee, Roger Mills, Rogers, Tulsa, Washigton, Washita, Woodward, Cleveland, Comanche, Cotton, Greer, Harmon, Jackson, Okiahoma, Tillman, Gilliam, Morrow, Umatilla, Umion, Wallowa, Baker, Crook, Grant, |

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| State. | Λpproxi- mate farm price, per bushel. | Counties. | State. | Approxi- mate farm price, per bushel. | Counties. |
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| Oregon (continued). | Cents. 80–84 | Klamath. Malheur. Sherman. | South Carolina (con- tinued). | Cents. 115 or over | Greenwood. Laurens. Lexington. |
| | 85–89 | Wasco. Wheeler. Benton. Clackamas. Douglas. Harney. Lackson | | | Newberry. Oconee. Pickens. Saluda. Spartanburg. Union. York |
| Pennsylvania | 95–99 | Lake. Lake. Lane. Linn. Marion. Polk. Washington. Yamhill. Adams. Adams. Armstrong. Bedford. Berks. Blair. Bucks. Butler. | South Dakota | 80-84 | Aurora. Brule. Buffalo. Butte. Charles Mix. Custer. Douglas. Fall River. Gregory. Hand. Hyde. Jerauld. Lawrence. Lyman. |
| | | Center. Chester. Clarion. Clearfield. Clinton. Colombia. Cumberland. Dauphin. Delaware. Franklin. Fulton. Huntingdon. Indiana. Jefferson. Juniata. Lancaster. Lebanon. Lehigh. Lycoming. Miffin. Montgomery. Montour. Northampton. Northumberland. Paerry | | 85-89 | Meade. Pennington. Sully. Beadle. Bonhomme. Brookings. Brown. Campbell. Clark. Clark. Clark. Clark. Clark. Clark. Clark. Clark. Davison. Day. Deuel. Edmunds. Faulk. Grant. Hambin. Hanson. Hutchinson. Kingsbury. Lake. Lincoln. McCook. |
| | 100-104 | Perry. Philadelphia. Schuylkill. Snyder. Union. Washington. Westmoreland. York. Allegheny. Beaver. Bradford. Cambria. Carbon. Crawford. Erie. Fayette. Greene. Luzerne. Morroe. Somerset. Tioga. Venango. | Tennessee | 95-99 | McPherson, Marshall, Miner, Minnehaha, Moody, Potter, Roberts, Sanborn, Spink, Turner, Union, Walworth, Yankton, Bedford, Canroll, Cheatham, Clay, Coffee, Crockett, Davidson, Dekalb Dickson, Dyver, res |
| (None.) South Carolina | 115 or over | Abbeville. Anderson. Cherokee. Greenville. | | | Gibson. Giles. Haywood. Henry. Hickman. |

| State. | A pproxi- mate farm price, per bushel. | Counties. | State. | Approxi- mate farm price, per bushel. | Counties. |
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| Tennessee (con- tinued). | Cents. 95-99 | Humphreys. Jackson. Lake. Lauderdale. Lawrence. Lincoln. Macon. Madison. | Texas (continued) | Cents. 90–94 95–99 | Randall. Roberts. Sherman. Swisher. Wheeler. Archer. Baylor. Beil. |
| | | Marry. Montgomery. Moore. Obion. Overton. Pickett Putnam. Robertson. Rutherford. Smith. | | | Borque. Burnet. Clay. Foard. Gillespie. Hardieman. Hardeman. Haskell. Jones. Kerr. |
| | 100–104 | Stewart. Sumner. Trousdale. Weakley. White. Williamson. Willson. Anderson. Bledsoe. Blout. Bradley. | | 100–104 | Knox. McLennan. Wichita. Wilbarger. Young. Collin. Cooke. Dallas. Denton. Fannin. Grayson. |
| | | Carter. Claiborne. Cocke. Grainger. Greene. Grundy. Hamblen. Hamblen. Hamblen. Hamkins. James. | Utah | 75-79 | Montague. Parker. Tarrant. Boxelder. Cache. Davis. Juab. Millard. Rich. Tooele. |
| | | Jenterson. Johnson. Knox. Loudon. McMinn. Marion. Meigs. Monroe. Polk. Rhea. Roane. | | 80-84 85-89 | Beaver. Emery. Piute. Sanpete. Sevier. Wayne. Carbon. Duchesne. Morgan. Salt Lake. Summit. |
| Texas | 90-94 | Sequatchie. Sevier. Sullivan. Unicoi. Unicoi. Van Buren. Warren. Washington. Armstrong. Briscoe. | Vermont. (None.) Virginia | 9 5–99 | Uinta. Utah. Wasatch. Weber. Garfield. Iron. Washington. Alexandria. Clarke. |
| | | Carson. Castro. Collingsworth. Dalam. Deaf Smith. Gray. Hansford. Hartley. Hemphill. Hutchinson. Lipscomb. Moore. Ochiltree. Oldham. Parumer. | | | Culpeper. Essex. Fairfax. Fradquier. Frederick. Greene. King George. Lancaster. Loudoun. Middlesex. Northumberland. Orange. Page. Prince William. Rappahannock. |

| State. | Approxi- mate farm price, per bushel. | Counties. | State. | Approxi- mate farm price, per bushel. | Counties. |
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| Virginia (continued) | Cents. 95-99 | Shenandoah. Spotsylvania. Stafford. | Washington (con- tinued). | Cents. 80-84 | Chelan. Kittitas. Klickitat. |
| | 100-104 | Warren. Westmoreland. Albemarle. Amelia. Amherst. Appomattox. Augusta. Bedford | West Virginia | 95–99 | Okanogan. Yakima. Berkeley. Brooke. Hancock. Jefferson. Marshall. Marcan. |
| | • | Botetourt. Botetourt. Campbell. Caroline. Charles City. Chesterfield. Cumberland. Fluvanna. Franklin. Gloucester. Goochland. Hanover. Henrico. King and Queen. King William. | | 100-104 | Ohio, Cabel, Hampshire, Hardy, Jackson, Lincoln, Mason, Mineral, Pleasants, Putnam Tyler, Wayne, Wetzel, Wirt, |
| | | Lee. Louisa. Nelson. New Kent. Prowhatan. Prince Edward. Roanoke. Rockingham. Russell. Scott. Smyth. | | 105-109 | Wood. Barbour, Braxton, Calhoun, Doddridge. Gilmer, Grant. Greenbrier, Harrison, Kanawha. Le wis. Marton. |
| | 110–114 | washington. Alleghany. Bath. Bland. Brunswick. Carroll. Charlotte. Craig. Dinwiddie. | | | Morroe, Monroe, Pendleton, Pocahontas, Preston, Ritchie, Roane, Summers, Taylor, |
| | | Floyd. Giles. Grayson. Halifax. Henry. Highland. Lunenburg. Mecklenburg. | Wisconsin | 85-89 | Upshur. Buffalo. Jackson. La Crosse. Monroe. Pepin. Trempealeau. Vernon |
| | | Montgomery. Nottoway. Patrick. Pittsylvania. Prince George. Pulaski. Tazewell. | | 90-94 | Barron. Brown. Burnett. Calumet. Clark. Clark. Columbia. |
| Washington | 75-79 | Wythe, Adams, Asotin, Benton, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Lincoin, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman, | | | Crawford. Dane. Dodge. Dourn. Dumn. Eu Claire. Fond du Lac. Grant. Green Lake. Iowa. Jefferson. Juneau. Kewaunee. Lafayette. Marathon. Oconto. |

| State. | Approxi- mate farm price, per bushel. | Counties. | State. | Approxi- mate farm price, per bushel. | Counties. |
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| Wisconsin (con- tinued). | Cents. 90–94 95–99 | Outagamie. Pierce. Polk. Richland. St. Croix. Sauk. Shawano. Washburn. Wanebago. Manitowoe Sheboygan. Washington. Waukesha. | Wyoming | Cents. 70-74 75-79 * 80-84 | Lincoln. Goshen, Laramie. Platte. Bighorn. Campbell. Crook. Hot Springs. Johnson. Park. Sheridan. Washakie. Weston. |

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