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1ST SESSION } SENATE COMMITTEE PRINT

# CORN OR MAIZE

REPORT

OF

THE UNITED STATES TARIFF COMMISSION

TO

THE PRESIDENT OF THE UNITED STATES

DIFFERENCES IN COSTS OF PRODUCTION OF CORN OR MAIZE IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 315 OF TITLE III OF THE TARIFF ACT OF 1922

Printed for the use of the Committee on Finance

UNITED STATES
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WASHINGTON : 1929

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## LETTER OF TRANSMITTAL

OCTOBER 23, 1928.

The PRESIDENT,
*The White House.*

MY DEAR MR. PRESIDENT: Herewith I have the honor to transmit the report of the Tariff Commission in the investigation, for the purposes of section 315 of the tariff act of 1922, of the costs of production in the United States and in the principal competing foreign country of corn.

Respectfully,

THOMAS O. MARVIN, *Chairman.*

# CORN OR MAIZE

UNITED STATES TARIFF COMMISSION,
*Washington, October 22, 1928.*

To the PRESIDENT:

The United States Tariff Commission respectfully submits the following report upon the investigation of the differences in costs of production and other advantages and disadvantages in competition, of corn in the United States and in the principal competing country, for the purposes of section 315 of Title III of the tariff act of 1922.

## INTRODUCTION

*Reference to files.*—The documentary and statistical material upon which this report is based is in the files of the commission and available to the President. It comprises the original cost schedules and other basic data, the papers and reports at different stages of the investigation, and a transcript of the public hearing. Included in the basic material are matters of a confidential nature, the disclosure of which is forbidden by section 708 of the revenue act of 1916, the pertinent provisions of which are as follows:

SEC. 708. It shall be unlawful for any member of the United States Tariff Commission, or for any employee, agent, or clerk of said commission, or any other officer or employee of the United States, to divulge, or make known in any manner whatever not provided for by law, to any person, the trade secrets or processes of any person, firm, copartnership, corporation, or association embraced in the examination or investigation conducted by said commission, or by order of said commission, or by order of any member thereof.

*Rates of duty.*—Table 1 shows the rates of duty on corn under the last four tariff acts.

TABLE 1.—*Corn: Rates of duty under the acts of 1909, 1913, 1921, and 1922*

| Act of— | Paragraph No. | Tariff description | Rate | Ad valorem equivalent |
|---|---|---|---|---|
| 1922 | 724 | Corn or maize, including cracked corn. | 15 cents per bushel of 56 pounds | 17.8 |
| 1921 | 4 | Corn or maize | do | |
| 1913 | 465 | do | Free | |
| 1909 | 238 | do | 15 cents per bushel of 56 pounds | 25.6 |

*History of the investigation.*—The investigation of the cost of producing corn was instituted on June 24, 1927. Prior to that time a number of communications on this subject from interested parties had been received, some of which had been transmitted by the President.

The field study of domestic cost of production, which was begun on August 11, 1927, was completed on October 8, 1927.

The commission found it impracticable to obtain cost data directly from producers of corn in Argentina.

Public notice of the institution of the investigation was given in the usual form by posting in the Washington and New York offices of the commission, and by publication in Treasury Decisions and Commerce Reports. After public notice had been given as prescribed by law, and a preliminary statement of information obtained in the investigation had been distributed to interested parties, a public hearing was held at the office of the commission in Washington on August 1, 1928. On September 1, 1928, a brief was filed by the American Farm Bureau Federation representing the domestic producers of corn.

## Information Obtained in the Commission's Investigation

### Uses

Corn is one of the most important crops of the United States whether judged by the quantity, total value, acreage, or value per

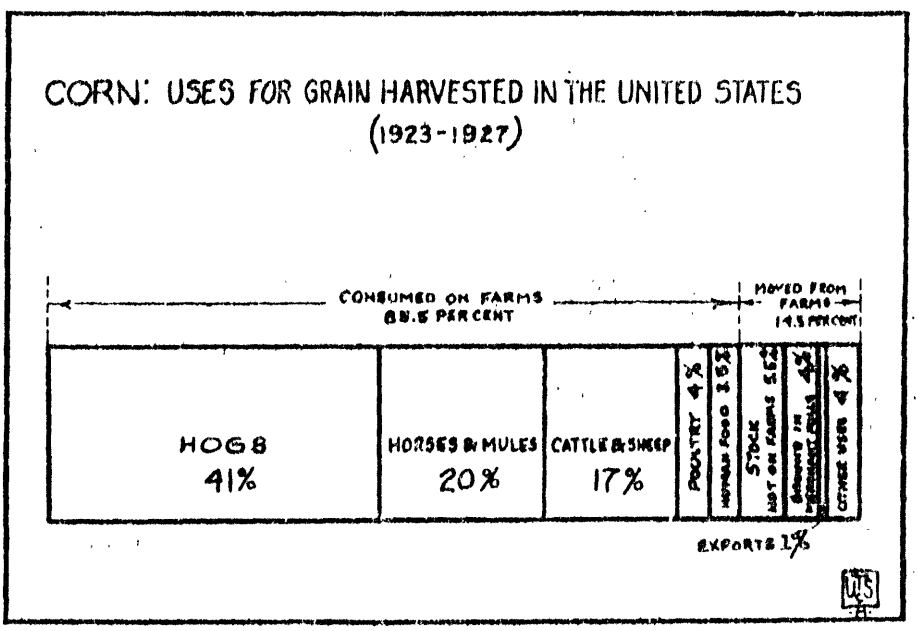



Chart 1

acre. It is one of the principal sources of food of the American people. More corn is grown in the United States than in all other countries together, but in comparison with the production the commercial movement in the United States is relatively small. The greater part of the crop is consumed on the farm where it is grown. Of the total amount of grain corn produced in the period 1923–1927, approximately 87.5 per cent, or over 2,000,000,000 bushels a year, was fed to animals. The remainder, used in the manufacture of food for human consumption, while proportionately small, was important when the large total amount is taken into consideration.

In addition to the corn grown for grain, to which some 83,000,000 acres were devoted in 1926, about 12,000,000 acres were used for "hogging down" and grazing, and over 4,000,000 acres for the production of ensilage.

Chart 1 shows the distribution by uses of corn harvested for grain in the United States. This chart is based upon a revision of estimates

made by the Department of Agriculture for the period 1912–1921, given in the 1921 Yearbook. About 41 per cent of the total production of grain corn is fed to hogs on farms; 20 per cent is fed to horses and mules on farms, and 17 per cent to cattle and sheep on farms.

## WORLD PRODUCTION AND TRADE

The average annual world production[1] of corn for the period 1923–1926 is estimated to have been 4,386,000,000 bushels. Production of the United States represented 62 per cent of this total. The outstanding position of the United States in the production of corn contrasts sharply with the relatively small part played by this country in international trade in corn. For the period 1923–1926, the International Institute of Agriculture reports that the production of corn in the United States was over ten times as great as that of Argentina, whereas the exports of Argentina amounted to more than six times the exports of the United States. During the years 1923–1926, about 55 per cent of the Argentine production of corn was exported as compared with less than one per cent of the United States production.

The most important corn importing countries are the British Isles and some of the continental European countries. Table 2 shows the production and exports of the 6 principal producing countries and the imports of the 10 principal importing countries with their excess of imports over exports.

TABLE 2.—*Corn: Production, imports, and exports of the most important countries in international trade in corn. Annual averages, 1923–1926* [a]

[Thousands of bushels, i. e., 000 omitted]

A. PRODUCTION AND EXPORTS OF SIX PRINCIPAL PRODUCING COUNTRIES

| Country | Production | Exports | Percentage exported |
|---|---|---|---|
| United States | 2,731,194 | 24,004 | 0 9 |
| Argentina | 271,464 | 149,689 | 55 1 |
| Rumania | 177,522 | 26,508 | 14 9 |
| Union of Socialist Soviet Republics | 136,130 | 5,947 | 4 4 |
| Yugoslavia [b] | 129,415 | 22,177 | 17. 1 |
| Hungary | 71,971 | 3,470 | 4. 8 |

B. IMPORTS OF 10 PRINCIPAL IMPORTING COUNTRIES AND EXCESS OF IMPORTS OVER EXPORTS

| Country | Imports | Excess of imports over exports |
|---|---|---|
| Great Britain and North Ireland | 65,825 | 62,935 |
| Netherlands | 34,084 | 33,794 |
| France | 21,789 | 21,706 |
| Belgium | 19,466 | 19,289 |
| Germany | 18,755 | 18,679 |
| Denmark | 15,752 | 15,752 |
| Spain | 13,666 | 13,666 |
| Ireland—Free State | [c] 12,654 | [c] 12,589 |
| Italy | 12,203 | 11,841 |
| Canada | 9,561 | 9,550 |

[a] International Yearbook of Agricultural Statistics, 1926-27, International Institute of Agriculture.
[b] Kingdom of Serbs, Croats, and Slovenes.
[c] 3-year average (1924, 1925, and 1926).

[1] Production in 61 countries reporting to the International Institute of Agriculture.

## DOMESTIC PRODUCTION

In the 5-year period 1923–1927, an average of about 100,000,000 acres was annually devoted to the corn crop in the United States and the crop was, on the average, over two and one-half billion bushels. The average value of the crop was over $2,000,000,000, as compared with one and one-third billion dollars each for hay and cotton, about $1,000,000,000 for wheat, and $500,000,000 for oats.

Table 3 compares the value of corn per acre with the value of wheat, cotton, and oats, 1925–1927, and the average for the period.

TABLE 3.—*Corn: Value of, compared with the value of wheat, cotton, and oats in the United States, based on the December 1 farm prices, 1925, 1926, and 1927* [1]

[Per acre]

| United States | Corn | Wheat | Cotton | Oats |
|---|---|---|---|---|
| 1927 | $20.37 | $12.89 | $31.21 | $12.72 |
| 1926 | 17.34 | 9.25 | 20.87 | 11.24 |
| 1925 | 19.40 | 8.99 | 31.79 | 12.62 |
| Average | 19.04 | 10.38 | 27.96 | 12.19 |

[1] Yearbook of Agriculture, 1927. Table 47, p. 775; Table 1, p. 738; Table 243, p. 912; and Table 65, p. 780.

TABLE 4.—*Corn: Acreage and production in principal States, 1926 and 1927* [1]

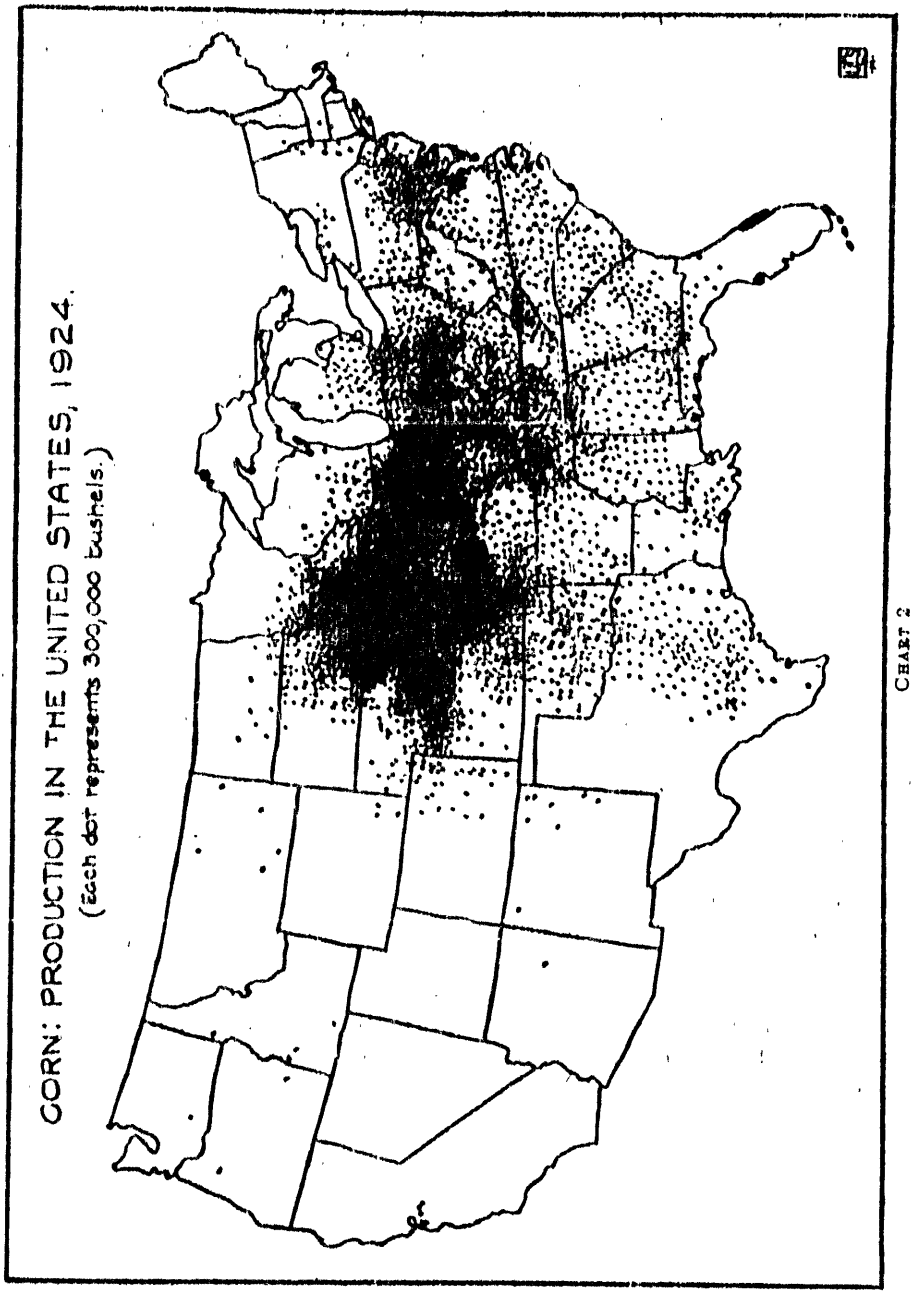
| State | Acreage | | Production | |
|---|---|---|---|---|
| | 1926 | 1927 | 1926 | 1927 |
| | *1,000 acres* | *1,000 acres* | *1,000 bushels* | *1,000 bushels* |
| Illinois | 9,205 | 8,409 | 322,175 | 254,070 |
| Iowa | 11,170 | 10,047 | 435,630 | 399,566 |
| Nebraska | 8,904 | 8,805 | 139,407 | 201,446 |
| Indiana | 4,672 | 4,205 | 177,536 | 132,458 |
| Kansas | 5,563 | 5,897 | 61,193 | 176,910 |
| Ohio | 3,591 | 3,378 | 147,231 | 109,720 |
| Minnesota | 4,313 | 4,172 | 147,562 | 127,246 |
| South Dakota | 4,630 | 4,655 | 83,340 | 134,995 |
| Missouri | 6,471 | 5,953 | 176,011 | 172,637 |
| Tennessee | 3,090 | 2,944 | 86,222 | 70,656 |
| Oklahoma | 2,353 | 3,177 | 61,178 | 84,190 |
| Kentucky | 3,069 | 2,885 | 101,277 | 75,010 |
| Texas | 5,844 | 5,189 | 106,863 | 119,347 |
| Pennsylvania | 1,394 | 1,270 | 57,154 | 50,165 |
| Maryland | 551 | 515 | 22,039 | 22,660 |
| Virginia | 1,694 | 1,630 | 46,585 | 47,907 |
| Georgia | 3,817 | 3,803 | 55,340 | 54,502 |
| Michigan | 1,593 | 1,418 | 54,162 | 38,995 |
| North Carolina | 2,370 | 2,352 | 52,272 | 53,620 |
| Alabama | 2,825 | 2,900 | 45,765 | 47,456 |
| Wisconsin | 2,119 | 2,100 | 73,106 | 68,250 |
| New York | 670 | 663 | 23,450 | 22,542 |
| Arkansas | 2,026 | 1,925 | 41,533 | 36,575 |
| Mississippi | 1,918 | 1,918 | 36,820 | 34,110 |
| Louisiana | 1,127 | 1,161 | 19,722 | 20,318 |
| South Carolina | 1,426 | 1,497 | 22,103 | 25,449 |
| North Dakota | 1,009 | 959 | 18,162 | 23,978 |
| All other | 4,161 | 3,977 | 79,257 | 91,417 |
| United States | 99,713 | 98,014 | 2,694,217 | 2,786,288 |

[1] Crops and Markets, U. S. Department of Agriculture, December, 1927, p. 454.

*Geographic distribution of surplus.*—While the growing of corn is general throughout the eastern half of the United States, production is heaviest in the Corn Belt, a strip of land where soil and climatic

conditions are most favorable, extending from southwestern Ohio to southeastern South Dakota and hence southward to the Missouri River.

Nine States—Illinois, Iowa, Nebraska, Indiana, Kansas, Ohio, Minnesota, South Dakota, and Missouri—produced in 1926, 1,699,185,000 bushels out of a total for the United States of 2,692,217,069




bushels, or 62.8 per cent of the crop, and in 1927 they produced 1,799,048,000 bushels out of the 2,786,288,000 bushels grown, or 64.6 per cent of the crop. These nine States not only produce the greater part of the entire corn crop of the United States, but they also produce the greater part of the surplus marketed. It was in these nine States that the commission made its cost investigation.

As noted previously, the larger part of the corn produced is used on the farms and much of it does not reach the markets as "cash corn." It is this cash corn or surplus corn which has a more immediate and direct effect on market prices and which comes into competition with foreign corn. For various reasons, such as differences in the accessibility of markets, and in the type and grade of corn produced, the principal producing States rank differently as sources of surplus corn than as producers, yet as a whole the Corn Belt produces about two-thirds of the corn grown in the United States and also markets more than four-fifths of the cash corn.

Table 5 gives estimates of quantities of corn for the period 1922–1926, shipped out of the counties where grown in the principal surplus States.

TABLE 5.—*Corn: Estimated quantities shipped out of counties where grown in principal surplus States; crop years 1922 to 1926* [1]

[Thousands of bushels—i. e., 000 omitted]

| State | 1922 | 1923 | 1924 | 1925 | 1926 | 5-year average | |
|---|---|---|---|---|---|---|---|
| | | | | | | Amount | Per cent of total in United States |
| Illinois | 109,577 | 114,626 | 112,183 | 157,802 | 115,799 | 122,009 | 23.91 |
| Iowa | 139,914 | 104,743 | 45,830 | 123,162 | 95,125 | 101,755 | 19.94 |
| Nebraska | 47,424 | 92,498 | 61,801 | 61,516 | 10,517 | 56,463 | 11.07 |
| Indiana | 38,767 | 46,228 | 17,088 | 50,808 | 47,748 | 40,132 | 7.87 |
| Kansas | 13,776 | 31,759 | 53,569 | 28,585 | 8,595 | 27,257 | 5.34 |
| Ohio | 22,365 | 30,373 | 10,706 | 35,914 | 29,087 | 25,689 | 5.03 |
| Minnesota | 23,635 | 37,126 | 21,991 | 26,801 | 14,766 | 24,684 | 4.84 |
| South Dakota | 28,610 | 55,167 | 22,558 | 7,836 | 6,384 | 24,111 | 4.73 |
| Missouri | 16,031 | 17,717 | 21,168 | 31,818 | 15,677 | 20,482 | 4.01 |
| All other States | 78,601 | 70,448 | 52,224 | 54,309 | 82,682 | 67,665 | 13.26 |
| United States | 513,770 | 600,745 | 417,780 | 578,551 | 435,380 | 510,247 | 100.00 |

[1] Derived by applying U. S. Department of Agriculture percentages of corn shipped out of counties where grown to figures of estimated total corn production of all kinds expressed in bushel equivalents. See Crops and Markets, U. S. Department of Agriculture, March, 1927, p. 86, and Monthly Supplement, December, 1926, p. 392.

*Domestic exports.*—Table 6 shows exports of domestic corn, corn meal and flour, hominy and grits, or other corn preparations for table use. Exports form a relatively small part of domestic production. In the period 1924–1927 the annual aggregate value of such exports ranged from about $14,000,000 to $24,000,000. The value of exports of hogs and hog products principally produced from corn is several times as large as the value of exports of corn as such. In 1927 exports of hogs and hog products were valued at $150,000,000. Table 7 gives exports of corn and pork products for the period 1923–1927.

TABLE 6.—*Corn: Domestic exports of corn and corn products, 1924–1927*

| Commodity | Unit | 1924 | 1925 | 1926 | 1927 |
|---|---|---|---|---|---|
| Corn | Bushels | 18,365,628 | 12,761,606 | 23,063,923 | 13,428,387 |
| | Dollars | 17,824,785 | 14,252,931 | 19,839,741 | 11,432,465 |
| Corn meal and flour | Barrels | 435,103 | 348,139 | 516,479 | 387,265 |
| | Dollars | 2,226,809 | 2,010,087 | 2,490,564 | 1,871,997 |
| Hominy and grits | Pounds | 29,892,603 | 20,054,650 | 30,141,030 | 23,142,584 |
| | Dollars | 658,804 | 490,080 | 534,296 | 477,731 |
| Other corn preparations for table use | Pounds | 6,953,231 | 7,923,144 | 10,307,467 | 8,037,764 |
| | Dollars | 488,337 | 597,797 | 758,927 | 597,834 |
| Aggregate value | do | 21,198,735 | 17,350,895 | 23,632,528 | 14,374,027 |

TABLE 7.—*Corn and pork products: Value of exports from United States, calendar years 1923–1927, inclusive*

[Source: Foreign Commerce and Navigation of the United States]

| Calendar years | Total corn and pork products | Corn | | Total pork products | Fresh pork | Hams and shoulders, bacon | Sides, pickled and canned, pork, and sausage | Lard |
|---|---|---|---|---|---|---|---|---|
| | | Quantity | Value | | | | | |
| | | *Bushels* | | | | | | |
| 1923 | $306,095,154 | 42,187,732 | $36,805,723 | $269,289,431 | $8,000,071 | $119,403,780 | $8,552,742 | $133,332,838 |
| 1924 | 250,002,352 | 18,365,628 | 17,824,785 | 232,177,567 | 4,651,937 | 83,855,780 | 13,918,914 | 129,750,936 |
| 1925 | 242,705,760 | 12,761,606 | 14,252,931 | 228,453,829 | 3,497,253 | 86,109,176 | 17,209,608 | 121,637,792 |
| 1926 | 220,231,218 | 23,063,923 | 19,839,741 | 200,391,477 | 3,195,911 | 71,651,411 | 13,895,750 | 111,648,405 |
| 1927 | 161,332,609 | 13,428,387 | 11,432,465 | 149,900,144 | 1,505,325 | 42,003,706 | 11,353,038 | 95,038,075 |
| Total | 1,180,368,093 | 109,807,276 | 100,155,645 | 1,080,212,448 | 20,850,497 | 403,023,853 | 64,930,052 | 591,408,046 |
| Annual average | 236,073,618 | 21,961,455 | 20,031,129 | 216,042,489 | 4,170,099 | 80,604,771 | 12,986,010 | 118,281,609 |

## PRODUCTION IN ARGENTINA

*The corn region.*—The principal corn region in Argentina is situated near the Parana River in the southern part of the Province of Santa Fe, and in the northern part of the Province of Buenos Aires. The Corn Belt also extends into the Province of Cordoba west of Santa Fe, a section having more sandy soils and less rainfall. The center of corn production is about 33½° south latitude. The corn region occupies approximately the same position south of the Equator as that of the United States north of the Equator; the seasons are therefore reversed. This area in Argentina is similar to the Great Plains region west of the Mississippi, a flat country with the surface covered with native grasses, alfalfa pastures, and grain fields.

The acreage planted to wheat, corn, and flax in the cereal region in 1926 was about 36,000,000 acres, less than one-fourth of the total area planted to these crops in the United States. The area planted to corn in 1925 was about 10,618,000 acres, or a little more than one-tenth of the total area planted to corn in the United States.

Table 8 shows the production of corn in Argentina for five separate crop years, at 5-year intervals between 1895–96 and 1914–15, and the production for each crop year from 1919–20 to 1925–26.

TABLE 8.—*Corn: Production in Argentina* [1]

[Thousands of bushels—i. e., 000 omitted]

| Crop year: | Bushels | Crop year: | Bushels |
|---|---|---|---|
| 1895–96 | 88, 189 | 1920–21 | 230, 433 |
| 1899–1900 | 55, 630 | 1921–22 | 176, 181 |
| 1904–5 | 140, 708 | 1922–23 | 176, 102 |
| 1909–10 | 175, 196 | 1923–24 | 276, 771 |
| 1914–15 | 325, 196 | 1924–25 | 186, 299 |
| 1919–20 | 258, 700 | 1925–26 | 279, 527 |

*Varieties of corn.*—The varieties of corn planted in Argentina may be divided into two classes:

(*a*) Corn for export: It has been found that the best corn for shipment are such varieties of Flint corn as the Red Piemontes, common yellow, 8-rowed Canario, and Longfellow. For export these varieties have several advantages: (1) Because they are harder than Dent corn, and have a lower moisture content, shipments are less likely to heat when crossing the Equator than shipments of the softer Dent varieties. (2) One variety, "Maiz Cuarenton" (No. 40), is preferred for pigeon and chick feed because of the smallness of the kernels. This corn often commands a price premium over ordinary yellow corn in the United States.

(*b*) Corn for feed and home use: These are longer maturing and softer varieties and include such Dent varieties as Silver King, Reid's Yellow Dent, Iowa Golden Mine, and some of the Flint varieties.

*Soil and climate.*—Throughout the cereal region of Argentina there is a deep, black-loam prairie soil becoming more sandy west of the Parana River Valley. The soils are alkaline throughout most of the region and all forms of legumes grow well without inoculation.

The rainfall in the cereal region varies from 20 to 40 inches annually, which is approximately the same as in the Corn Belt of the United States. The area included between these lines of average rainfall

[1] Anuario de Estadistica Agro-Pecuaria, sec. B, pp. 9–67.

produces about 90 per cent of the total quantity of agricultural products of Argentina. In a large part of the Pampa region the rainfall varies widely, in some years, from the normal. In very dry years crops burn up and in unusually wet years are damaged by excessive rainfall. For example, at San Vincents in the Province of Buenos Aires with an average of 32 inches, the rainfall was 13 inches in 1910 and 70 inches in 1914. The variation in rainfall from year to year explains to a large extent the annual fluctuations in production.

*Land tenure.*—Most of the land in Argentina was originally obtained in large grants and passed by inheritance from parents to children. Transfers of land for a money consideration have been infrequent. While Argentina is a country of immense estates there is a notable tendency toward small holdings, particularly in the cereal region. Large holdings are leased to colonists, usually Italians, who sublet the land to tenants—peons, or laborers. Many of the properties were formerly "estancias" (ranches) utilized for stock raising. In the belief that more profit could be made by growing grain or flax, many owners of these ranches have divided them and have leased a part or all of their holdings. The leased farms usually contain from 125 to 750 acres.

*Exports of corn from Argentina.*—Table 9 gives official statistics of exports of corn from Argentina by destinations during the years 1924, 1925, and 1926. Exports to the United States during these years amounted to 1,812,000 bushels in 1924, 170,000 bushels in 1925, and 793,000 bushels in 1926, equaling 1 per cent, 1½ per cent, and 0.4 of 1 per cent, respectively, of the total amounts exported in each year.

TABLE 9.—*Corn: Exports of corn from Argentina by principal countries of destination, 1924–1926*

[Thousand bushels, i. e., 000 omitted]

[Source: Anuario del Comercio Exterior de la Republica Argentina, 1926, p. 510]

| Destination | 1924 | 1925 | 1926 | Destination | 1924 | 1925 | 1926 |
|---|---|---|---|---|---|---|---|
| Portuguese possessions | 98,880 | 59,569 | 85,719 | Switzerland | 889 | 717 | 2,462 |
| Spanish possessions | 8,246 | 7,721 | 20,934 | Denmark | 1,236 | 411 | 1,486 |
| Belgium | 13,054 | 11,182 | 19,248 | Norway | 421 | 769 | 1,111 |
| United Kingdom | 14,825 | 7,623 | 13,965 | Uruguay | 3 | 1 | 1,032 |
| Germany | 10,247 | 5,041 | 12,717 | Canada | 217 | 146 | 992 |
| France | 7,320 | 8,037 | 11,211 | United States | 1,812 | 170 | 793 |
| Netherlands | 7,547 | 4,039 | 8,431 | All other | 2,220 | 1,698 | 1,526 |
| Italy | 3,441 | 2,554 | 6,074 | | | | |
| Spain | 7,847 | 5,904 | 5,478 | Total | 178,205 | 115,582 | 193,179 |

## IMPORTS OF CORN INTO THE UNITED STATES

Since 1910 the largest quantity imported during a single year, 12,289,000 bushels, was received in the fiscal year 1914. Imports increased from 158,748 bushels in 1921 to 3,906,000 bushels in 1924, declined to about 1,000,000 in 1926, and again increased to approximately 4,900,000 bushels in 1927. This was equal to less than three-tenths of 1 per cent of the total domestic production in 1927, but was 2.2 per cent of receipts at the 11 primary markets—Chicago, St. Louis, Kansas City, Peoria, Omaha, Indianapolis, Milwaukee, Minneapolis, Duluth, Toledo, and Detroit—during the year beginning November, 1926. Receipts at these 11 primary markets amounted to 220,778,000

bushels from November 1, 1926, to October 31, 1927. Table 10 shows imports for the years 1910–1927, inclusive.

TABLE 10.—*Corn: Imports for consumption, 1910–1927*

| Year | Rate of duty | Quantity | Value | Duty collected | Value per bushel | Average ad valorem rate |
|---|---|---|---|---|---|---|
| FISCAL | | *Bushels* | | | | *Per cent* |
| 1910 | 15 cents per bushel | 117,933 | $72,341 | $17,690 | $0.613 | 24.46 |
| 1911 | do | 52,295 | 37,843 | 7,844 | .724 | 20.73 |
| 1912 | do | 53,381 | 47,853 | 8,007 | .896 | 16.73 |
| 1913 | do | 865,124 | 470,176 | 129,768 | .543 | 27.60 |
| 1914 | do | 524,175 | 318,542 | 78,626 | .608 | 24.68 |
| 1914 | Free | 11,765,187 | 7,564,699 | | .643 | |
| 1915 | do | 9,893,573 | 6,083,360 | | .615 | |
| 1916 | do | 5,210,470 | 2,866,935 | | .550 | |
| 1917 | do | 2,267,414 | 1,488,617 | | .656 | |
| 1918 | do | 3,197,051 | 3,482,211 | | 1.090 | |
| CALENDAR | | | | | | |
| 1918 | do | 156,362 | 114,454 | | .732 | |
| 1919 | do | 11,212,717 | 10,906,911 | | .978 | |
| 1920 | do | 7,784,482 | 9,206,991 | | 1.194 | |
| 1921 | do | 113,419 | 125,041 | | 1.137 | |
| 1921 | 15 cents per bushel | 45,329 | 56,699 | 6,799 | 1.251 | 11.96 |
| 1922 | do | 112,790 | 115,605 | 14,522 | 1.025 | 14.64 |
| 1923 | do | 202,776 | 228,262 | 30,416 | 1.126 | 13.33 |
| 1924 | do | 3,905,667 | 3,393,868 | 585,850 | .869 | 17.26 |
| 1925 | do | 1,123,193 | 1,223,276 | 168,479 | 1.089 | 13.77 |
| 1926 | do | 1,055,895 | 908,911 | 158,384 | .861 | 17.43 |
| 1927 | do | 4,916,615 | 3,906,699 | 737,492 | .795 | 18.88 |

## COMPARABILITY OF UNITED STATES AND ARGENTINE CORN

Although imports of corn from Argentina are of the Flint variety, and domestic corn is almost entirely of the softer Dent variety, they are used for approximately the same purposes, and are readily substituted for each other. On the same moisture basis there appears to be no essential difference in their chemical composition. They are readily and freely interchanged in the manufacture of corn meal, corn starch, corn sirups and sugars, and other corn products. Both are used as feed for poultry, birds, and also for hogs and other animals. There is a preference for the small-kerneled Flint corn in feeding birds, such as pigeons, and to some extent in feeding poultry. In feeding hogs and other animals the preference is for the Dent varieties.

Domestic and imported corn are alike or similar for the purposes of section 315.

## PRINCIPAL COMPETING COUNTRY

Table 11 gives the general imports of corn into the United States, by principal countries of origin. This table shows the predominance of Argentina as a source of imports of corn. In 1927, 5,154,000 bushels,[1] or about 94 per cent of the total imports, came from that country. Therefore, for the purposes of this investigation Argentina is the principal competing country. Practically all the corn indicated by the table as having been imported from the Dominican Republic has gone to Porto Rico in recent years.

[1] General imports.

TABLE 11.—*Corn: General imports into the United States by principal countries of origin, 1924–1927* [1]

| Country | 1924 | | 1925 | | 1926 | | 1927 | |
|---|---|---|---|---|---|---|---|---|
| | *Thousand bushels* | *Thousand dollars* | *Thousand bushels* | *Thousand dollars* | *Thousand bushels* | *Thousand dollars* | *Thousand bushels* | *Thousand dollars* |
| Argentina | 3,921 | 3,395 | 351 | 394 | 724 | 572 | 5,154 | 4,002 |
| Dominican Republic | 112 | 104 | 189 | 209 | 234 | 249 | 199 | 201 |
| Canada | 56 | 59 | 11 | 23 | 10 | 14 | 23 | 31 |
| Kwantung | 11 | 11 | 503 | 531 | 86 | 71 | ..... | ..... |
| All other | 7 | 8 | 35 | 36 | 1 | 2 | 82 | 69 |
| Total | 4,107 | 3,577 | 1,086 | 1,190 | 1,055 | 908 | 5,458 | 4,294 |

[1] These are general imports, and so differ in amount from the imports for consumption shown on p. 10.

## PRICES

*The geographical phase of corn prices.*—The prices of corn, as of other grains, are characterized by marked geographical variations from surplus to deficiency areas. Prices in the deficiency areas are sometimes twice those in surplus areas. Both the size of the surplus and degree of deficiency, and the distance from the primary markets affect the price. In the surplus areas the price is the Chicago (or other terminal market) price less freight to that market, while in the deficiency areas the price is the Chicago price plus freight. The regions of lowest price are those which have a large surplus and are at a considerable distance from the primary markets, while those with the highest price are the ones which have a large deficiency and are also at a considerable distance from primary markets. Although the areas vary somewhat in location and extent from year to year, according to variations in the crop, the region of lowest price is usually in western Iowa and southwestern Minnesota, southeastern South Dakota and northeastern Nebraska. The regions of highest price are usually in the New England and South Atlantic States, the western part of Colorado, and certain parts of Arizona, New Mexico, and California. Barley takes the place of corn to some extent for feeding purposes on the Pacific coast. In parts of the Corn Belt a deficiency occurs at times on account of the large quantity of corn in demand for hog and cattle feeding rather than because of the small size of the crop. During the past 50 years, with the improvement in transportation facilities, the price spread between the surplus and deficiency areas has lessened.

*The hog-corn price ratio.*—The second important fact concerning corn prices is their relationship to hog prices. From 1896 to 1914, 11.4 bushels of corn were, on the average, worth as much on the Chicago market as 100 pounds of hogs.[2] When the prices of hogs and pork products are high relative to corn, more corn is used as feed and more hogs are bred. The average weight of hogs sent to market increases within a few months, and the larger number of hogs raised increases the supply coming on the market within 12 to 18 months. The ratio is then usually altered and the hog price becomes relatively lower than the corn price. This relationship is unusually close because hogs are more dependent upon a single feed crop than any other class of animals.[2] The average cycle in hog prices is about three

[2] U. S. Department of Agriculture, Department Bulletin No. 1440, Factors Affecting the Price of Hogs, by G. C. Haas and Mordecai Ezekiel.

years; that is, it is usually three years from one peak of hog prices to the next.

The hog-corn ratio was favorable to corn in 1923 and 1924 and to hogs in 1925; that is, the price of corn was relatively higher than the price of hogs in 1923 and 1924, while the price of hogs was relatively higher than the price of corn in 1925 and most of 1926. During 1926 the farmers of the Corn Belt had a surplus of corn. The price for the crop year 1925–26 averaged only about 70 cents per bushel, the lowest since 1921, but as a result of that fact acreage in 1926 was reduced only 1 per cent. The number of hogs was increased in 1926–27 and by the summer of 1927 the price of hogs was tending downward, while the price of corn, influenced by the prospect of a smaller crop in 1927, had again become high relative to hogs.

*Price relationship between Chicago, Buenos Aires, and Liverpool.*[3]— The price of corn is higher, on the average, in Liverpool than in Chicago or Buenos Aires by about the amount of freight from each of those points to Liverpool. The price varies widely at times from the average, however, due to crop conditions, accumulation of stocks, or relative prices of other grains. A comparison of annual average prices of corn in Chicago and Buenos Aires since 1900 shows that in 17 of the 28 years the Chicago average price was higher, and in the remaining 11 years the Buenos Aires price was higher. For the greater part of the time there was less difference between the Chicago and Buenos Aires prices than between Liverpool and either Chicago or Buenos Aires. There was also less difference, on the average, between the Buenos Aires and Chicago prices than the freight from Buenos Aires to any American port.

The United States Department of Agriculture says:[4] "Chicago is probably the most important corn market in the world. In the same sense that it may be said that the price of wheat is determined in Liverpool, the price of corn may be said to be determined in Chicago." The fact that Argentina has a much greater export surplus of corn than the United States, both in absolute amount and in percentage of the quantity produced, tends to make the Buenos Aires price more dependent on the foreign demand than the Chicago price.

Chart 3 is a graph of corn prices at Chicago and Buenos Aires, and general imports into the United States for the crop years, 1921–22 to 1927–28. Table 12 gives the prices of corn at Chicago, Liverpool, and Buenos Aires, 1900 to 1927.

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[3] See Chart 3 and Table 12.

[4] Yearbook 1921, p. 217.

## CORN: PRICES IN BUENOS AIRES AND IN CHICAGO; GENERAL IMPORTS INTO THE UNITED STATES BY MONTHS, CROP YEARS 1921-22 TO 1927-28.

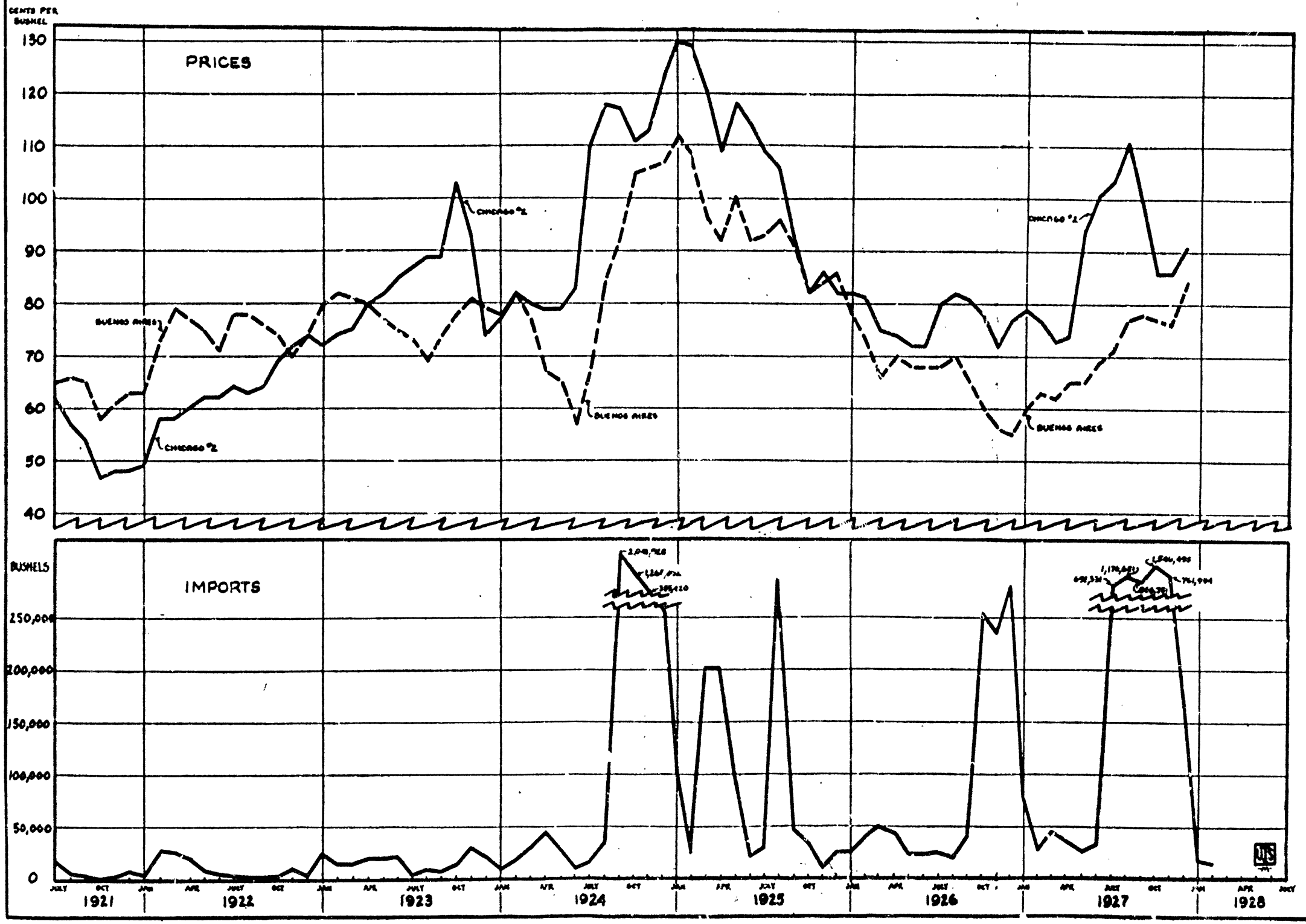


CHART 3

72565—29. (Face p. 12.)

TABLE 12.—*Corn: Comparison of annual average prices in Chicago, Buenos Aires, and Liverpool, 1900-1928*

| Year | Chicago No. 3 yellow [1] | Liverpool [2] | Buenos Aires [3] | Excess of Liverpool over Chicago | Excess of Liverpool over Buenos Aires | Duty | Excess of Chicago over Buenos Aires |
|---|---|---|---|---|---|---|---|
| 1900 | $0.36 | $0.57 | $0.40 | $0.21 | $0.17 | 15 cents per bushel | −$0.04 |
| 1901 | .43 | .63 | .49 | .20 | .14 | do | −.06 |
| 1902 | .62 | .71 | .51 | .09 | .20 | do | +.11 |
| 1903 | .47 | .62 | .41 | .15 | .21 | do | +.06 |
| 1904 | .49 | .61 | .44 | .12 | .17 | do | +.05 |
| 1905 | .48 | .65 | .49 | .17 | .16 | do | −.01 |
| 1906 | .44 | .62 | .50 | .18 | .12 | do | −.06 |
| 1907 | .50 | .70 | .56 | .20 | .14 | do | −.06 |
| 1908 | .68 | .76 | .62 | .08 | .14 | do | +.06 |
| 1909 | .65 | .78 | .62 | .13 | .16 | do | +.03 |
| 1910 | .59 | .67 | .56 | .08 | .11 | do | +.03 |
| 1911 | .53 | .72 | .86 | .19 | −.14 | do | −.33 |
| 1912 | .71 | .78 | .55 | .07 | .23 | do | +.16 |
| 1913 | .53 | .67 | .57 | .14 | .10 | do | −.04 |
| 1914 | .70 | .85 | .54 | .15 | .31 | Free | +.16 |
| 1915 | .70 | 1.21 | .53 | .51 | .68 | do | +.17 |
| 1916 | .79 | 1.46 | .63 | .67 | .83 | do | +.16 |
| 1917 | 1.11 | 1.99 | 1.13 | .88 | .86 | do | −.02 |
| 1918 | 1.63 | 2.18 | .66 | .55 | 1.52 | do | +.97 |
| 1919 | 1.62 | 2.03 | .80 | .41 | 1.23 | do | +.82 |
| 1920 | 1.59 | 1.91 | .92 | .35 | 1.02 | do | +.67 |
| 1921 | .62 | .86 | .70 | .24 | .16 | 15 cents per bushel | −.08 |
| 1922 | .55 | .81 | .74 | .26 | .07 | do | −.19 |
| 1923 | .73 | .96 | .77 | .23 | .19 | do | −.01 |
| 1924 | .88 | 1.02 | .84 | .14 | .18 | do | +.04 |
| 1925 | 1.09 | 1.09 | .95 | .00 | .14 | do | +.14 |
| 1926 | .76 | .84 | .66 | .08 | .18 | do | +.10 |
| 1927 | .84 | 1.06 | .70 | .22 | .36 | do | +.14 |
| 1928 | .98 | 1.06 | .92 | .08 | .14 | do | +.06 |

[1] No. 3 yellow weighted average price per bushel of reported cash sales. From 1924 Agriculture Yearbook. Year beginning in previous November.

[2] Prices of American mixed maize from the Journal Royal Statistical Society, year 1927, from Bromhall's Corn Trade News.

[3] Quotations from Anuario de Estadistica Agro-Pecuaria 1925-26, sec. B, p. 129. Argentine Minister of Agriculture; years 1926, 1927, from Review of River Plate and Bolsa de Cereals.

## DOMESTIC COSTS OF PRODUCTION

*Scope of investigation.*—The domestic region covered by the commission's investigation included the areas in the eight Central States commonly known as the Corn Belt—Ohio, Indiana, Illinois, Iowa, southern Minnesota, southeastern South Dakota, eastern Nebraska, and northeastern Kansas. The investigation was confined to the surplus-corn sections—that is, those sections shipping out of the areas a large proportion of the corn produced. Centers for study were determined after conference with representatives of market departments of State agricultural colleges and State statisticians in charge of reporting crop estimates.

The area or areas covered in each State were selected not only for the quantity of corn sold but also because they were regarded as typical corn-surplus areas in respect to yields per acre, farm organization, labor conditions, and types of soil.

Chart 4 shows the location of the surplus-corn regions studied and the points in each area covered by the commission's cost investigation.

Table 13 shows that in the region covered by the investigation 21,001,629 acres were planted to corn in 1926 and 615,913,000 bushels of corn were produced—about 21.1 per cent of the total acreage and 22.9 per cent of the total production of the United States. (Table 4, p. 4.) The quantity of corn sold from the farms studied, as indicated

by the cost schedules, was approximately 55 per cent of their total production. Data relating to farm costs were obtained for 386 farms and marketing costs for 26 local elevators.

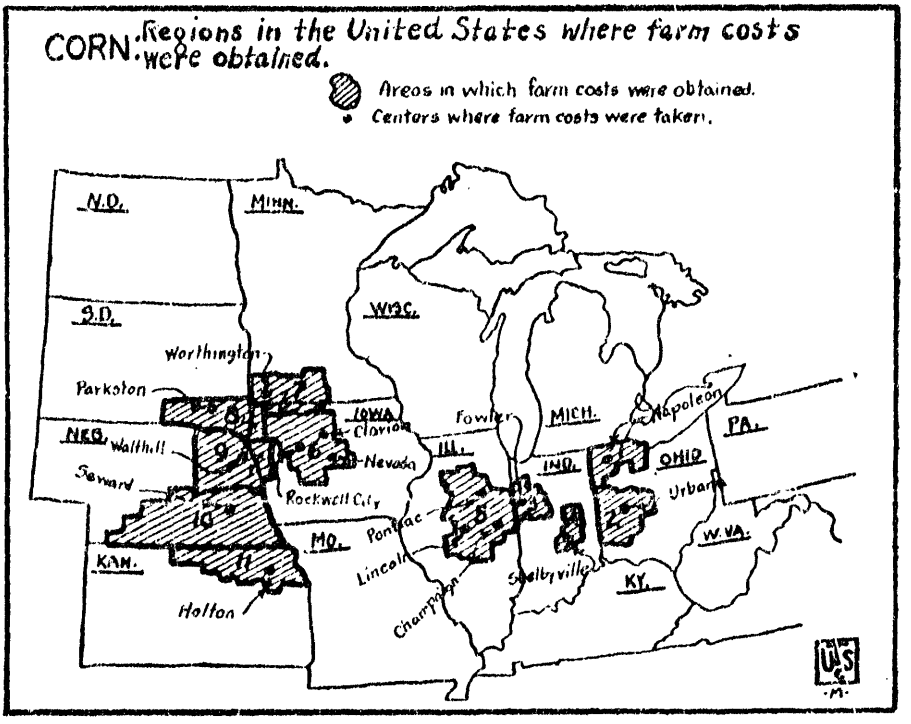


CHART 4

TABLE 13.—*Corn: Scope of farm cost study in the Corn Belt of the United States*

| Area | Number of counties included | 1926 [1] | | | Corn sold [2] | | Production and sales on farms studied | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Acreage | Production | Yield per acre | Quantity | Per cent of production | Number of farms | Production [3] | Corn sold | Yield per acre [3] |
| | | *Acres* | *1,000 bushels* | *Bushels* | *1,000 bushels* | *Per cent* | | *Bushels* | *Bushels* | *Bushels* |
| Ohio | 11 | 621,000 | 27,155 | 43.7 | 8,255 | 30.4 | 27 | 31,620 | 7,530 | 52.2 |
| | 19 | 1,235,000 | 50,676 | 41.0 | 10,997 | 21.7 | 30 | 40,210 | 3,400 | 43.8 |
| Indiana | 8 | 677,200 | 24,493 | 36.2 | 15,945 | 65.1 | 25 | 141,869 | 72,520 | 39.6 |
| | 7 | 512,600 | 21,316 | 41.6 | 10,140 | 47.6 | 25 | 70,229 | 18,205 | 53.5 |
| Illinois | 22 | 3,598,650 | 130,275 | 36.2 | 97,185 | 74.6 | 75 | 335,535 | 173,510 | 46.7 |
| Iowa | 22 | 3,051,905 | 124,776 | 40.9 | 65,133 | 52.2 | 75 | 289,941 | 125,319 | 44.6 |
| Minnesota | 14 | 1,559,936 | 54,141 | 34.8 | 14,889 | 27.5 | 26 | 69,092 | 12,220 | 44.6 |
| South Dakota | 13 | 1,763,069 | 44,293 | 25.1 | 7,751 | 17.5 | 25 | 46,266 | 6,943 | 25.7 |
| Nebraska | 22 | 2,933,811 | 87,352 | 29.8 | 36,668 | 56.5 | 25 | 69,173 | 37,175 | 29.8 |
| | 38 | 3,044,746 | 25,457 | 8.4 | 10,081 | 39.6 | 26 | 39,585 | 14,764 | 23.3 |
| Kansas | 17 | 2,003,712 | 25,979 | 13.0 | 9,482 | 36.5 | 27 | 30,369 | 10,867 | 13.9 |
| Total | 193 | 21,001,629 | 615,913 | 29.3 | 286,532 | [4] 54.6 | 386 | 1,164,389 | 482,453 | [4] 41.0 |

[1] Source: Crops and Markets, Bureau of Agricultural Economics, U. S. Department of Agriculture.
[2] Quantity based on percentage of corn sold as found on farms studied.
[3] Field run, unshrunk.
[4] Weighted on shipments from areas.

DISCUSSION OF ITEMS ENTERING INTO FARM PRODUCTION

*Yield.*—The total yield of marketable corn on farms studied was used as the basis for calculation of farm costs per bushel. The total yield of corn was made up of the total number of bushels sold, the farmer's estimate of the number of bushels fed, and the quantity on hand at the time the records were obtained. The quantity of corn sold, the grade, and the month when sold were recorded in order to compute shrinkage.

*Shrinkage.*—In order to afford a uniform basis for the calculation of unit costs for comparison with costs of Argentine corn,[5] the total yields, obtained as previously described, were adjusted for differences in moisture content to equal No. 2 corn. Natural shrinkage varies with the moisture content of the corn and the atmospheric condition to which it is exposed. Immediately after the harvesting the cobs will show a much higher content of moisture than the kernels, but the cobs will dry out much faster in storage (cribs) and from May to October contain less moisture than the kernels. Information from the United States Department of Agriculture [6] indicates that corn in storage will normally lose moisture so that by June 1 corn will contain about 15 per cent of moisture. From this standpoint alone corn delivered to elevators on June 1 or thereafter would normally fall into grade 2.

The fact that most of the domestic corn is sold before June 1 does not affect the validity of this calculation because the essential point is that it must be reduced to the same moisture content as the Argentine corn. If it is not done by slow natural drying on the farm it is done by artificial drying in the elevator and a cost is involved either way.

The sales of corn given on each farm schedule were tabulated by months and the weight of corn sold each month was adjusted by the amount of shrinkage from the middle of that month until June 1. After June 1 the sales as given on the records were used without adjustment. In the same manner the weight of the corn used on the farm was adjusted for shrinkage from the time of harvest until June 1. Adjustments were made on the basis of average data for the period 1903 to 1913, obtained by the Illinois Experiment Station.[7]

The bulk of the corn for which cost data were obtained was shelled on the farm. In Ohio, however, practically all of the corn included in the study was delivered unshelled. In Indiana about 44 per cent was sold unshelled. In Illinois, Minnesota, and Nebraska about 10 per cent was sold unshelled and in Iowa and South Dakota, about 5 per cent. When dealers buy corn on the cob, adjustments are made in weight so that the farmer is paid for the number of bushels of shelled corn represented. For corn sold at harvest or soon after, 75 to 80 pounds of corn in the cob are required to yield a 56-pound bushel of shelled corn, whereas when well seasoned only about 70 pounds are required. Therefore, where corn was sold unshelled, a measured bushel was taken to be the equivalent of a 56-pound bushel of shelled corn and adjustments for shrinkage were made as though the corn were sold shelled.

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[5] On the basis of moisture content arrivals of Argentine corn have graded No. 2 or better.

[6] Three-year average—Mimeographed report on Shrinkage and Moisture Absorption of Corn, U. S. Department of Agriculture, p. 9.

[7] Illinois Experiment Station Bulletin No. 295, Cost of Corn Stored on the Farm, Table 1, p. 5.

*Labor.*—With the exception of machine work hired and tractor work which was generally computed at custom rates, all labor was recorded in hours employed at wages actually paid on each farm, or in case of operators' and other family labor at what it would have cost to hire this work done. The wages allowed family labor were based on the judgment of the farmer as to its value compared with the value of hired labor.

No additional charge for supervision was included except in a few instances where a manager was employed. No women's labor was found and children's labor under 18 years of age was less than 1 per cent. The wage rate per hour was determined by adding to the monthly or daily cash wage the value of board, house rent, or other perquisites furnished and dividing the total by the hours worked per month or per day. When husking was hired at custom rates, the actual cost was recorded, and the work done by the farmer, his hired help, and family was computed on the rate-per-hour basis.

*Horse work.*—The time that horses were used for corn was obtained in the same manner as hours of human labor. To obtain the horse rate per hour an estimate was obtained from the grower as to the total number of horse-hours required during the year on all farm enterprises. By dividing the total cost of keeping horses for the year by the total number of hours worked, the rate per hour was obtained. This rate was checked by comparing it with the customary rate for horse hire in the community. The cost of keeping a horse included depreciation (computed on present value divided by the number of years of usefulness), feed, pasture, chores, harness depreciation and repairs, stabling, and taxes. Interest was not included in computing the horse rate per hour but was charged under interest on working capital.

*Machine work.*—This includes machine work hired, tractor work, whether the tractor was hired or owned by the farmer, and truck work. Equipment hired, such as shredders, tractors, and shellers, was charged at actual cost, and contract work involving both equipment and operator was charged at the commercial rate in the community. When there were customary tractor rates for different operations, these rates were applied to farm-owned tractors. When the farmer owned a truck and used it on the corn crop, the commercial rate per mile was charged and the driver's time was included in the tabulation of hours of labor.

*Materials.*—Under this heading are included manure, fertilizer, lime, seed, and twine. Fifty per cent of the value of manure was charged to the crop the first year after its application, 30 per cent the second year, and 20 per cent the third year after application. This method was followed also in charging the cost of application. In order to compute the actual cost on this basis, data were obtained on the quantity applied from 1924 to 1926, inclusive. Lime was charged at cost divided by the number of years between applications. Fertilizer was charged at cost. Seed was charged at price paid if purchased, and if farm grown, at the market price of seed corn at planting time.

*Taxes.*—All farm taxes were apportioned to the corn crop in the ratio that the net value of land devoted to corn bore to the total value of the farm, including buildings and improvements.

*Machinery and equipment.*—For each item of equipment used on the corn crop, original cost and normal annual repairs and depreciation were obtained. The sum of normal annual repairs and depre-

ciation constitutes the equipment charge. The repair and depreciation charges for tractors and trucks are included in the custom rates charged for their use. The automobile cost was based on the number of miles covered by the auto when used for business in connection with the corn crop at a rate per mile, based on the customary rate, for the type of automobile used. Fence and fence repairs and drainage repairs were apportioned in the ratio of the acreage in corn to the total farm acreage.

*Miscellaneous costs.*—Under this heading were included telephone, farm office supplies, and crop insurance. These were allocated according to the estimate of the farmer as to the portion chargeable to the corn crop.

*Credits.*—The deductions from farm costs included the value of the corn fodder fed to livestock, and in a few cases the value of cobs sold.

*Interest on land.*—In each area information regarding the market value and cash rental of farm land in the community was secured from bankers, county agents, and other local authorities. Land values and rentals for individual farms and for corn land were obtained from the farmer. In arriving at the value or rental of his land, the farmer took into consideration improvements, quality of land, and location with respect to markets and roads. If the valuation or rental appeared exceptional in the light of the information previously obtained, the farmer was closely questioned as to the reasons for such variation, and if necessary, adjustments in his original valuation were made. On the value of corn land thus determined, interest was computed at the rate of 6 per cent per annum.

*Interest on borrowed capital, equipment, and work stock.*—Interest actually paid on borrowed capital was charged at the rate paid, while imputed interest at 6 per cent was included on the present depreciated value of equipment and work stock used in corn production.

*Net cash rental.*—Where farms were rented for cash, the item of net cash rental was the rent actually paid, less expenditure incurred by the landowner. Where farms were operated by the owner a gross rental was figured on the basis of cash rental rates for similar land in the community. In order to obtain a net rental figure, all expenditures which would have been incurred by the landowner on land rented by him were deducted from the gross cash rental thus determined. Whether the total farm rental was actual or imputed, the judgment of the farm owner or operator was followed as to the proportion that should be charged to the land planted to corn.

*Effect of the corn-borer infestation on cost of production.*—The cost of production of corn as compiled by the commission does not include items for cleaning up the land to eliminate corn-borer infestation. Such items were not included because only a small portion of the surplus-producing corn region was affected. If the corn-borer infestation continues to spread, it will be necessary for the farmer to incur expense to combat it. But for the present cost inquiry no such expense has been included.

*Adjustments in cost for the 1927 crop.*—Data were obtained from the farmers for the acreage planted, and the cost per acre of preparation, seeding, and cultivation of the crop. Since the study was made before the 1927 crop was harvested, harvesting costs for 1927 were calculated in the following manner: The average yields in the counties where costs were secured for the 1926 crop were obtained

for 1927 from each State crop reporter. The yields per acre for 1927 on the farms visited in each area were determined by applying the ratio between the 1926 and the 1927 average yields, as given by crop reporters, to the average yield per acre for each area obtained from the 1926 schedules. The hours of labor and the hours of horse work in harvesting were adjusted on the acre basis by the differences in yield.

Information as to the wage rates per hour for 1927 was obtained in the commission's farm cost study. The rates per hour for horse work were adjusted by the differences in prices of feed for horses as reported by the United States Department of Agriculture.[8] All other costs per acre, such as taxes, insurance, interest on capital invested, and land rental charges, were assumed to be the same as for 1926. The unit costs for 1927 were obtained by dividing the costs per acre by the adjusted yields.

*Method of weighting agricultural costs.*—Agricultural costs were weighted in accordance with two methods:

Method I: By this method the weighted average costs were obtained by using as weights the quantities of corn shipped out of counties where grown. These shipments were estimated by multiplying the production of corn in each area, obtained from the United States Department of Agriculture, by the percentage of production in that area sold to local elevators as calculated from the tabulation of the farm schedules.

Method II: By this method the weighted average costs were obtained by using as weights the production of corn in counties represented in the investigation.

In both methods, in States having more than one area included in the investigation, the areas were first weighted to obtain an average cost for the State. The costs of the various States were next weighted in the same manner in order to obtain an average weighted cost for the whole producing region. (See Table 13, p. 14.)

## SUMMARY OF FARM COST OF PRODUCING CORN

*Costs for 1926.*—Table 14 gives the detailed summary of the farm costs of producing corn for each State covered by the investigation and the weighted average for the United States in 1926, weighted on the basis of corn shipped out of counties where grown (Method I). This table includes the costs for labor, machine work, materials, use of equipment, and capital charges with interest on land at stated values. Land charges are also presented on a net cash rental basis. The costs also include the cost of shelling and hauling to local elevators.

In Nebraska and Kansas the average yield of corn per acre for 1926 (see Table 13, p. 14) was 8.5 bushels and 8.9 bushels, respectively, below the average of 1924 and 1925. This indicates that a much smaller corn surplus was available for sale in 1926. The fact that the yield was low was substantiated by the results of the commission's investigation in these areas, which indicated that more corn than usual was bought for feed by farmers.

[8] Monthly reports from Crops and Markets.

TABLE 14.—*Corn: Summary by areas of items entering into the cost of growing and delivering to elevator* [1] *on all farms in the United States covered by the cost inquiry of the commission, 1926—Weighted by quantities shipped out of counties where grown, Method I*

[Per bushel, unshrunk [2]]

| Item | Ohio | Indiana | Illinois | Iowa | Minnesota | South Dakota | Nebraska | Kansas | Weighted average, all areas |
|---|---|---|---|---|---|---|---|---|---|
| COST DATA | | | | | | | | | |
| Detailed farm cost: | | | | | | | | | |
| Labor | $0.229 | $0.118 | $0.093 | $0.112 | $0.147 | $0.158 | $0.171 | $0.250 | $0.133 |
| Horse work | .097 | .114 | .084 | .068 | .115 | .164 | .144 | .270 | .112 |
| Machine work hired | .012 | .001 | .001 | .002 | .001 | ..... | .003 | .001 | .002 |
| Tractor work | .029 | .032 | .038 | .030 | .028 | .011 | .004 | .029 | .027 |
| Truck work | ..... | ..... | ..... | ..... | ..... | ..... | .002 | ..... | ..... |
| Auto costs | .015 | .011 | .010 | .011 | .010 | .010 | .019 | .026 | .013 |
| Manure, fertilizer, and lime | .071 | .018 | .014 | .024 | .037 | .038 | .017 | .035 | .023 |
| Seed and twine | .009 | .010 | .011 | .013 | .015 | .016 | .009 | .020 | .011 |
| Equipment and building | .042 | .036 | .032 | .010 | .031 | .018 | .033 | .070 | .037 |
| Taxes | .034 | .038 | .038 | .033 | .030 | .026 | .010 | .076 | .038 |
| Fence and ditch repairs | .008 | .008 | .006 | .006 | .007 | .008 | .007 | .012 | .007 |
| Miscellaneous | .004 | .003 | .002 | .005 | .000 | .008 | .006 | .004 | .004 |
| Shelling costs | .017 | .018 | .015 | .018 | .026 | .025 | .026 | [3] .026 | .019 |
| Hauling to elevator | .031 | .030 | .025 | .025 | .019 | .039 | .034 | .035 | .028 |
| Total gross cost | .598 | .437 | .369 | .417 | .473 | .559 | .515 | .854 | .454 |
| Credits for fodder and cobs | .068 | .013 | .011 | .017 | .015 | .032 | .021 | .050 | .020 |
| Net cost | .530 | .424 | .358 | .400 | .463 | .527 | .494 | .804 | .434 |
| Interest: | | | | | | | | | |
| On land at 6 per cent | .131 | .169 | .235 | .222 | .174 | .241 | .228 | .327 | .218 |
| On other capital | .025 | .028 | .020 | .027 | .021 | .032 | .024 | .041 | .024 |
| Total interest on land and other capital | .156 | .197 | .255 | .249 | .195 | .273 | .252 | .368 | .242 |
| Net cash rental | .125 | .193 | .123 | .166 | .120 | .153 | .159 | .214 | .141 |
| Total net cost delivered at elevator: | | | | | | | | | |
| With interest on land and other capital | .686 | .621 | .613 | .649 | .658 | .800 | .746 | 1.172 | .676 |
| With net cash rental on land and interest on other capital | .680 | .555 | .501 | .593 | .604 | .712 | .677 | 1.059 | .599 |
| Return to farmer per bushel of corn sold | .715 | .582 | .650 | .722 | .615 | .614 | .641 | .652 | .660 |

[1] Cost was calculated as though the entire crop of marketable corn had been shelled on the farm and delivered to elevator.

[2] As shown by the records before making deduction for shrinkage.

[3] The shelling cost found in Nebraska was also used in Kansas as it was considered to be more representative than the shelling cost actually obtained in Kansas.

Table 15 gives the detailed summary of the farm costs of producing corn for each State covered by this investigation and the average for the United States in 1926 weighted on the basis of total production for areas studied (Method II).

TABLE 15.—*Corn: Summary by areas of items entering into the cost of growing and delivering to elevator on all farms in the United States covered by the cost inquiry of the commission, 1926—Weighted on the total production for areas studied, Method II*

[Per bushel—unshrunk [1]]

| Item | Ohio | Indiana | Illinois | Iowa | Minnesota | South Dakota | Nebraska | Kansas | Weighted average, all areas |
|---|---|---|---|---|---|---|---|---|---|
| COST DATA | | | | | | | | | |
| Detailed farm cost: | | | | | | | | | |
| Labor | $0.233 | $0.115 | $0.093 | $0.112 | $0.117 | $0.158 | $0.171 | $0.250 | $0.146 |
| Horse work | .096 | .111 | .084 | .098 | .115 | .161 | .144 | .270 | .118 |
| Machine work hired | .014 | .001 | .001 | .002 | .001 | ..... | .003 | .001 | .003 |
| Tractor work | .029 | .035 | .038 | .030 | .028 | .011 | .004 | .029 | .025 |
| Truck work | ..... | ..... | ..... | ..... | ..... | ..... | .002 | ..... | ..... |
| Auto costs | .015 | .011 | .010 | .011 | .016 | .019 | .019 | .026 | .014 |
| Manure, fertilizer, and lime | .075 | .018 | .014 | .024 | .037 | .038 | .017 | .035 | .029 |
| Seed and twine | .010 | .010 | .011 | .013 | .015 | .015 | .009 | .020 | .012 |
| Equipment and building | .042 | .036 | .032 | .040 | .031 | .048 | .033 | .070 | .038 |
| Taxes | .034 | .037 | .038 | .033 | .030 | .026 | .010 | .076 | .037 |
| Fence and ditch repairs | .008 | .008 | .006 | .006 | .007 | .008 | .007 | .012 | .007 |
| Miscellaneous | .004 | .003 | .002 | .005 | .006 | .008 | .006 | .004 | .004 |
| Shelling costs [3] | .017 | .018 | .015 | .018 | .026 | .025 | .026 | [3] .026 | .020 |
| Hauling to elevator [2] | .030 | .032 | .025 | .025 | .019 | .039 | .034 | .035 | .031 |
| Total gross cost | .607 | .435 | .369 | .417 | .478 | .559 | .515 | .854 | .484 |
| Credit for fodder and cobs | .069 | .013 | .011 | .017 | .015 | .032 | .021 | .070 | .025 |
| Net cost | .538 | .422 | .358 | .400 | .463 | .527 | .494 | .804 | .459 |
| Interest: | | | | | | | | | |
| On land at 6 per cent | .128 | .104 | .235 | .222 | .174 | .241 | .230 | .327 | .212 |
| On other capital at 6 per cent | .025 | .027 | .020 | .027 | .021 | .032 | .021 | .041 | .025 |
| Total interest on land and other capital | .153 | .131 | .255 | .249 | .195 | .273 | .254 | .368 | .237 |
| Net cash rental | .128 | .103 | .123 | .166 | .120 | .153 | .160 | .214 | .113 |
| Total net cost delivered at elevator: | | | | | | | | | |
| With interest on land and other capital | .691 | .613 | .613 | .649 | .658 | .800 | .748 | 1.172 | .696 |
| With net cash rental on land and interest on other capital | .691 | .552 | .501 | .593 | .604 | .712 | .678 | 1.059 | .627 |
| Return to farmer per bushel of corn sold | .724 | .583 | .650 | .722 | .615 | .614 | .641 | .852 | .662 |

[1] As shown by records before making deduction for shrinkage.
[2] Cost calculated as though the entire crop of marketable corn had been shelled on the farm and delivered to the elevators.
[3] The shelling cost as found in Nebraska was also used in Kansas as it was considered to be more representative than the shelling cost obtained in Kansas.

Table 16 gives a detailed summary of costs with all corn shrunk to its weight as of June 1 except for corn sold after that date, in which case the actual weight at the time of sale was used. The basic data from which this table is compiled and the method of weighting (Method I) are the same as those used in the compilation of Table 14. The tables differ in the following respect: In calculating costs per bushel, in Table 16, total costs for the areas are divided by the shrunk instead of the unshrunk weight of corn produced, as in Table 14.

TABLE 16.—*Corn: Summary by areas of items entering into the cost of growing and delivering to elevator on all farms in the United States covered by the cost inquiry of the commission, 1926—Weighted by quantities shipped out of counties where grown, Method I*

[Per bushel—shrunk [1]]

| Item | Ohio | Indiana | Illinois | Iowa | Minnesota | South Dakota | Nebraska | Kansas | Weighted average for all areas |
|---|---|---|---|---|---|---|---|---|---|
| COST DATA | | | | | | | | | |
| Detailed farm cost: | | | | | | | | | |
| Labor | $0.261 | $0.123 | $0.102 | $0.125 | $0.167 | $0.180 | $0.160 | $0.284 | $0.148 |
| Horse work | .111 | .128 | .093 | .108 | .130 | .187 | .161 | .306 | .125 |
| Machine work hired | .014 | .001 | .001 | .002 | .001 | ..... | .003 | .001 | .002 |
| Tractor work | .033 | .036 | .041 | .033 | .032 | .012 | .005 | .033 | .030 |
| Truck work | ..... | ..... | ..... | ..... | ..... | ..... | .003 | ..... | .001 |
| Automobile costs | .010 | .013 | .011 | .012 | .018 | .021 | .021 | .030 | .015 |
| Manure, fertilizer, and lime | .080 | .020 | .015 | .026 | .043 | .043 | .019 | .039 | .026 |
| Seed and twine | .011 | .012 | .012 | .014 | .017 | .017 | .010 | .023 | .013 |
| Equipment and building | .048 | .041 | .036 | .043 | .035 | .055 | .037 | .080 | .041 |
| Taxes | .039 | .043 | .041 | .036 | .034 | .039 | .041 | .086 | .041 |
| Fence and ditch repairs | .009 | .009 | .006 | .007 | .006 | .009 | .008 | .014 | .007 |
| Miscellaneous | .005 | .003 | .003 | .006 | .007 | .009 | .006 | .004 | .004 |
| Shelling costs [3] | .019 | .020 | .017 | .020 | .030 | .029 | .029 | [3] .029 | .022 |
| Hauling to elevator [2] | .036 | .033 | .027 | .027 | .022 | .044 | .038 | .040 | .031 |
| Total gross cost | .682 | .482 | .405 | .459 | .544 | .636 | .574 | .909 | .506 |
| Credits for fodder and cobs | .077 | .015 | .012 | .019 | .017 | .036 | .024 | .057 | .023 |
| Net cost | .605 | .467 | .393 | .440 | .527 | .600 | .550 | .912 | .483 |
| Interest: | | | | | | | | | |
| On land at 6 per cent | .148 | .189 | .253 | .244 | .197 | .272 | .254 | .371 | .242 |
| On other capital, 6 per cent | .029 | .032 | .022 | .030 | .024 | .036 | .027 | .047 | .027 |
| Total interest on land and other capital | .177 | .221 | .280 | .274 | .221 | .308 | .281 | .418 | .269 |
| Net cash rental | .125 | .115 | .136 | .182 | .136 | .168 | .178 | .243 | .156 |
| Total net cost delivered at elevator: | | | | | | | | | |
| With interest on land and other capital | .782 | .688 | .673 | .714 | .748 | .908 | .831 | 1.330 | .752 |
| With net cash rental on land and interest on other capital | .759 | .614 | .551 | .652 | .687 | .804 | .755 | 1.202 | .666 |
| Returns to farmer per bushel of corn sold | .771 | .632 | .686 | .750 | .654 | .663 | .691 | .723 | .701 |

[1] All corn has been shrunk to its weight as of June 1, except corn sold after that time, in which case the sales weight was used.

[2] Cost calculated as though the entire crop of marketable corn had been shelled on the farm and delivered to elevator.

[3] The shelling cost found in Nebraska was also used in Kansas as it was considered to be more representative than the shelling cost actually obtained in Kansas.

Table 17 gives the detailed summary of costs with all corn shrunk to its weight as of June 1, except corn sold after that date, in which case the actual weight at the time of sale was used. The basic data from which this table was compiled and the method of weighting (Method II) are the same as those used in the compilation of Table 15. The tables differ in the following respect: In calculating the cost per bushel in Table 17 the total cost for the areas is divided by the shrunk instead of the unshrunk weight of the corn produced, as in Table 15.

TABLE 17.—*Corn: Summary by areas of items entering into the cost of growing and delivering to all elevators on all farms in the United States covered by the cost inquiry of the commission, 1926—Weighted on basis of total corn produced in area, Method II*

[Per bushel—shrunk [1]]

| Item | Ohio | Indiana | Illinois | Iowa | Minnesota | South Dakota | Nebraska | Kansas | Weighted average, all areas |
|---|---|---|---|---|---|---|---|---|---|
| COST DATA | | | | | | | | | |
| Detailed farm cost: | | | | | | | | | |
| Labor | $0.206 | $0.130 | $0.102 | $0.125 | $0.167 | $0.180 | $0.190 | $0.284 | $0.164 |
| Horse work | .110 | .125 | .093 | .108 | .130 | .187 | .161 | .306 | .132 |
| Machine work hired | .016 | ------- | .001 | .002 | .001 | ------- | .003 | .001 | .003 |
| Tractor work | .033 | .038 | .041 | .033 | .032 | .012 | .005 | .033 | .028 |
| Truck work | ------- | ------- | ------- | ------- | ------- | ------- | .003 | ------- | .001 |
| Automobile costs | .016 | .013 | .011 | .012 | .016 | .021 | .021 | .030 | .016 |
| Manure, fertilizer, and lime | .085 | .021 | .015 | .026 | .043 | .043 | .020 | .039 | .033 |
| Seed and twine | .011 | .012 | .012 | .014 | .017 | .017 | .010 | .023 | .013 |
| Equipment and building | .048 | .041 | .036 | .043 | .035 | .055 | .037 | .080 | .043 |
| Taxes | .030 | .042 | .041 | .036 | .034 | .030 | .044 | .086 | .041 |
| Fence and ditch repairs | .009 | .008 | .006 | .007 | .008 | .009 | .008 | .014 | .008 |
| Miscellaneous | .005 | .003 | .003 | .005 | .007 | .009 | .006 | .004 | .005 |
| Shelling costs [3] | .019 | .020 | .017 | .026 | .030 | .029 | .029 | [3] .029 | .023 |
| Hauling to elevator [2] | .034 | .035 | .027 | .027 | .022 | .044 | .038 | .040 | .032 |
| Total gross cost | .691 | .488 | .405 | .459 | .544 | .636 | .575 | .939 | .542 |
| Credit for fodder and cobs | .078 | .015 | 012 | .019 | .017 | .030 | .024 | .057 | .028 |
| Net cost | .613 | .473 | .393 | .440 | .527 | .600 | .551 | .912 | .514 |
| Interest: | | | | | | | | | |
| On land at 6 per cent | .145 | .184 | .258 | .244 | .197 | .272 | .250 | .371 | .235 |
| On other capital, 6 per cent | .029 | .031 | .022 | .030 | .024 | .036 | .027 | .047 | .028 |
| Total interest on land and other capital | .174 | .215 | .280 | .274 | .221 | .308 | .283 | .418 | .264 |
| Net cash rental | .126 | .115 | .136 | .182 | .136 | .168 | .178 | .243 | .157 |
| Total net cost delivered at elevator: | | | | | | | | | |
| With interest on land and other capital | .787 | .688 | .673 | .714 | .748 | .908 | .834 | 1.330 | .778 |
| With net cash rental on land and interest on other capital | .768 | .619 | .551 | .652 | .687 | .804 | .756 | 1.202 | .699 |
| Return to farmer per bushel of corn sold | .778 | .632 | .680 | .760 | .654 | .663 | .692 | .723 | .705 |

[1] All corn has been shrunk to its weight as of June 1, except corn sold after that time, in which case the sales weight was used.

[2] Cost calculated as though the entire crop of marketable corn had been shelled on the farm and delivered to the elevators.

[3] The shelling cost as found in Nebraska was also used in Kansas, as it was considered to be more representative than the shelling cost obtained in Kansas.

Over one-half of the farm cost of production was for labor and horse work. The percentages of gross costs for the principal groups of cost items are as follows: Labor, 29.3 per cent; horse work, 24.7 per cent; machine work hired, tractor work, and use of automobile, 9.2 per cent; materials, 7.5 per cent; use of equipment and taxes, 16.5 per cent; shelling and hauling to elevators, 10.4 per cent; and other miscellaneous costs, 2.4 per cent. Interest at 6 per cent on the investment in land was 24.2 cents per bushel, or 8.6 cents higher than the charge for the use of land on the net cash rental basis.

*Costs for 1927 weighted by Method I.*—Table 18 gives the farm cost of producing corn for 1927 weighted on the basis of quantities shipped out of counties where grown. The season of 1927 was extremely favorable for the corn crop in the region west of the Missouri River. In this region the crop was one of the best for years, which was the reverse of the crop for 1926. As a result of the difference in yields, the cost for 1927, on the shrunk basis, with interest on investment in

land and other capital computed at 6 per cent, was 72.8 cents per bushel in Nebraska and $1.06 in Kansas, as against 83 cents and $1.33 per bushel, respectively, for these two States in 1926. On the shrunk basis, with land charges computed on the net cash rental basis, the cost in 1927 was 67 cents in Nebraska and 96 cents in Kansas, as against a cost in 1926 of 76 cents in Nebraska and $1.20 in Kansas. In the region east of the Missouri River the yield was about 85 per cent of the 1926 crop and the cost about 8 cents more than the cost per bushel in 1926. The average cost per bushel for the whole region covered by the inquiry was 77.9 cents per bushel in 1927 as compared with 75.2 cents in 1926, with interest on land and other capital computed at 6 per cent. With charges for the use of land computed on the net cash rental basis, the average cost for the whole region was 68.7 cents in 1927 as compared with 66.6 cents in 1926.

TABLE 18.—*Corn: Summary, by areas, of items entering into the cost of growing and delivering to country elevators on all farms in the United States covered by cost inquiry of the commission, 1927—Weighted by quantities shipped out of counties where grown, Method I*

[Per bushel—shrunk [1]]

| Item | Ohio | Indiana | Illinois | Iowa | Minnesota | South Dakota | Nebraska | Kansas | Weighted average, United States |
|---|---|---|---|---|---|---|---|---|---|
| COST DATA | | | | | | | | | |
| Detailed farm cost: | | | | | | | | | |
| Labor | $0.273 | $0.158 | $0.107 | $0.123 | $0.169 | $0.153 | $0.185 | $0.233 | $0.150 |
| Horse work | .121 | .109 | .105 | .119 | .138 | .169 | .147 | .252 | .131 |
| Machine work hired | .017 | ..... | .002 | .005 | .001 | ..... | .002 | ..... | .003 |
| Tractor work | .047 | .064 | .045 | .031 | .031 | .006 | .007 | .016 | .034 |
| Truck work | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Automobile costs | .019 | .018 | .012 | .013 | .018 | .016 | .018 | .024 | .015 |
| Manure, fertilizer, and lime | .051 | .020 | .015 | .024 | .038 | .024 | .013 | .021 | .021 |
| Seed and twine | .013 | .018 | .014 | .013 | .016 | .013 | .008 | .018 | .013 |
| Equipment and buildings | .060 | .059 | .041 | .047 | .035 | .042 | .029 | .063 | .043 |
| Taxes | .048 | .064 | .017 | .039 | .034 | .023 | .037 | .068 | .044 |
| Fence and ditch repairs | .011 | .013 | .007 | .008 | .008 | .007 | .006 | .011 | .008 |
| Miscellaneous | .007 | .005 | .003 | .006 | .007 | .007 | .004 | .003 | .005 |
| Shelling costs [2] | .019 | .020 | .017 | .020 | .030 | .029 | .029 | [3] .020 | .022 |
| Hauling to elevator [2] | .036 | .033 | .027 | .027 | .022 | .044 | .038 | .040 | .031 |
| Total gross costs | .722 | .611 | .442 | .475 | .547 | .533 | .523 | .778 | .520 |
| Credits—Fodder and cobs | .095 | .021 | .013 | .020 | .017 | .028 | .016 | .045 | .023 |
| Net cost | .627 | .620 | .429 | .455 | .530 | .505 | .507 | .733 | .497 |
| Interest: | | | | | | | | | |
| On land at 6 per cent | .187 | .280 | .294 | .261 | .197 | .207 | .200 | .293 | .254 |
| On other capital at 6 per cent | .035 | .047 | .024 | .032 | .024 | .028 | .021 | .037 | .028 |
| Total interest on land and other capital | .222 | .327 | .318 | .293 | .221 | .235 | .221 | .330 | .282 |
| Net cash rental | .154 | .169 | .154 | .195 | .136 | .128 | .144 | .192 | .162 |
| Total net cost delivered at elevator: | | | | | | | | | |
| With interest on land and other capital | .849 | .947 | .747 | .748 | .751 | .740 | .728 | 1.063 | .779 |
| With net cash rental on land and interest on other capital | .816 | .836 | .607 | .682 | .690 | .661 | .672 | .962 | .687 |

[1] All corn has been shrunk to its weight as of June 1, except corn sold after that time, in which case the sales weight was used.

[2] Cost calculated as though the entire crop of marketable corn had been shelled on the farm and delivered to elevator.

[3] The shelling cost found in Nebraska was also used in Kansas as it was considered to be more representative than the shelling cost actually obtained in Kansas.

*Costs for 1927 weighted by Method II.*—Table 19 gives the farm cost of producing corn for 1927 weighted on basis of total production of corn in areas covered by investigation. The cost for 1927, on the shrunk basis, with interest on investment in land and other capital computed at 6 per cent, was 72 cents per bushel in Nebraska and $1.06 in Kansas, as against 83 cents and $1.33 per bushel, respectively, for these two States in 1926. On the shrunk basis, with land charges computed on the net cash rental basis, the cost in 1927 was 67 cents in Nebraska and 96 cents in Kansas, as against a cost in 1926 of 76 cents in Nebraska and $1.20 in Kansas. The average cost per bushel for the whole region covered by the inquiry was 78.1 cents per bushel in 1927, as compared with 77.8 cents in 1926, with interest on land and other capital computed at 6 per cent. With charges for the use of land computed on the net cash rental basis, the average cost for the whole region was 70.1 cents in 1927 as compared with 69.9 cents in 1926.

TABLE 19.—*Corn: Summary by areas of items entering into the cost of growing and delivering to elevator on all farms in United States covered by the cost inquiry of the commission, 1927—Weighted on total production in areas studied, Method II*

[Per bushel—shrunk [1]]

| Item | Ohio | Indiana | Illinois | Iowa | Minnesota | South Dakota | Nebraska | Kansas | Weighted average, all areas |
|---|---|---|---|---|---|---|---|---|---|
| COST DATA | | | | | | | | | |
| Detailed farm costs: | | | | | | | | | |
| Labor | $0.280 | $0.154 | $0.107 | $0.123 | $0.169 | $0.153 | $0.184 | $0.233 | $0.164 |
| Horse work | .122 | .160 | .105 | .119 | .138 | .169 | .143 | .252 | .135 |
| Machine work hired | .019 | ------- | .002 | .005 | .001 | ------- | .002 | ------- | .004 |
| Tractor work | .044 | .006 | .045 | .031 | .031 | .006 | .006 | .016 | .031 |
| Automobile costs | .020 | .017 | .012 | .013 | .018 | .016 | .018 | .024 | .016 |
| Manure, fertilizer, and lime | .055 | .019 | .015 | .024 | .038 | .024 | .013 | .021 | .025 |
| Seed and twine | .013 | .017 | .014 | .013 | .016 | .013 | .008 | .018 | .013 |
| Equipment and building | .058 | .058 | .041 | .047 | .035 | .012 | .029 | .063 | .044 |
| Taxes | .047 | .062 | .047 | .039 | .034 | .023 | .036 | .068 | .042 |
| Fence and ditch repairs | .011 | .013 | .007 | .008 | .008 | .007 | .006 | .011 | .008 |
| Miscellaneous | .006 | .005 | .003 | .006 | .007 | .007 | .004 | .003 | .005 |
| Shelling costs [3] | .019 | .020 | .017 | .020 | .030 | .029 | .029 | [3] .029 | .023 |
| Hauling to elevator [2] | .034 | .035 | .027 | .027 | .022 | .044 | .038 | .040 | .032 |
| Total gross cost | .728 | .626 | .442 | .475 | .547 | .533 | .516 | .778 | .542 |
| Credit for fodder and cobs | .095 | .021 | .013 | .020 | .017 | .028 | .016 | .045 | .029 |
| Net cost | .633 | .605 | .429 | .455 | .530 | .505 | .500 | .733 | .513 |
| Interest: | | | | | | | | | |
| On land at 6 per cent | .179 | .270 | .294 | .201 | .107 | .207 | .199 | .293 | .239 |
| On other capital at 6 per cent | .035 | .046 | .024 | .032 | .024 | .028 | .021 | .037 | .029 |
| Total | .214 | .316 | .318 | .293 | .221 | .235 | .220 | .330 | .268 |
| Net cash rental | .153 | .167 | .154 | .195 | .136 | .128 | .144 | .192 | .159 |
| Total net cost delivered at elevator: | | | | | | | | | |
| With interest on land and other capital | .847 | .921 | .747 | .748 | .751 | .740 | .720 | 1.063 | .781 |
| With net cash rent on land and interest on other capital | .821 | .818 | .607 | .682 | .690 | .661 | .665 | .962 | .701 |

[1] All corn has been shrunk to weight as of June 1, except corn sold after that time, in which case the sales weight was used.

[2] Cost calculated as though the entire crop of marketable corn had been shelled on farm and delivered to elevators.

[3] Shelling cost as found in Nebraska was also used for Kansas as it was considered to be more representative than the shelling cost obtained in Kansas.

*Costs for eastern and western areas in 1926 and 1927.*—Since very little corn from west of the Missouri River moves eastward and very little from south and east of Chicago moves westward, while corn from Iowa and Minnesota moves in both directions, the region covered by the cost inquiry has been divided and farm costs have been determined for the two following areas: (1) Ohio, Indiana, Illinois, Iowa, and Minnesota, from which States corn is shipped to the Atlantic coast; and (2) Minnesota, Iowa, South Dakota, Nebraska, and Kansas, from which States corn is shipped to the Pacific coast.

Table 20 gives the farm cost of production for 1926, 1927, and the 2-year average for the eastern section, for the western section, and for the whole region covered by the commission's investigation for these years. The averages in this table are obtained by weighting on the basis of shipments out of counties where grown, Method I.

TABLE 20.—*Corn: Summary of items entering into the cost of growing and delivering to elevator segregated by regions shipping to the Atlantic and Pacific coasts, years 1926 and 1927—Weighted by quantities shipped out of counties where grown, Method I*

[Per bushel, shrunk [1]]

| Item | Ohio, Indiana, Illinois, Iowa, and Minnesota | | | Iowa, Minnesota, South Dakota, Nebraska, and Kansas | | | Total United States | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1926 | 1927 | Average | 1926 | 1927 | Average | 1926 | 1927 | Average |
| COST DATA | | | | | | | | | |
| Detailed farm cost: | | | | | | | | | |
| Labor | $0.130 | $0.137 | $0.134 | $0.166 | $0.159 | $0.162 | $0.148 | $0.150 | $0.149 |
| Horse work | .106 | .120 | .113 | .146 | .142 | .144 | .125 | .131 | .128 |
| Machine work hired | .002 | .004 | .003 | .002 | .003 | .003 | .002 | .003 | .003 |
| Tractor work | .037 | .043 | .040 | .022 | .020 | .021 | .030 | .034 | .032 |
| Truck work | | | | | | | .001 | | |
| Automobile costs | .012 | .014 | .013 | .017 | .016 | .016 | .015 | .015 | .015 |
| Manure, fertilizer, and lime | .027 | .023 | .025 | .027 | .021 | .024 | .026 | .021 | .024 |
| Seed and twine | .013 | .014 | .014 | .014 | .012 | .013 | .013 | .013 | .013 |
| Equipment and buildings | .040 | .046 | .043 | .043 | .040 | .042 | .041 | .043 | .042 |
| Taxes | .039 | .046 | .042 | .042 | .039 | .040 | .041 | .044 | .042 |
| Fence and ditch repairs | .007 | .009 | .008 | .008 | .008 | .008 | .007 | .008 | .008 |
| Miscellaneous | .004 | .005 | .004 | .006 | .005 | .006 | .004 | .005 | .004 |
| Shelling costs [2] [3] | .019 | .019 | .019 | .025 | .025 | .025 | .022 | .022 | .022 |
| Hauling to elevator [2] | .028 | .028 | .028 | .032 | .032 | .032 | .031 | .031 | .031 |
| Total gross cost | .464 | .508 | .486 | .550 | .522 | .536 | .506 | .520 | .513 |
| Credits—fodder and cobs | .021 | .024 | .022 | .024 | .020 | .022 | .023 | .023 | .023 |
| Net cost | .443 | .484 | .464 | .526 | .502 | .514 | .483 | .497 | .490 |
| Interest: | | | | | | | | | |
| On land at 6 per cent | .232 | .267 | .249 | .252 | .232 | .243 | .242 | .254 | .248 |
| On other capital at 6 per cent | .026 | .030 | .028 | .030 | .027 | .029 | .027 | .028 | .028 |
| Total interest on land and other capital | .258 | .297 | .277 | .282 | .259 | .271 | .269 | .282 | .276 |
| Net cash rental | .146 | .167 | .156 | .179 | .167 | .173 | .156 | .162 | .159 |
| Total net cost delivered at elevator: | | | | | | | | | |
| With interest on land and other capital | .701 | .781 | .741 | .808 | .761 | .785 | .752 | .779 | .766 |
| With net cash rental on land and interest on other capital | .615 | .681 | .648 | .735 | 696 | .716 | .666 | .687 | .677 |
| Returns to farmer per bushel of corn sold | .703 | | | .713 | | | .701 | | |

[1] All corn has been shrunk to its weight as of June 1, except corn sold after that time, in which case the sales weight was used.

[2] Cost was calculated as though the entire crop of marketable corn had been shelled on the farm and delivered to elevator.

[3] The shelling cost found in Nebraska was also used in Kansas as it was considered to be more representative than the shelling costs actually obtained in Kansas.

Table 21 gives the farm costs of production for 1926, 1927, and the 2-year average for the whole region covered by the commission's investigation for these years. The averages in this table are obtained by weighting on the basis of total production for areas studied. (Method II.)

TABLE 21.—*Corn: Summary of items entering into the cost of growing and delivering to elevators; averages for United States for the years 1926 and 1927, and the 2-year average—Weighted on basis of total production, Method II*

[Per bushel, shrunk [1]]

| Item | Weighted average for— | | 2-year average |
|---|---|---|---|
| | 1926 | 1927 | |
| COST DATA | | | |
| Detailed farm costs: | | | |
| Labor | $0.164 | $0.164 | $0.164 |
| Horse work | .132 | .135 | .133 |
| Machine work hired | .003 | .004 | .003 |
| Tractor work | .028 | .031 | .030 |
| Truck work | .001 | | |
| Automobile cost | .016 | .016 | .016 |
| Manure, fertilizer, and lime | .033 | .025 | .029 |
| Seed and twine | .013 | .013 | .013 |
| Equipment and building | .043 | .044 | .044 |
| Taxes | .041 | .042 | .042 |
| Fence and drainage repairs | .008 | .008 | .008 |
| Miscellaneous | .005 | .005 | .005 |
| Shelling costs [2] | .023 | .023 | .023 |
| Hauling to elevator [3] | .032 | .032 | .032 |
| Total gross cost | .542 | .542 | .542 |
| Credit for fodder and cobs | .028 | .029 | .028 |
| Net cost | .514 | .513 | .514 |
| Interest: | | | |
| On land at 6 per cent | .236 | .239 | .238 |
| On other capital at 6 per cent | .028 | .029 | .028 |
| Total | .264 | .268 | .266 |
| Net cash rental | .157 | .159 | .158 |
| Total net cost delivered at elevator: | | | |
| With interest on land and other capital | .778 | .781 | .780 |
| With net cash rent on land and interest on other capital | .699 | .701 | .700 |
| Returns to farmer per bushel of corn sold | .705 | | |

[1] All corn has been shrunk to its weight as of June 1, except corn sold after that time, in which case the sales weight was used.

[2] The shelling cost found in Nebraska was also used in Kansas as it was considered to be more representative than the shelling cost obtained in Kansas.

[3] Cost calculated as though the entire marketable corn crop had been shelled on the farm and delivered to the elevator.

## FOREIGN COSTS OF PRODUCTION

Because of representations made by the Argentine ambassador in Washington, it was deemed impracticable to obtain data in that country as to the cost of growing corn. As evidence of costs in Argentina, data were compiled from consular invoices of imports of corn at New York, San Francisco, and Seattle. The commission also gathered from published reports of the Argentine Minister of Agriculture information as to market prices (see section on prices, p. 11), yields per acre, wages paid, and value of land in the corn-growing sections of Argentina.

## ANALYSIS OF INVOICES OF IMPORTED CORN

The commission has tabulated the data shown on consular invoices for purchased shipments of corn from Argentina to New York and to San Francisco and Seattle for the calendar years 1926 and 1927. These data represent 62.4 per cent of total imports for consumption of corn on the Atlantic coast, and 92.7 per cent on the Pacific coast, in 1926; 62.9 per cent of the imports for consumption on the Atlantic coast, and 60.1 per cent on the Pacific coast, for 1927.

*Analysis of c. i. f. New York prices of Argentine corn.*—Table 22 shows for the calendar years 1926 and 1927, and for the 2-year average, total price f. o. b. Buenos Aires; total price c. i. f. New York; credits and landing charges; and net prices at New York, including and excluding the Argentine export tax. The principal items of transportation cost, such as ocean freight, loading and shipping charges, and consular fees, are shown in the section dealing with transportation to the principal competitive markets (see p. 39).

TABLE 22.—*Corn: Analysis of Argentine invoice data for corn received at New York, calendar years 1926 and 1927, and 2-year average* [1]

[Per bushel, duty weight]

| | 1926 | 1927 | 2-year average (simple) |
|---|---|---|---|
| Total price, f. o. b. Buenos Aires [2] | $0.945 | $0.723 | $0.834 |
| Total price, c. i. f. New York | 1.066 | .847 | .956 |
| Deduct credits—used bags | .024 | .024 | .024 |
| Net price, c. i. f. New York | 1.042 | .823 | .932 |
| Landing charges at New York | | .007 | .004 |
| Net price landed at New York: | | | |
| Including export tax | 1.042 | .830 | .936 |
| Excluding export tax | 1.027 | .827 | .927 |
| Quantities covered in analysis: | | | |
| Duty-weight of corn.....bushels | 70,687 | 1,779,662 | 925,174 |
| Bags credited.....number | 28,604 | 12,178 | 20,391 |

[1] Price converted to United States gold on rate of exchange at dates of invoice; 1 consigned shipment only not covered in analysis.
[2] Includes various charges for loading, handling, export duty, etc., incurred in Argentina.

Most of the invoices were entered in United States gold. Of the invoice prices of corn entered at New York in 1926 and 1927, covered in Table 22, it was necessary to convert only three into American money at noon buying cable transfer rates in New York on invoice dates.

All items shown in Table 22, were computed on duty weight which represents the net weight of salable corn entered at the port of New York. Information was not available with respect to the value of used corn bags, except for a few invoices at New York in 1927. From importers of flaxseed from Argentina data were obtained as to the average value of used flaxseed bags, and these values were considered in computing the credit for bags.

The imports from Argentina to New York for the period November, 1926, to June, 1927, were relatively light compared with the quantities received between July 1 and October 31. In fact, the quantities represented by invoices for the first six months of this

period were but 2 per cent of the total quantity for the 12 months. The average c. i. f. price is practically the same for this period as for the calendar year 1927.

*Analysis of c. i. f. Pacific coast prices of Argentine corn.*—Table 23 shows for the calendar years 1926 and 1927 invoice prices f. o. b. at Buenos Aires and c. i. f. prices at San Francisco and Seattle computed on duty weights, both including and excluding export tax from Argentina, the average for both Pacific coast ports for each year, and the average for both years.

TABLE 23.—*Corn: Analysis of Argentine data for corn received on the Pacific coast, calendar years 1926 and 1927* [1]

| Item | 1926 (duty weight) | | | 1927 (duty weight) | | | 2-year simple average (duty weight) | | |
|---|---|---|---|---|---|---|---|---|---|
| | San Francisco | Seattle | Weighted average | San Francisco | Seattle | Weighted average | San Francisco | Seattle | The two cities |
| Total price f. o. b. Buenos Aires [2] | $0.789 | $0.807 | $0.790 | $0.908 | $0.911 | $0.868 | $0.799 | $0.859 | $0.829 |
| Total price c. i. f. Pacific coast | .944 | .902 | .947 | .987 | 1.004 | 1.049 | .966 | 1.043 | .998 |
| Deduct credits—used bags | .028 | .028 | .028 | .028 | .028 | .028 | .028 | .028 | .028 |
| Net price c. i. f. Pacific coast: [3] | | | | | | | | | |
| Including export tax | .916 | .964 | .919 | .959 | 1.066 | 1.021 | .938 | 1.015 | .970 |
| Excluding export tax | .914 | .962 | .917 | .957 | 1.064 | 1.019 | .936 | 1.013 | .968 |
| Quantities covered in analysis: | | | | | | | | | |
| Duty weight of corn...bushels | 529,728 | 36,487 | 566,215 | 643,186 | 884,213 | 1,527,399 | 586,457 | 460,350 | 1,046,807 |
| Bags credited.....number | 215,369 | 15,715 | 231,084 | 252,416 | 353,016 | 605,432 | 233,893 | 184,365 | 418,258 |

[1] Prices converted to United States gold on rates of exchange at date of invoice. No consigned shipments in 1926; 4 consignments in 1927 not used.
[2] Includes various charges for loading, handling, export duty, etc.
[3] Does not include landing charges; no data obtained for these charges by commission.

## COLLATERAL INFORMATION ON COST FACTORS OBTAINED FROM PUBLISHED REPORTS

*Yields per acre.*—Table 24 gives the average yields of corn per acre in the Provinces of Buenos Aires, Santa Fe, and Cordoba.

TABLE 24.—*Corn: Yields per acre in the corn-growing regions of Argentina, 1916–17 to 1925–26*

[Source: El Maiz en la Argentina, Ministerio Agricultura—Paseo colon, 974]

| Crop year | Buenos Aires | Santa Fe | Cordoba | Average |
|---|---|---|---|---|
| | *Bushels* | *Bushels* | *Bushels* | *Bushels* |
| 1916–17 | 11.8 | 11.1 | 6.4 | 10.6 |
| 1917–18 | 24.2 | 22.9 | 8.5 | 21.1 |
| 1918–19 | 30.2 | 28.7 | 23.9 | 28.4 |
| 1919–20 | 34.4 | 33.4 | 25.5 | 32.2 |
| 1920–21 | 32.7 | 28.3 | 23.9 | 29.4 |
| 1921–22 | 29.7 | 28.9 | 16.9 | 25.3 |
| 1922–23 | 21.6 | 31.0 | 15.3 | 23.0 |
| 1923–24 | 33.3 | 49.1 | 4.0 | 31.4 |
| 1924–25 | 19.1 | 25.5 | 22.8 | 21.7 |
| 1925–26 | 38.0 | 35.8 | 26.5 | 34.6 |
| 10-year average | 27.5 | 29.1 | 17.4 | 26.0 |

Of the annual average production in the three principal Provinces of Argentina, 192,447,000 bushels during the 10-year period 1916–17 to 1925–26, the Province of Buenos Aires produced 48.7 per cent; Santa Fe, 36.2 per cent; and Cordoba, 15.1 per cent.

The average yield of corn per acre in the three Provinces for the 1925–26 crop year, which compares more closely with the 1926 crop year for which costs were obtained in the United States, was 34.6 bushels per acre, 8.6 bushels, or 33 per cent above the 10-year average yield. Moreover, this yield was the highest of any year since 1916 and was 2.1 bushels above the corresponding crop year (1926) in the Corn Belt of the United States. In the Province of Cordoba, which suffers more from drought than the other two Provinces, the corn crop was almost a failure in 3 years of the 10-year period.

*Wages.*—Table 25 gives for different classes of labor the average wages converted from Argentine paper pesos to American money at the average New York rate of exchange for the period covered.

TABLE 25.—*Corn: Average wage per day or per month, for different classes of labor, 1925–26*

[Source: Anuario de Estadistica Agro-Pecuario, Seccion B, 1925–26, pp. 138 and 139]

| Province | Preparation and seeding by peons | | Daily wages paid harvesters [1] | | | | | Husking corn by peons |
|---|---|---|---|---|---|---|---|---|
| | | | Tractor operators | Teamsters | Day laborers | Machine operators | Ox drivers | |
| | *Per day* | *Per month* | | | | | | *Per day* |
| Buenos Aires | $1.12 | $24.47 | $4.26 | $2.26 | $2.20 | $3.74 | $1.03 | $1.66 |
| Santa Fe | 1.01 | 22.38 | 4.89 | 2.54 | 2.67 | 3.92 | .87 | 2.83 |
| Cordoba | 1.06 | 25.49 | 4.45 | 2.89 | 3.04 | 4.27 | 1.01 | 2.45 |

[1] Not stated whether with or without board; but it is assumed to be with board.

*Land values.*—The average value per acre of all farm land, in districts where most of the corn is grown, is as follows: Buenos Aires $56.49; Santa Fe, $52.75; and Cordoba, $33.05. The average of the three districts weighted by acres of corn grown was $50.70 per acre as compared with $129.72 per acre, the average in the areas covered by the investigation in the Corn Belt of the United States.

## MARKETING, COMPETITIVE CONDITIONS, AND TRANSPORTATION

### MARKETING

*Marketing of domestic corn.*—The farmers usually sell corn shelled to country elevators which in turn sell it in car lots to commission men or terminal elevators at Chicago, Omaha, Kansas City, St. Louis, Indianapolis, or some one of several leading terminal markets.[1] At times the farmer sells in car lots to the country elevator or to commission men at the country point, or he may pay the country elevator for storing his corn, believing that it will be to his interest to defer sale, but the sale by wagonload as it is brought to the elevator is customary.

*Mixing, conditioning, cleaning, and drying of corn.*—While country elevators sometimes have drying and cooling apparatus and other

[1] The six other primary markets as listed by the U. S. Department of Agriculture are Peoria, Milwaukee, Minneapolis, Duluth, Toledo, and Detroit.

machinery for conditioning grain they do not ordinarily sell corn in other than condition received, except for the drying it undergoes while in the bins, the time it is held not often exceeding 10 days. Some mixing, conditioning, and cleaning takes place. Wet corn which is in danger of heating is mixed with dry corn which absorbs the greater part of the moisture before the corn reaches the terminal market. Conditioning consists principally in elevating the corn and running it through the bins several times, which assists the drying process. Cleaning is sometimes done at country points to reduce the amount of screenings and avoid payment of freight on them, though this operation is more often done at terminal points. Drying improves the grade while it shrinks the quantity and these factors are balanced against one another and reflected in the price received by the country elevator.

*Discussion of items entering into country-elevator costs.*—The cost of marketing corn includes the cost of handling at country elevators, and the cost of handling, drying, and storage at the terminal elevators.

The accounting year was for the period for which an auditor's report was available, in most cases for the year ending December 31, 1926. Items of expense such as wages, power, heat and light, taxes and insurance, office expense, and repairs were taken from the books of the elevator. Other data were compiled as follows:

*Depreciation.*—Depreciation was taken from the audit if available. If there were no official audit, then depreciation was computed on the percentage of a fair valuation agreed upon by the manager of the elevator.

*Interest.*—Interest was imputed on fixed and working capital at 6 per cent per annum. Fixed capital was the average inventory value. Working capital was the average amount required to carry on the business for the accounting year.

*Hedging.*—The common practice is to buy and sell corn on quotation for immediate delivery, so that the expense for hedging was negligible.

*Deductions.*—Deductions consist of the value of cobs when corn was bought unshelled and the cobs were utilized; shelling; and any expense incurred in handling side lines such as coal, feed, and seed. The value of cobs utilized was less than one-third of a cent per bushel. The cost of shelling at the elevator was deducted, since it had already been included under farm costs. The cost of handling side lines, as shown on the operators' books, included interest, and was therefore difficult to separate with any degree of accuracy. This item is shown in Tables 26, 27, and 28.

*Volume of grain.*—The total quantity of grain sold was used as the basis for computing unit costs rather than the quantity purchased, since corn was purchased both shelled and on the cob, while it was all sold shelled. The weight per bushel of corn bought on the cob varied from 70 to 80 pounds or more due to the difference in moisture content. Shrinkage was computed in the same manner as in calculating farm costs. (See p. 15.)

The volume of grain handled affects the unit cost. For example, the average elevator cost in South Dakota after adjustment for shrinkage was 7 cents per bushel, while in Illinois it was 2.5 cents and in Iowa 1.9 cents per bushel. The volume of grain handled in South Dakota was about 4 per cent of that handled in Illinois and Iowa.

However, wages and capital invested are other factors which are higher in South Dakota.

*Cost of handling at country elevators.*—Table 26 gives the cost of handling grain at 26 elevators in the 6 States—Ohio, Indiana, Illinois, Iowa, South Dakota, and Nebraska—weighted by quantities shipped out of counties where grown. (Method I.) The total quantity of grain handled in these elevators was 8,040,600 bushels, of which corn represents 61.7 per cent. Since the methods of handling and storing corn are similar to methods of handling other grain, such as wheat and oats, average elevator costs for all grain were considered representative for corn, except in so far as corn was purchased on the cob and shelled at the elevator, and in such cases the cost of shelling was obtained.

Table 27 gives the cost of handling grain in country elevators weighted by the total production in areas included in the investigation. (Method II.)

In Table 28 the elevator costs are divided for the eastern and western areas in the same manner as farm costs are divided in Method I. (See p. 25.) When divided in this way the average unit costs are but little different in the two areas.

TABLE 26.—*Corn: Cost of handling corn and grain in country elevators, 1926 (24 elevators in the States of Ohio, Indiana, Illinois, Iowa, South Dakota, and Nebraska)*

COST PER BUSHEL, INCLUDING COST OF SIDE LINES

[Weighted by quantities shipped out of counties where grown—Method I [1]]

| | Ohio | Indiana | Illinois | Iowa | South Dakota | Nebraska | Average weighted by shipments from areas |
|---|---|---|---|---|---|---|---|
| Cost items: | | | | | | | |
| Salaries and wages | $0.023 | $0.019 | $0.010 | $0.012 | $0.033 | $0.020 | $0.015 |
| Taxes and insurance | .006 | .006 | .002 | .002 | .008 | .002 | .003 |
| Shelling | | | .001 | .001 | .001 | | .001 |
| Power, heat, and light | .004 | .004 | .001 | .001 | .002 | .004 | .002 |
| Depreciation | .002 | .004 | .003 | .002 | .014 | .006 | .004 |
| Office expense | .001 | .001 | .001 | .001 | .003 | .002 | .001 |
| Repairs | .001 | .003 | .001 | | | .001 | .001 |
| Miscellaneous | .002 | .002 | .001 | .001 | .001 | .005 | .002 |
| Total cost without interest | .039 | .039 | .020 | .020 | .062 | .040 | .029 |
| Interest at 6 per cent on fixed and working capital | .005 | .009 | .006 | .006 | .013 | .007 | .006 |
| Total cost including interest | .044 | .048 | .026 | .026 | .078 | .047 | .035 |
| Cost of side lines and shelling [2] | .008 | .005 | .003 | .008 | .014 | .012 | .007 |

COST PER BUSHEL, EXCLUDING SHELLING AND SIDE LINES

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Cost with interest | $0.036 | $0.043 | $0.023 | $0.018 | $0.064 | $0.035 | $0.028 |
| Adjusted for shrinkage [3] | .040 | .047 | .025 | .019 | .070 | .038 | .030 |
| Bushels handled: | | | | | | | |
| Corn | 75,138 | 955,708 | 3,058,942 | 730,759 | 78,234 | 65,577 | |
| Other grain [4] | 165,255 | 693,575 | 1,464,988 | 525,029 | 169,630 | 57,709 | |
| Total | 240,393 | 1,649,373 | 4,523,930 | 1,255,788 | 247,864 | 123,286 | |

[1] Calculated according to weights used for agricultural costs on the assumption that the areas shown represent 100 per cent.

[2] Deductions for side lines and shelling operations. Cost of shelling was eliminated from the elevator cost due to already having been included in farm cost.

[3] Adjustment necessary to allow for loss of moisture in order to make domestic corn comparable with imported corn.

[4] Includes oats, wheat and small amounts of barley, rye, and soya beans.

TABLE 27.—*Corn: Cost of handling corn and grain in country elevators, 1926 (26 elevators in the States of Ohio, Indiana, Illinois, Iowa, South Dakota, and Nebraska)*

COST PER BUSHEL, INCLUDING COST OF SIDE LINES

[Weighted by total production in areas studied—Method II [1]]

| | Ohio | Indiana | Illinois | Iowa | South Dakota | Nebraska | Average weighted by production in areas |
|---|---|---|---|---|---|---|---|
| Cost items: | | | | | | | |
| Salaries and wages | $0.023 | $0.019 | $0.010 | $0.012 | $0.033 | $0.020 | $0.017 |
| Taxes and insurance | .006 | .006 | .002 | .002 | .008 | .002 | .003 |
| Shelling | | | .001 | .001 | .001 | | .001 |
| Power, heat, and light | .004 | .004 | .001 | .001 | .002 | .004 | .003 |
| Depreciation | .002 | .004 | .003 | .002 | .014 | .006 | .004 |
| Office expense | .001 | .001 | .001 | .001 | .003 | .002 | .001 |
| Repairs | .001 | .003 | .001 | | | .001 | .001 |
| Miscellaneous | .002 | .002 | .001 | .001 | .001 | .005 | .002 |
| Total cost without interest | .039 | .039 | .020 | .020 | .062 | .040 | .032 |
| Interest at 6 per cent on fixed and working capital | .005 | .009 | .006 | .006 | .016 | .007 | .007 |
| Total cost, including interest | .044 | .048 | .026 | .026 | .078 | .047 | .039 |
| Cost of side lines and shelling [2] | .008 | .005 | .003 | .008 | .014 | .012 | .008 |

COST PER BUSHEL, EXCLUDING SHELLING AND SIDE LINES

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Cost with interest | $0.038 | $0.043 | $0.023 | $0.018 | $0.064 | $0.035 | $0.031 |
| Adjusted for shrinkage [3] | .040 | .047 | .025 | .019 | .070 | .038 | .034 |
| Bushels handled: | | | | | | | |
| Corn | 75,138 | 955,798 | 3,058,942 | 730,759 | 78,234 | 65,577 | |
| Other grain [4] | 165,255 | 693,575 | 1,464,988 | 525,029 | 169,630 | 57,709 | |
| Total | 240,393 | 1,649,373 | 4,523,930 | 1,255,788 | 247,864 | 123,286 | |

[1] Calculated according to weights used for agricultural costs on the assumption that areas shown represent 100 per cent.
[2] Deductions for side lines and shelling operations. Cost of shelling was eliminated from the elevator cost due to already having been included in farm cost.
[3] Adjustment necessary to allow for loss of moisture in order to make domestic corn comparable with imported corn.
[4] Includes oats, wheat, and small amounts of barley, rye, and soya beans.

TABLE 28.—*Corn: Cost of handling corn and other grain in country elevators segregated by regions shipping to the Atlantic and Pacific coasts, 1926* [1]

[Average costs per bushel weighted by total shipments from areas]

| | Ohio, Indiana, Illinois, and Iowa | Iowa, South Dakota, and Nebraska |
|---|---|---|
| Elevators studied (number) | 22 | 9 |
| Cost items: | | |
| Salaries and wages | [2] $0.013 | [2] $0.017 |
| Taxes and insurance | [2] .003 | [2] .002 |
| Shelling | [2] .001 | [2] .001 |
| Power, heat, and light | [2] .001 | [2] .002 |
| Depreciation | [2] .003 | [2] .004 |
| Office expense | [2] .001 | [2] .001 |
| Repairs | [2] .001 | [2] .001 |
| Miscellaneous | [2] .001 | [2] .003 |
| Total cost without interest | [2] .024 | [2] .031 |
| Interest at 6 per cent on fixed and working capital | [2] .006 | [2] .007 |
| Total cost, including interest | [2] .030 | [2] .038 |
| Cost of side lines and shelling [3] | [2] .005 | [2] .010 |
| Cost with interest | [4] .025 | [4] .028 |
| Cost with interest adjusted for shrinkage [5] | [4] .027 | [4] .030 |

[1] Details per bushel by States are given in Table 26. No elevator costs were obtained for Minnesota or Kansas.
[2] Including cost of side lines.
[3] Deductions for cost of shelling in elevators have been included in farm shelling costs and eliminated from elevator costs.
[4] Excluding side lines and shelling.
[5] Adjustments for moisture content are made in order to make the domestic corn comparable with imported corn.

*Description of terminal elevators.*—Many of the elevators at Chicago, as well as at other terminal markets, have a capacity of 1,000,000 bushels or more, and at least one has a capacity of 10,000,000 bushels. Many of them are equipped with elaborate and expensive machinery for elevating, drying, mixing, and conditioning grain. By the elaborate system of elevating legs and belt conveyors the grain can be transferred from the pit at the bottom of the elevator into which it is dumped from the incoming cars, to the top of the elevator and thence into hopper scales and then into the storage tanks or to the "workhouse" where the drying, mixing, and conditioning machinery is located.

Many of the terminal elevators are owned by railroad companies and operated under lease by private firms. The elevators were built by the railroads to insure storage and transfer service at terminal points for the grain shipped over their lines.

*Inspection and grading.*—The inspection and grading of corn at terminal markets are supervised by the Federal Government which has a supervisor at each of these points. The inspectors are not Federal employees but they operate under Federal license. The Federal supervisor acts practically as arbitrator and inspects and grades the grain only when the judgment of the licensed inspector is disputed. The cars of grain are usually inspected at points outside the city to prevent congestion in the railroad yards.

*Functions of the terminal elevators.*—The primary functions of the elevators are to act as storage places and transfer agencies for grain, but a large part of the corn and other grain coming to the terminal market is owned by the elevator companies. The cost of handling the corn at the terminal market is practically the same whether it is consigned to a commission man and the owner pays the elevator for handling, storing, and possibly drying and conditioning, or whether it is owned by the elevator, and these operations are performed by the elevator company on its own account.

*Cost of storage at terminal elevators.*—Adequate statistics for calculation of storage charges at terminal elevators are available only for Chicago, but it is believed that the use of costs calculated for Chicago as generally representative of costs at terminal elevators will not result in material error. The Chicago Board of Trade records the amount of corn in storage each week of the year. From these figures was calculated (by dividing the total of the amounts in storage each week by the number of weeks in a year) the amount of corn in storage in Chicago during an average week. The total number of bushels of corn received in Chicago, as shown by the Board of Trade reports, was divided by the quantity in storage during an average week in order to obtain the average turnover in Chicago, i. e., the theoretical number of times the warehouses were filled and emptied. The turnover was then divided into 12, the number of months in a year, in order to obtain the average period of storage for a bushel of corn in Chicago.

In 1926 the average weekly amount of corn in storage was 14,910,000 bushels, which when divided into 92,710,000 bushels, the quantity received during the year, gave a turnover of 6.205. In other words, the elevators were filled and emptied 6.205 times; then 365 days divided by 6.205 gave a storage period for an average bushel of corn, approximately 59 days. The storage charge in public elevators is 1¼ cents for the first 10 days and one-twentieth of 1 cent each day

thereafter. Thus the average storage cost per bushel in 1926 is calculated to be 3.7 cents. The average storage cost per bushel in 1927 figured by the same method is 4 cents.

Since costs of artificial drying are incurred on only a small proportion of the corn marketed, and since custom rates charged by terminal elevators have been used rather than the costs of handling and storage, a separate charge for artificial drying has not been included.

*Marketing corn in Argentina.*—Corn is shelled and put into bags at the farm or ranch and hauled to the railroad station to await shipment. At the station the corn is weighed, inspected, and placed in a storehouse, shed, or alongside the railroad track and covered with tarpaulins. If the inspection shows an excessive amount of moisture, the grain is spread on the floor of the storehouse or spread on canvas in the open air. Transportation of corn from railroad points to export markets is made on both box and flat cars.

Grain is loaded directly on board ship by means of electric elevators leading from the car door to the hatchway of the ship, or else carried aboard by laborers. If shipment is not made immediately, the grain is taken out of the cars and stored in warehouses or piled outside.

The cost of marketing Argentine corn is covered in the invoice price. Elevator charges and transportation costs in Argentina can not be shown separately. Other costs, such as handling at the Argentine port and landing the corn at the United States port, are shown under transportation costs (see pp. 39 and 40).

## COMPETITIVE CONDITIONS

*Competition in manufactured corn products.*—Corn in relatively large quantities is the raw material for two important industries in the United States: (1) The manufacture of corn meal and corn flour; (2) the corn-products industry manufacturing cornstarch, corn sugar, sirups, dextrines, corn oils, and certain other products.

*Corn meal and flour.*—In the United States more corn is used in the manufacture of corn meal and corn flour than for any other manufacturing purpose. This industry, according to reports of the census uses somewhat more than 100,000,000 bushels of corn annually. Table 29 shows the bushels of corn ground and the barrels of corn meal produced for the census years 1919, 1921, 1923, and 1925. Production is widespread, mills operating in practically every State. Practically no imported corn enters into the manufacture of corn meal or corn flour.

TABLE 29.—*Corn: Quantity milled and production of corn meal in the United States, 1919, 1921, 1923, and 1925*

[Source: Bureau of the Census]

| Census year | Corn, milled | Corn meal [1] | |
|---|---|---|---|
| | | Quantity produced | Value |
| | *Bushels* | *Barrels* | |
| 1919 | 113,760,971 | 10,682,952 | $82,059,560 |
| 1921 | 122,168,474 | 10,932,155 | 39,704,222 |
| 1923 | 125,193,805 | 12,155,140 | 52,011,228 |
| 1925 | 105,354,662 | 9,619,950 | 47,854,323 |

[1] 196 pounds to the barrel.

*The corn-products industry (corn sugars, sirups, dextrines, starches, and corn oil).*—The corn-products industry of the United States was founded about 80 years ago and has in recent years been using increasing quantities of corn. Table 30 shows the amount of corn used by the corn-products industry for the years 1911 to 1926, inclusive.

TABLE 30.—*Corn: Quantity used by the corn products industry of the United States, 1911–1926* [1]

| Year | Quantity | Year | Quantity |
|---|---|---|---|
| | *Bushels* | | *Bushels* |
| 1911 | 46,084,554 | 1919 | 64,934,394 |
| 1912 | 47,542,157 | 1920 | 60,662,774 |
| 1913 | 50,340,735 | 1921 | 58,440,656 |
| 1914 | 45,801,973 | 1922 | 66,854,435 |
| 1915 | 55,969,456 | 1923 | 66,212,516 |
| 1916 | 63,306,933 | 1924 | 75,349,181 |
| 1917 | 59,423,595 | 1925 | 70,265,370 |
| 1918 | 73,703,176 | 1926 | 82,219,333 |

[1] Data supplied by the secretary of the Associated Corn Products Manufacturers.

In the appendix to this report there will be found the census data covering the corn sirup, corn oil, and starch industry of the United States. The data indicate that in 1925, 12 plants produced approximately 98 per cent of the total value of products manufactured by the entire industry for that year. The leading State was Illinois, which produced $84,000,000 worth of products out of a total of $133,000,000 for the United States. Iowa was next in importance with $22,600,000. In 1923 the total value of products for the United States was $116,500,000 and the factories in Illinois, Indiana, Iowa, and Missouri accounted for approximately $102,000,000. From the above it appears that the corn-products industry of the United States has been established and is operating on the basis of domestic corn as a raw material and for the most part is not so located as to use foreign corn profitably. Only the plants located on the seaboard use foreign corn, and these do so under certain conditions. There are no plants located on the Pacific coast nor the Gulf of Mexico. This limits the use of foreign corn to a few plants on the Atlantic coast.

*Corn products exported with benefit of drawback.*—Under the provisions of the tariff act of 1922 a refund of 99 per cent of the duty paid on corn is made when products manufactured from the imported corn are exported. The privilege of direct manufacture from imported corn and exportation of the products with benefit of drawback has been exercised only by the Corn Products Refining Co. for products to be manufactured at Edgewater, N. J. The products listed are glucose, cornstarch, dextrin, corn sugar, gluten, corn oil, oil cake, and certain other materials. Drawback was claimed only in 1925 and in 1927. In 1925 drawback was allowed on 1,550,406 bushels of imported corn. In 1927 the refunds were made on 336,021 bushels of imported corn. It will thus be seen that during the present tariff act the privilege of operating under the drawback provisions has not been used to any great extent.

*Competition in animal feeds.*—Argentine corn employed for animal feeds is largely used, after cracking, for feed for poultry and pigeons. In such uses it competes directly with domestic corn. However, this competition is limited to two important deficiency areas: (1) On the Atlantic coast, within a relatively short radius from New York

City; (2) on the Pacific coast, in the important poultry-producing sections in California, and in the areas around Seattle, Wash., and Portland, Oreg. For this reason, this type of competition is discussed under principal competitive markets.

*Principal competitive markets.*—The two distinct deficiency regions noted above buy corn from Argentina in amounts varying in accordance with domestic prices and the supply of feeds in the respective areas. In the Pacific coast region, because of the need for grains for feeding purposes, corn or other grain feeds must be either purchased in the surplus-producing corn States or from foreign sources. There is a tendency for the substitution of other grains, such as barley, when the price of corn, either domestic or foreign, becomes relatively high. In the Pacific Coast States there is no manufacture of such corn products as corn sugar and cornstarch. There is, however, some manufacture of corn meal, but the larger part of the corn is employed in the manufacture of various types of mixed feeds and cracked corn, the latter being sold mostly to poultry farms.

The Atlantic coast region, much nearer than the Pacific Coast States to the important corn States, purchases foreign corn for special poultry and pigeon feeds. (The use of foreign corn for the corn-products industry has been covered previously.) The leading port of entry on the Atlantic coast for foreign corn is New York City. An examination of the distribution of imported corn from that point indicates that most of the corn is sold in near-by points in the States of New York, New Jersey, and Connecticut.

Table 31 shows imports for consumption of corn into the United States, by ports of entry, for the period October, 1923, to August, 1928,[1] inclusive. It will be noted that for this period the Pacific coast ports purchased more foreign corn than the Atlantic ports, and that this difference is further emphasized if there be deducted from the imports at New York the number of bushels upon which drawback was refunded after export of corn products made from imported corn. If this allowance is made, during the period covered the Pacific ports purchased 71 per cent more foreign corn than the Atlantic ports. New York received more than any other one port, allowance being made for the amount of drawback refunded.

TABLE 31.—*Corn: United States imports for consumption, October, 1923, to August, 1928,[1] inclusive*

| | Quantity |
|---|---|
| Pacific ports: | *Bushels* |
| Seattle | 2,134,000 |
| Portland | 516,000 |
| San Francisco | 2,276,000 |
| Los Angeles | 143,000 |
| Total | 5,069,000 |
| Atlantic ports: | |
| Boston | 4,000 |
| New York [2] | 1,393,000 |
| Philadelphia | 369,000 |
| Baltimore | 75,000 |
| Total | 4,841,000 |
| Exports with benefit of drawback | 1,876,000 |
| Total less exports with benefit of drawback | 2,965,000 |
| Gulf ports | 373,000 |

[1] Does not include May, 1928.

[2] Drawback refunded at New York on 1,876,000 bushels, leaving balance actually entered for domestic consumption, 2,517,000 bushels at that port.

In order to determine the relative importance of domestic and of imported corn in the deficiency regions a statistical study has been made showing the receipts of domestic corn at the four important cities on the Pacific coast. Similar receipts for the important Atlantic ports and for New Orleans and Galveston on the Gulf of Mexico are also shown. In addition the imports for consumption at these points have been tabulated and the percentage of the total consumption supplied by the imports is given. This tabulation is shown in Table 32.

TABLE 32.—*Corn: Receipts of foreign and domestic corn and the percentages supplied by foreign corn at Pacific, Atlantic, and Gulf ports, by marketing years, October 1, 1923–September 30, 1927*

[Thousands of bushels—i. e., 000 omitted]

| | Domestic receipts | Foreign duty-paid entries | Total domestic and foreign | Per cent supplied by foreign | Domestic receipts | Foreign duty-paid entries | Total domestic and foreign | Per cent supplied by foreign |
|---|---|---|---|---|---|---|---|---|
| | 1924 [1] | | | | 1925 [1] | | | |
| Pacific ports: | | | | | | | | |
| Seattle | 1,846 | 121 | 1,967 | 6.15 | 1,226 | 495 | 1,721 | 28.76 |
| Portland | 507 | 60 | 567 | 10.58 | 657 | 137 | 794 | 17.25 |
| San Francisco | 170 | 405 | 575 | 70.43 | 13 | 488 | 501 | 97.41 |
| Los Angeles | 1,264 | 2 | 1,266 | .16 | 1,450 | 60 | 1,510 | 3.97 |
| Total | 3,787 | 588 | 4,375 | 13.44 | 3,346 | 1,180 | 4,526 | 26.07 |
| Atlantic ports: | | | | | | | | |
| Boston | 75 | 1 | 76 | 1.32 | 14 | 1 | 15 | 6.67 |
| New York | 1,846 | 1,266 | 3,112 | 40.62 | 649 | [2] 1,365 | 2,014 | 67.78 |
| Philadelphia | 2,656 | 9 | 2,665 | .34 | 685 | 77 | 762 | 10.10 |
| Baltimore | 3,010 | 10 | 3,020 | .33 | 520 | 13 | 533 | 2.44 |
| Total | 7,587 | 1,286 | 8,873 | 14.49 | 1,868 | 1,456 | 3,324 | 43.80 |
| Gulf ports: | | | | | | | | |
| New Orleans | 6,347 | ..... | 3,347 | ..... | 3,502 | 79 | 3,581 | 2.21 |
| Galveston | 243 | ..... | 243 | ..... | 118 | ..... | 118 | ..... |
| Total | 6,590 | ..... | 6,590 | ..... | 3,620 | 79 | 3,699 | 2.14 |
| | 1926 [1] | | | | 1927 [1] | | | |
| Pacific ports: | | | | | | | | |
| Seattle | 1,405 | 1 | 1,406 | .07 | 1,619 | 485 | 2,104 | 22.05 |
| Portland | 935 | ..... | 935 | ..... | 1,314 | 239 | 1,553 | 15.39 |
| San Francisco | 261 | 11 | 272 | 4.04 | 1,102 | 723 | 1,825 | 39.62 |
| Los Angeles | 3,342 | 1 | 3,343 | .03 | 3,520 | 60 | 3,580 | 1.68 |
| Total | 5,943 | 13 | 5,956 | .22 | 7,555 | 1,507 | 9,062 | 16.63 |
| Atlantic ports: | | | | | | | | |
| Boston | 148 | ..... | 148 | ..... | 962 | 1 | 963 | .01 |
| New York | 1,489 | 58 | 1,547 | 3.75 | 1,268 | [3] 1,340 | 2,608 | 51.38 |
| Philadelphia | 1,801 | 14 | 1,815 | .77 | 585 | 85 | 670 | 12.69 |
| Baltimore | 3,678 | 14 | 3,692 | .38 | 1,156 | 16 | 1,172 | 1.36 |
| Total | 7,116 | 86 | 7,202 | 1.19 | 3,971 | 1,442 | 5,413 | 26.64 |
| Gulf ports: | | | | | | | | |
| New Orleans | 6,859 | ..... | 6,859 | ..... | 3,519 | 174 | 3,693 | 4.71 |
| Galveston | 98 | ..... | 98 | ..... | 69 | ..... | 69 | ..... |
| Total | 6,957 | ..... | 6,957 | ..... | 3,588 | 174 | 3,762 | 4.63 |

[1] Year ended Sept. 30.
[2] The corn equivalent of corn products exported in 1925 with benefit of drawback was 1,550,406 bushels.
[3] The corn equivalent of corn products exported in 1927 with benefit of drawback was 336,021 bushels.

Practically all of the domestic corn shipped to the Pacific coast comes from the Central States and is, as a rule, No. 2 Yellow. Los Angeles purchases more domestic than imported corn. San Francisco, however, purchases relatively small quantities of domestic but large quantities of imported corn. Purchases of foreign corn for Seattle and Portland are important but have not dominated the corn market at those points as is the case at San Francisco. On the Atlantic coast, New York receives larger quantities of domestic corn than Argentine corn and is the important market on that coast for both. Boston, Philadelphia, and Baltimore receive relatively small quantities of foreign corn. Table 33 gives a summary showing the portion of the total consumption supplied by foreign corn at the ports discussed for the period October 1, 1923, to September 30, 1927.

TABLE 33.—*Corn: Total receipts of foreign and domestic corn at Pacific, Atlantic, and Gulf ports, October 1, 1923, to September 30, 1927* [1]

[Thousands of bushels—i. e., 000 omitted]

| | Domestic receipts | Foreign duty-paid entries | Total domestic and foreign | Per cent supplied by foreign |
|---|---|---|---|---|
| Pacific ports: | | | | |
| Seattle | 6,096 | 1,102 | 7,198 | 15.31 |
| Portland | 3,413 | 536 | 3,849 | 13.28 |
| San Francisco | 1,546 | 1,627 | 3,173 | 51.28 |
| Los Angeles | 9,576 | 123 | 9,699 | 1.27 |
| Total | 20,631 | 3,288 | 23,919 | 13.75 |
| Atlantic ports: | | | | |
| Boston | 1,119 | 3 | 1,122 | .27 |
| New York | 5,252 | 4,029 | 9,281 | 43.41 |
| Philadelphia | 5,727 | 185 | 5,912 | 3.13 |
| Baltimore | 8,364 | 53 | 8,417 | .63 |
| Total | 20,462 | 4,270 | 24,732 | 17.27 |
| Gulf ports: | | | | |
| New Orleans | 20,227 | 253 | 20,480 | 1.24 |
| Galveston | 528 | | 528 | |
| Total | 20,755 | 253 | 21,008 | 1.20 |

[1] This table includes corn exported from New York with the benefit of the drawback. See Table 31.

Chicago is the leading market for domestic corn. However, little, if any, foreign corn comes into competition with domestic corn at Chicago. For each of the four years, October 1, 1923, to September 30, 1927, New York has been the leading port of entry, San Francisco has been next, and Seattle third. For the period October, 1923, to August, 1928, inclusive, New York received 4,393,000 bushels of foreign corn; San Francisco, 2,276,000 bushels; and Seattle, 2,134,000 bushels. Taking into account the foreign corn reexported as corn products with benefit of drawback, the quantity received at New York is reduced to 2,517,000 bushels.

For the calendar years 1926 and 1927, San Francisco was the leading port of entry in 1926, and New York in 1927. If in 1927 allowance be made for the exports of corn products with benefit of drawback, the New York entries would be reduced to 1,169,000 bushels, and Seattle would be the chief port of entry. The relatively large quantity shown for the customs district of Washington (Seattle) is explained by unusual importations during the last three months of

1927. An examination of the import data for the other years in which corn was dutiable under the act of 1922, indicates that Seattle has been relatively unimportant.

Table 34 shows the imports for consumption of corn by principal customs districts for the calendar years 1926 and 1927.

TABLE 34.—*Corn: Imports for consumption from Argentina, by principal customs districts, for the calendar years 1926 and 1927*

| | 1926 | | 1927 | |
|---|---|---|---|---|
| | Quantity | Value | Quantity | Value |
| Pacific coast: | *Bushels* | | *Bushels* | |
| San Francisco | 480,737 | $359,948 | 797,960 | $617,337 |
| Oregon | 60,000 | 47,675 | 238,000 | 184,108 |
| Washington | 19,851 | 14,202 | 1,474,904 | 1,282,519 |
| Los Angeles | 49,988 | 38,691 | 30,000 | 24,704 |
| Total | 610,576 | 460,516 | 2,540,864 | 2,108,668 |
| Atlantic coast: | | | | |
| New York | 77,755 | 74,362 | [1] 1,505,393 | 1,078,124 |
| Philadelphia | 19,303 | 20,516 | 249,671 | 193,299 |
| Maryland | 16,251 | 16,538 | 24,984 | 22,411 |
| New Orleans | | | 289,083 | 209,194 |
| Total | 113,309 | 111,416 | 2,069,131 | 1,503,028 |

[1] Corn exported under drawback provision at New York in 1927 amounted to 336,021 bushels, leaving net imports of 1,169,372 bushels.

## TRANSPORTATION

### TRANSPORTATION COSTS ON IMPORTED CORN

The analysis of invoices of imported corn (see pp. 27, 28) shows the price of Argentine corn f. o. b. Buenos Aires and the price c. i. f. New York and San Francisco, both including and excluding the export duty from Argentina. It shows deductions of credits for bags and landing charges at New York. No landing charges were found for corn imported at San Francisco, as the corn was presumably unloaded directly into elevators. In Tables 35 and 36 all the various items of transportation costs and handling and marketing charges which it is possible to show separately have been listed. Marketing charges have been included in these tables with transportation and handling charges because it is not always possible to segregate them. It should be noted that the items of cost shown here have all been included in the invoice prices c. i. f. New York and c. i. f. San Francisco which have been shown in Tables 22 and 23 on pages 27 and 28.

Ocean freight, loading and shipping charges at Buenos Aires, commissions, consular and inspection fees, and value of revenue stamps are all shown by the invoices. Marine insurance, in this case, has not been shown on invoices, but has been assumed to be included in the total c. i. f. price. Landing charges at New York were obtained from importers.

*Transportation costs on corn imported at New York.*—Table 35 shows the transportation costs on Argentine corn imported at New York in the calendar years 1926 and 1927. The customary brokerage fee on imports of Argentine corn, averaging between $4 and $5 per entry, including incidentals such as bonds and messenger service to docks, amounted to only about one-fifth of 1 cent per bushel. No landing

charges are reported for imports in 1926, the goods being sold dock delivery or f. o. b. New York for out-of-town shipments. In carload lots there is free lighterage, and there are practically no shipments in less than carload lots. In 1927, however, landing costs were reported for all but five importations.

TABLE 35.—*Corn: Transportation costs, including commissions and brokerage fees, on Argentine corn received at New York, calendar years 1926 and 1927*

| Item | Per bushel, duty weight | | |
|---|---|---|---|
| | 1926 | 1927 | 2-year average |
| Ocean freight | $0.121 | $0.124 | $0.122 |
| Loading and shipping | .022 | .020 | .026 |
| Commissions | | .005 | .002 |
| Landing charges at New York | | .007 | .004 |
| Miscellaneous [1] | .006 | | .003 |
| Total | .149 | .165 | .157 |

[1] Includes consular fee, inspection certificate, and stamps.

*Transportation costs on corn imported at San Francisco.*—Table 36 shows the transportation costs on Argentine corn imported at San Francisco in the calendar years 1926 and 1927.

TABLE 36.—*Corn: Transportation costs, including commissions and brokerage fees, on Argentine corn received at San Francisco, calendar years 1926 and 1927*

| Item | Per bushel, duty weight | | |
|---|---|---|---|
| | 1926 | 1927 | 2-year average |
| Ocean freight | $0.155 | $0.179 | $0.167 |
| Loading and shipping | .019 | .013 | .016 |
| Commissions | .002 | .002 | .002 |
| Miscellaneous [1] | | | |
| Total | .176 | .194 | .185 |

[1] Consular and inspection fees less than $0.0005 omitted. No insurance charge reported on invoices.

*Domestic transportation costs.*—Freight rates on corn are not proportionate to distance, increasing usually in much slower progression than the increase in distance. The sum of a series of short hauls is usually higher than the through rate over the same route. The rates are usually lower to and from points having access to water transportation.

A higher rate is charged on corn products than on corn, but the milling-in-transit rate permits treatment of the corn along the route and reshipment at the original through rate.

Transportation rates were ascertained from published tariffs of the Interstate Commerce Commission. Since New York on the Atlantic coast and San Francisco on the Pacific coast have been the principal ports receiving imported corn, the costs of delivering corn at New York and at San Francisco are shown in Table 37.

The quantities of corn received at the principal markets in the United States are available, but it is not possible to trace the points

of origin of the shipments. The Chicago Board of Trade, the Interstate Commerce Commission, the Bureau of Railway Economics, and the United States Department of Agriculture were visited by representatives of the commission in search of this information and at all these places the statement was made that it could not be secured. Corn which is never unloaded from the car often changes ownership several times between the place of original shipment and the place where it is consumed. Moreover, a fact which in itself is sufficient to make it impossible to determine the actual source of the corn is that at elevators in terminal markets corn is mixed and shipments from various places lose their identity.

In computing transportation costs by Method I, the corn region covered by the investigation was separated into divisions in the same manner as was done in computing farm costs by areas by Method I: (*a*) The eastern division, corn from which is ordinarily shipped to the Atlantic coast, includes the States of Ohio, Indiana, Illinois, Iowa, and Minnesota. Average transportation costs on corn from Ohio and Indiana were calculated on the basis of direct rates to New York; and the corn from Illinois, Iowa, and Minnesota, by the way of Chicago to New York. (*b*) The western division, corn from which is ordinarily shipped to the Pacific coast, includes the States of Iowa, Minnesota, South Dakota, Nebraska, and Kansas. Average transportation costs on corn from Nebraska and Kansas were calculated on the basis of direct rates to San Francisco; and from Iowa, Minnesota, and South Dakota by the way of Omaha to San Francisco.

Table 37 shows transportation rates on corn from these divisions to New York and San Francisco.

TABLE 37.—*Corn: Transportation rates to New York and San Francisco, weighted by quantities shipped out of counties where grown, Method I*

[Per bushel]

| | To New York from Ohio and Indiana direct and Illinois, Iowa, and Minnesota, via Chicago | To San Francisco [1] from Minnesota, South Dakota, Iowa, Nebraska, and Kansas | | To New York from Ohio and Indiana direct and Illinois, Iowa, and Minnesota, via Chicago | To San Francisco [1] from Minnesota, South Dakota, Iowa, Nebraska, and Kansas |
|---|---|---|---|---|---|
| Weighted average | $0.241 | $0.382 | Minnesota | $0.290 | $0.447 |
| Ohio | .172 | ---------- | South Dakota | ---------- | .438 |
| Indiana | .203 | ---------- | Nebraska | ---------- | .341 |
| Illinois | .235 | ---------- | Kansas | ---------- | .342 |
| Iowa | .275 | .425 | | | |

[1] From Iowa, Minnesota, and South Dakota corn was taken via Omaha; from Nebraska and Kansas, direct to San Francisco.

Table 38 gives the costs of transporting corn from all areas covered by the investigation, to New York and San Francisco, respectively. The freight rates from the several areas were weighted by the total production of the areas. (Method II.)

TABLE 38.—*Corn: Transportation rates to Atlantic and Pacific points, weighted on total production in areas studied, Method II*

| | To New York from Ohio and Indiana direct and all others via Chicago | To San Francisco from Ohio, Indiana, and Illinois, via Chicago, Iowa, Minnesota, South Dakota, via Omaha; and Nebraska and Kansas direct | | To New York from Ohio and Indiana direct and all others via Chicago | To San Francisco from Ohio, Indiana, and Illinois, via Chicago, Iowa, Minnesota, South Dakota, via Omaha; and Nebraska and Kansas direct |
|---|---|---|---|---|---|
| Weighted average | $0.261 | $0.432 | Minnesota | $0.290 | $0.447 |
| Ohio | .172 | .498 | South Dakota | .334 | .438 |
| Indiana | .201 | .483 | Nebraska | .309 | .342 |
| Illinois | .235 | .468 | Kansas | .309 | .342 |
| Iowa | .275 | .425 | | | |

## SUMMARY OF DOMESTIC AND FOREIGN COSTS

*Domestic costs.*—Table 39 gives the summary of cost of producing corn in Ohio, Indiana, Illinois, Iowa, and Minnesota and delivering it to New York, and the cost of producing corn in Iowa, Minnesota, Kansas, Nebraska, and South Dakota and delivering it to San Francisco. The farm cost is computed (*a*) including interest on the stated value of the land, and (*b*) with the land charge on a net cash rental basis. The costs of marketing and transportation are also included.

TABLE 39.—*Corn: Summary of the cost of producing corn in the United States, including marketing and transportation costs, in 1926, 1927, and 2-year average for 1926, 1927, weighted by quantities shipped out of counties where grown, Method I*

[Cost per bushel]

| Cost item | Corn delivered to | | | | | |
|---|---|---|---|---|---|---|
| | New York [1] | | | San Francisco [2] | | |
| | 1926 | 1927 | 2-year average | 1926 | 1927 | 2-year average |
| 1. Farm cost: | | | | | | |
| (*a*) Including interest on stated value of land | $0.701 | $0.781 | $0.741 | $0.808 | $0.761 | $0.785 |
| (*b*) Including land charge on net cash-rental basis | .615 | .681 | .648 | .735 | .696 | .716 |
| 2. Marketing cost | .064 | .067 | .066 | .067 | .070 | .069 |
| 3. Transportation cost | .241 | .241 | .241 | .382 | .382 | .382 |
| 4. Total: | | | | | | |
| (*a*) On interest basis | 1.006 | 1.089 | 1.048 | 1.257 | 1.213 | 1.236 |
| (*b*) On cash-rental basis | .920 | .989 | .955 | 1.184 | 1.148 | 1.167 |

[1] Corn from Ohio, Indiana, Illinois, Iowa, and Minnesota.
[2] Corn from Iowa, Minnesota, Kansas, Nebraska, and South Dakota.

*Foreign costs.*—Table 40 gives the summary of invoice prices of Argentine corn c. i. f. New York and c. i. f. San Francisco for 1926, 1927, and the 2-year average.

TABLE 40.—*Corn: Summary of invoice prices used as evidence of costs of production of Argentine corn delivered to Atlantic and Pacific coast ports, including carrying and landing charges, 1926, 1927, and 2-year average* [1]

[Cost per bushel]

| | 1926 | 1927 | 2-year average |
|---|---|---|---|
| Atlantic coast, New York [2] | $1.027 | $0.827 | $0.923 |
| Pacific coast, San Francisco [3] | .914 | .957 | .936 |

[1] Excluding export duty from Argentina. Addition of the export duty would increase the price at New York, in 1926, $0.015; in 1927, $0.003; 2-year average, $0.009. At San Francisco, in 1926, $0.002; in 1927, $0.002; 2-year average, $0.002.
[2] For details see Table 22, p. 27.
[3] For details see Table 23, p. 28.

## COMPARISON OF DOMESTIC AND FOREIGN COSTS

Table 41 shows the cost of producing corn in the United States, including elevator and marketing costs and transportation costs from the eastern area to New York, and from the western area to San Francisco. Farm, elevator, marketing, and transportation costs have all been weighted on the quantities of corn shipped out of the counties where grown (Method I). Invoice prices are given for Argentine corn, c. i. f. New York, and c. i. f. San Francisco, 1926, 1927, and 2-year average. In this table the domestic costs are computed with the land charge on the interest basis. Table 42 shows the data with the land charge in the domestic costs computed on the net cash-rental basis.

TABLE 41.—*Corn: Comparison of costs of production of domestic and Argentine corn, including transportation to New York and San Francisco, 1926, 1927, and 2-year average, weighted by quantities shipped out of counties where grown, Method I, with land charge on interest basis*

[Per bushel]

| Competitive market | 1926 [1] | | 1927 [1] | | 2-year average | |
|---|---|---|---|---|---|---|
| | Domestic cost | Foreign cost | Domestic cost | Foreign cost | Domestic cost | Foreign cost |
| New York: | | | | | | |
| Farm cost | $0.701 | ..... | $0.781 | ..... | $0.741 | ..... |
| Marketing cost | .064 | ..... | .067 | ..... | .066 | ..... |
| Transportation cost | .241 | ..... | .241 | ..... | .241 | ..... |
| Total cost | 1.006 | $1.027 | 1.089 | $0.827 | 1.048 | $0.927 |
| San Francisco: | | | | | | |
| Farm cost | .808 | ..... | .761 | ..... | .785 | ..... |
| Marketing cost | .067 | ..... | .070 | ..... | .069 | ..... |
| Transportation cost | .382 | ..... | .382 | ..... | .382 | ..... |
| Total cost | 1.257 | .914 | 1.213 | .957 | 1.236 | .936 |
| Amount by which United States cost exceeds Argentine cost, including transportation— | | | | | | |
| At New York | [2] —.021 | | .262 | | .121 | |
| At San Francisco | .343 | | .256 | | .300 | |

[1] The crop year May 1 to Apr. 30, for the domestic; the calendar year for the foreign; such a comparison is made necessary by the overlapping seasons in the northern and southern hemispheres.
[2] Minus sign means excess of Argentine over domestic costs.

TABLE 42.—*Corn: Comparison of costs of production of domestic and Argentine corn including transportation to New York and to San Francisco for 1926, 1927, and the 2-year average, weighted by quantities shipped out of counties where grown, Method I, with land charge on the net cash rental basis*

[Per bushel]

| Competitive market | 1926 [1] | | 1927 [1] | | 2-year average | |
|---|---|---|---|---|---|---|
| | Domestic cost | Foreign cost | Domestic cost | Foreign cost | Domestic cost | Foreign cost |
| New York: | | | | | | |
| Farm cost | $0.615 | | $0.681 | | $0.648 | |
| Marketing cost | .064 | | .067 | | .066 | |
| Transportation cost | .241 | | .241 | | .241 | |
| Total cost | .920 | $1.027 | .989 | $0.827 | .955 | $0.927 |
| San Francisco: | | | | | | |
| Farm cost | .735 | | .696 | | .716 | |
| Marketing cost | .067 | | .070 | | .069 | |
| Transportation cost | .382 | | .382 | | .382 | |
| Total cost | 1.184 | .914 | 1.148 | .957 | 1.167 | .936 |
| Amount by which United States cost exceeds Argentine cost including transportation: | | | | | | |
| At New York | [2] −.107 | | .162 | | .028 | |
| At San Francisco | .270 | | .191 | | .231 | |

[1] The crop year May 1 to Apr. 30 for the domestic; the calendar year for the foreign; such a comparison is made necessary by the overlapping seasons in the Northern and Southern Hemispheres.
[2] Minus sign means excess of Argentine over domestic costs.

Table 43 shows the cost of producing corn in the United States, including elevator and marketing costs and transportation from all areas included in the investigation to New York and to San Francisco. Farm, elevator, marketing, and transportation costs have all been weighted by the total production in the areas covered by the investigation. (Method II.) Invoice prices are given for Argentine corn, c. i. f. New York and c. i. f. San Francisco, for 1926, 1927, and the 2-year average. In this table the domestic costs are computed with the land charge on the interest basis. Table 44 shows the data with the land charge in the domestic costs computed on the net cash rental basis.

TABLE 43.—*Corn: Comparison of costs of production of domestic and Argentine corn, including transportation from all areas to New York and San Francisco, 1926, 1927, and the 2-year average, with land charge on interest basis, weighted on total production in areas studied, Method II*

[Per bushel]

| Competitive market | 1926 [1] | | 1927 [1] | | 2-year average | |
|---|---|---|---|---|---|---|
| | Domestic cost | Foreign cost | Domestic cost | Foreign cost | Domestic cost | Foreign cost |
| New York: | | | | | | |
| Farm cost | $0.778 | | $0.781 | | $0.780 | |
| Marketing cost | .071 | | .074 | | .072 | |
| Transportation cost | .261 | | .261 | | .261 | |
| Total cost | 1.110 | $1.027 | 1.116 | $0.827 | 1.113 | $0.927 |
| San Francisco: | | | | | | |
| Farm cost | .778 | | .781 | | .780 | |
| Marketing cost | .071 | | .074 | | .072 | |
| Transportation cost | .432 | | .432 | | .432 | |
| Total cost | 1.281 | .914 | 1.287 | .957 | 1.284 | .936 |
| Amount by which United States cost exceeds Argentine cost, including transportation— | | | | | | |
| At New York | .083 | | .289 | | .186 | |
| At San Francisco | .367 | | .330 | | .348 | |

[1] The crop year, May 1 to Apr. 30, for the domestic; the calendar year for the foreign; such a comparison is made necessary by the overlapping seasons in the Northern and Southern Hemispheres.

TABLE 44.—*Corn: Comparison of costs of production of domestic and Argentine corn, including transportation from all areas to New York and San Francisco, 1926, 1927, and the 2-year average, with land charge on net cash rental basis, weighted on total production in areas studied, Method II*

[Per bushel]

| Competitive market | 1926 [1] | | 1927 [1] | | 2-year average | |
|---|---|---|---|---|---|---|
| | Domestic cost | Foreign cost | Domestic cost | Foreign cost | Domestic cost | Foreign cost |
| New York: | | | | | | |
| Farm cost | $0.699 | ..... | $0.701 | ..... | $0.700 | ..... |
| Marketing cost | .071 | ..... | .074 | ..... | .072 | ..... |
| Transportation cost | .261 | ..... | .261 | ..... | .261 | ..... |
| Total cost | 1.031 | $1.027 | 1.036 | $0.827 | 1.033 | $0.927 |
| San Francisco: | | | | | | |
| Farm cost | .699 | ..... | .701 | ..... | .700 | ..... |
| Marketing cost | .071 | ..... | .074 | ..... | .072 | ..... |
| Transportation cost | .432 | ..... | .432 | ..... | .432 | ..... |
| Total cost | 1.202 | .914 | 1.207 | .957 | 1.204 | .936 |
| Amount by which United States cost exceeds Argentine cost, including transportation— | | | | | | |
| At New York | .004 | | .209 | | .106 | |
| At San Francisco | .288 | | .250 | | .268 | |

[1] The crop year, May 1 to Apr. 30, for the domestic, the calendar year for the foreign; such a comparison made necessary by the overlapping seasons in the Northern and Southern Hemispheres.

## SUMMARY

Findings of fact to the following effect are, in the judgment of the United States Tariff Commission, warranted by the evidence collected in the investigation and summarized in the commission's report:

1. Argentina is the principal competing country.

2. Commissioners Marvin, Brossard, and Lowell are of the opinion that the present duty of 15 cents per bushel of 56 pounds prescribed in paragraph 724 of Title I of the tariff act of 1922 does not equalize the difference in costs of production in the United States and in said principal competing country; that San Francisco is the principal port of entry and the chief competing market; that for the final cost comparison in this investigation the domestic farm costs of production should include the charge for the use of corn land calculated at the rate of 6 per cent interest on the value of the farm land used in the production of corn; that the weighted average cost of production should be obtained by weighting the area and State unit costs respectively by the production in the respective areas and States included in the investigation; that transportation costs to San Francisco should be included for the domestic corn from all of the eight surplus producing States for which the commission has cost of production data (Ohio, Indiana, Illinois, Iowa, Minnesota, South Dakota, Nebraska, and Kansas); that in determining the weighted average of domestic costs of transportation, the freight rate to San Francisco from each producing area, respectively, for which the commission ascertained costs, production should be weighted by the production of corn in that area; and that Argentine costs of production should be based on the weighted average of the invoice prices of Argentine corn during the two years, January 1, 1926, to December 31, 1927, including transportation costs to San Francisco.

The weighted average cost of production of corn in the United States for the two years, 1926 and 1927, including transportation to San Francisco, as shown in Table 43, page 44, is $1.284 per bushel of 56 pounds, and the average cost of production of Argentine corn for the two years, 1926 and 1927, including transportation to San Francisco, is $0.936 per bushel of 56 pounds. Said cost of production for the United States exceeds said cost of production for Argentina by $0.348 per bushel of 56 pounds.

The rate of duty necessary to equalize said difference in costs of production of corn in the United States and in said principal competing country, within the limit specified in section 315 of the tariff act of 1922, is a specific duty of 22½ cents per bushel of 56 pounds.

3. Commissioners Dennis, Dixon, and Clark are of the opinion that New York is the principal port of entry and the chief competing market; that the weighted average cost of production of domestic corn should be obtained by weighting the unit costs of the various areas and States by the surplus corn produced in such areas and States, respectively; that domestic costs, as a rule, should include the cash rental charge for the use of corn land, but the evidence of cash rental is so meager in the report that these domestic costs must necessarily include the charge for the use of corn land calculated at the rate of 6 per cent interest per annum of the value of the farm land used in the production of corn; that the domestic cost should be calculated for the surplus producing States shipping corn to New York, where it meets the foreign corn in competition, such States being Ohio, Indiana, Illinois, Iowa, and Minnesota; that the weighted average costs of transportation to New York from these surplus producing States should be determined by weighting the freight rates from each State to New York on the basis of surplus production; that as farm costs of production in Argentina could not be procured, the total costs of the domestic corn delivered at New York should be compared with the invoice prices of Argentine corn delivered at New York during the years of 1926 and 1927.

The weighted average cost of production of corn in the United States, for the two years 1926 and 1927, including transportation to New York, as shown in Table 41, page 43, is $1.048 per bushel of 56 pounds, and the average cost of production of Argentine corn, including transportation to New York, is $0.927 per bushel of 56 pounds. Said cost of production in the United States exceeds said cost of production for Argentine corn by $0.121. In the opinion of Commissioners Dennis, Dixon, and Clark, the difference in costs of production shown above does not warrant a change in the duty.

Respectfully submitted.

THOMAS O. MARVIN,
*Chairman.*
ALFRED P. DENNIS,
*Vice Chairman.*
EDGAR B. BROSSARD,
SHERMAN J. LOWELL,
LINCOLN DIXON,
FRANK CLARK,
*Commissioners.*

## STATEMENT BY CHAIRMAN MARVIN

The information secured by the commission in the investigation of the costs of production of corn shows that the cost in the United States is lower when transportation costs are included to New York than when transportation costs are included to San Francisco. The domestic cost is also lower when costs of production and of transportation are weighted upon the basis of shipments out of the counties in the areas covered in the investigation than when they are weighted upon the total production in the areas for which costs were obtained. These differences in domestic costs are reflected in the final cost comparisons as between the United States and Argentina.

Table 41, page 43, of the corn report, shows the cost of producing, marketing, and transporting corn from the eastern area of the Corn Belt to New York City, and from the western area to San Francisco, weighted upon the basis of the quantities shipped out of the counties where grown in the respective areas. Upon this basis of calculation the amount by which the United States costs exceed Argentine costs, including transportation, for a 2-year average of 1926 and 1927, delivered to New York, is 12.1 cents per bushel, and delivered to San Francisco it is 30 cents per bushel.

Table 43, page 44, shows the cost of producing, marketing, and transporting corn from all areas in the Corn Belt from which cost data were obtained, both eastern and western, to New York City and to San Francisco, weighted upon the basis of the total production in the areas studied. Upon this basis of calculation the amount by which the United States costs exceed Argentine costs, including transportation, for a 2-year average of 1926 and 1927, delivered to New York, is 19.1 cents per bushel, and to San Francisco, 35.3 cents per bushel.

It will be noted that the two summary tables referred to above differ, first, with respect to the areas from which costs are calculated, and, second, with respect to the methods of weighting the cost of production and of transportation.

Considerations underlying the method of weighting costs in Table 41 are as follows:

In the absence of exact data upon shipments of corn by counties in the Corn Belt to New York City and to San Francisco, the shipments out of the counties to all destinations were used for the eastern and western areas in the Corn Belt, which as a rule supply corn to New York City and to San Francisco, respectively. In this table, therefore, costs are calculated to the above cities, as nearly as available statistics will permit, upon the basis of actual shipments to those cities from the areas for which costs were obtained.

Considerations underlying the method of weighting costs in Table 43 are as follows:

The investigation is for the purpose of determining the costs of production of corn in the United States and in the principal competing country, and not for the purpose of determining the cost of producing the corn which may have been shipped out of particular areas. If it had been feasible from the point of view of economy of time and expense, cost data would have been obtained from all States producing corn in important quantities. The commission, however, found it necessary to limit the investigation to the prin-

cipal producing States in the Corn Belt. From this point of view, therefore, costs are calculated in Table 43 to New York and to San Francisco upon the basis of the total production of corn in all areas studied, with no distinction between eastern and western areas shipping to the seaboards. The value of the corn consumed in a particular county, and therefore not shipped out, is as much affected by the imports of corn as is the price of the corn which is shipped from the county in question. Table 43, therefore, is based upon the principle that the cost data used should represent the cost of producing corn in the United States in so far as reasonable time and expense will permit the commission to obtain the data.

In both Tables 41 and 43 costs are calculated (under different assumptions) delivered to New York City and to San Francisco. So far as the two cities alone are concerned, imports of corn into New York exceed imports into San Francisco, but for the Atlantic and the Pacific seaports, imports on the Pacific coast have exceeded the imports on the Atlantic coast in recent years.

According to Table 31, page 36, total imports at Pacific ports from October, 1923, to August, 1928, inclusive, were 5,069,000 bushels, and at the Atlantic ports, 4,841,000 bushels. If from the imports at Atlantic ports there are deducted 1,876,000 bushels exported from New York under the drawback provisions, the balance actually entered for domestic consumption in this period is 2,965,000 bushels for the Atlantic ports.

In view of the above circumstances it is believed that a port on the Pacific coast rather than on the Atlantic coast should be selected as the principal market in the United States for equalizing the cost of producing corn in the United States and in Argentina. Of the Pacific coast ports, San Francisco is the most important port of entry for the 4-year average from October 1, 1923, to September 30, 1927. In one of these years, imports of corn at Seattle slightly exceeded imports at San Francisco, but this is believed to have been due to unusual conditions.

The freight rates from any given point in the Corn Belt to the Pacific coast ports are approximately the same, and they are also about the same from Argentina to any of the Pacific ports. Domestic rates from Chicago are the same to the Pacific ports—40.04 cents per bushel—but they are slightly higher to San Francisco and Los Angeles from Kansas City and Omaha than they are to Seattle, 34.16 cents per bushel, as compared with 33.04 cents.

The ocean freight rate from Argentina to Seattle is slightly higher than to San Francisco, 18.4 cents per bushel for the 2-year average of imports in 1926 and 1927 through Seattle, as compared with 16.7 cents through San Francisco. The weighted average for both ports is 16.9 cents per bushel. The rate to San Francisco, therefore, is near the average of the rates to both ports.

If costs are equalized at New York upon the basis of calculations used in Table 41, namely, costs of production and of transportation weighted upon the basis of shipments out of counties where grown, the costs at San Francisco upon the same basis of weighting would fail to be equalized by 17.9 cents per bushel; the costs at New York upon the basis of weighting costs and transportation according to production in the areas studied (Table 43) would fail to be equalized by 7 cents per bushel; and the costs at San Francisco, weighted upon

the basis of production in the areas studied (Table 43), would fail to be equalized by 23.2 cents per bushel.

There are certain considerations, such as the small total amount of imported corn compared with the total production of corn in the United States, which might be cited as a reason for no increase in the duty on corn, but this investigation necessarily has been conducted under the provisions of section 315, which require the ascertainment of domestic and foreign costs of production, and the equalization of the difference between such costs.

For the reasons set forth above, I concur with Commissioners Brossard and Lowell that cost comparisons in this investigation should be based upon costs of production of corn in the United States weighted upon the basis of the production of corn in the areas for which cost data were obtained, including transportation to San Francisco, weighted upon the same basis, as shown in Table 43, page 44.

On this basis of cost comparison, costs of production of corn in the United States exceed costs of production of corn in Argentina by $0.353 per bushel, and the rate necessary to equalize such ascertained difference within the limitations of section 315 of the tariff act of 1922, is 22½ cents per bushel.

Respectfully submitted.

THOMAS O. MARVIN.

COMMENT OF COMMISSIONERS DENNIS, DIXON, AND CLARK

In the opinion of the undersigned commissioners the data presented in the foregoing report do not warrant a change in the present rate of duty on corn. The undersigned commissioners take this position with extreme reluctance.

The American farmer, because of the huge surpluses which must be offered for export, has been unable to extract anything like the amount of benefit from the protective tariff which accrues to the manufacturer.[1] In view of the prevailing agricultural depression this seems a great pity and any sound remedial agency that would help correct this inequality should be seized upon and appropriated to the utmost. One sympathetically turns to any possible glimmer of advantage which might accrue to the farmer through increase in tariff rates, and any reasonable doubts as to the method of attaining this objective should be resolved in favor of the domestic producer. It would be delightfully easy, therefore, to gloss over the weaknesses and inadequacies of this corn report and join with certain fellow commissioners in recommending an increase in the existing duty on corn. Commissioners, however, are under oath to assist the President in determining changes in existing rates of duty. Instead of assisting the President in the present exigency we would be doing him a disservice if we failed to point out that the proposed increase of duty on corn is a highly vulnerable proposition from the viewpoint of both ethics and economics.

The President, out of the fullness of his own official experience in analyzing measures for farm relief, will understand that heartfelt

[1] Secretary Jardine, reporting to the President in 1926, observed: "When there is a large export surplus of any article the price of that surplus in export trade tends to set the price for the domestic supply as well. This is, of course, a truism."

concern for the interest of the farmer is not incompatible with an inability to accept uneconomic measures for his relief, even though these measures are sponsored with the best of intentions.

An increase in the corn duty is economically unsound and not warranted by the accompanying report if the data therein are correctly interpreted. It must be noted:

Under the law any change in duty represents an attempt to equalize production costs as between the domestic producer and his foreign competitor. In the case under consideration we have no foreign costs on which to base a finding. Invoice prices are accepted in lieu of cost figures actually ascertained. Such a device, at best a makeshift, is particularly untrustworthy when applied to an agricultural product. The industrialist is in a position to adjust his output to market demand. With the farmer the incidence of supply and demand is beyond his power of calculation. The farmer is largely at the mercy of forces over which he has no control, the unknown factors in his equation being weather and the caprices of countless other human beings engaged in the same business. What the Argentine planter is able to obtain in the markets of New York and Liverpool for his surplus corn is no certain indication of what it costs him to produce it. He is compelled to dispose of his surplus on the world market for whatever it will fetch. It not only may, but does happen that the price realized is below the cost of production.

Trustworthy foreign costs are in this particular case distinguished by their absence. Hardly more satisfactory are the domestic costs. The method employed by expert accountants in ascertaining farm costs is beset with complexities and inherently subject to a high coefficient of error. The Secretary of Agriculture in his report to the President in 1926 expressed his distrust of the whole business of attempting to adjust tariff rates on agricultural products by employing the formula of comparative production costs. Secretary Jardine comments:

> * * * The experience of recent years have convinced me that the system of basing tariff rates on differences in production costs is inapplicable to agricultural products. It is quite impossible to obtain trustworthy production costs, weighted either for the total crop or for the bulk of it. A certain cost of cultivation and overhead, a certain agricultural effort, may in one year be rewarded with twice the crop that is obtained in another year. Therefore, costs of cultivation can not be relied upon to indicate costs of crop units in a particular year.

Let it be understood that farm costs are not costs in the accepted sense. They are not actual disbursements and allowances which make up what the accounting profession calls costs and which it struggles to make accurate. The methods which are properly applicable to factory cost accounting break down when applied to a farm. A farm is a good deal more than a factory. It is a place on which to live as well as to labor. Intangible values that have no place on the ledgers of an accountant must be reckoned with. The character of the work on a farm is intermittent and self-administered. It is impossible in the case of a farmer to state, as in the case of a factory worker, that his time is valued at so many hours out of the day with so many days of work in each week. Costs as obtained from the farmer are usually a matter of memory rather than of record and every producer, whether farmer or manufacturer, unconsciously overestimates his own difficulties.

Is there not ground for apprehension that our cost accountants, although animated by the best of intentions, have unwittingly inflated the domestic costs? The accountants of the commission have arrived at an average valuation of corn lands of $145 per acre. Is this valuation conservative? The undersigned commissioners do not question the justness of this valuation. The average acre of corn land may be worth $145 to-day. The corn farmers, however, did not pay an average of $145 per acre for their corn land. Some of it was purchased or inherited many years ago, some of it may have been acquired during war and postwar inflation, but there is no question that the average cost was less than the present valuation. Again, the weighted average returns to the farmer as set down in the report (p. 21) of 70 cents per bushel for cured corn compared with a production cost of 75 cents per bushel. It may be asked: Are these farmers in truth producing corn at a loss?

It is the vice of farm cost accounting that despite the most conscientious effort costs are inevitably inflated. In the commission's butter investigation it appears from the figures set forth in the agricultural costs that our dairy farmers in 1923 were consistently turning out butter below its cost of production. If that were true, how account for the fact that the dairy business in that year continued to expand and was regarded by experts as the most remunerative branch of American agriculture?

In the year 1926, which serves as the statistical base for this study, the production of corn in Nebraska was only 8.4 bushels per acre. In Kansas for the same year the outturn was 14 bushels per acre. The man who grows less than 15 bushels of corn to the acre on high-priced land can hardly expect to be legislated into a profitable business through the intervention of the Government. The experts (p. 21) credit the Kansas farmer with no less than 37 cents a bushel by way of interest on his land. The weighted average for all the areas is slightly over 24 cents a bushel. Is it reasonable to suppose that approximately one-half of the farm cost of producing corn in the United States is absorbed in interest on the land? Again, if the costs of growing corn in the United States are actually as high as the level indicated in the report, how is it possible for the United States, operating under these high costs, to meet Argentine corn on a competitive basis in the principal markets of continental Europe?

We are, in fact, the greatest corn-raising country in the world. In the 5-year period, 1923–1927, our output was 13,756,444,000 bushels. We exported during that period some 109,807,276 bushels, or an average per year of 21,961,455 bushels, importing during the same period 11,204,146 bushels, or an annual average of 2,240,829 bushels In addition we exported in the form of pork and other secondary products on the average of 150,000,000 bushels of corn annually. If a duty of 22½ cents per bushel is necessary adequately to equalize costs and protect our home market from ruinous competition why have not our coastal markets been inundated by Argentine corn under the present duty of only 15 cents per bushel? As a matter of fact, the imports of foreign corn into the United States for 1926 are one twenty-fifth of 1 per cent, and for 1927 are less than two-tenths of 1 per cent of our national production and only 2/10 per cent of our surplus corn disposed of through commercial channels. Can this mere trickle of Argentine corn be considered destructive competition? If the object is to lay

an embargo on imports of foreign corn Congress has the power to so order, but under the operation of the flexible provision of the tariff law it is the duty of the commission to equalize, not to destroy, foreign competition.

But let us suppose, in an access of imagination, that the foreign cost comparisons are a matter of certitude rather than conjecture—that the domestic costs are not inflated—that our corn lands are indeed conservatively valued—that in very truth interest charges do comprise approximately half of production costs—what then? An insuperable barrier of fact must still be surmounted by the proponents of a higher tariff duty on corn. Even if the cost data as set forth in the report are accepted at their face value we are estopped from deducing a higher duty on corn unless San Francisco or some other Pacific coast point be accepted as the principal competing market. In brief, corn must be transported from approximately the geographical center of the continent, across the Great Plains and three mountain ranges, to the Pacific coast on a freight rate of 43.2 cents a bushel if the costs are to attain a sufficient altitude to provide a base for a maximum increase in the present duty. It would require the faith that would almost literally remove mountains to support the justice of an economic theory under which the American corn crop, as based on the eight leading producing States, is hauled from approximately the center of the continent, across three lofty mountain ranges to the Pacific Ocean.

The term "surplus corn" as used in this report refers to the corn shipped out of the counties in which it is grown. This is the surplus corn used by us as the basis of weighting farm costs of production, elevator and transportation costs in moving corn to New York from the surplus-producing areas which, by reason of their geographical location, supply the New York market. The other commissioners take the total production of corn in all the eight surplus-producing States, and, disregarding geographical location, move the entire production to San Francisco. They completely ignore ordinary business practice in buying corn for the Pacific coast from the most westerly surplus-producing corn States. No business man would buy Ohio corn for the San Francisco market because of the very large transportation charge compared to that incurred on corn purchased in Kansas and Nebraska. The transportation of the entire production of the eight corn surplus States to San Francisco ignores the fact that 85 per cent of the total production of corn in said eight surplus corn producing States is used on the farms and never leaves the county in which it is grown.

As a matter of fact, in the four years for which the latest statistical data are obtainable (October 1, 1923, to September 30, 1927), 20,631,000 bushels of domestic corn were shipped to the Pacific coast from our Corn Belt in comparison with only 3,288,000 bushels which came in from foreign sources. It is perfectly clear that American corn under the existing tariff more than holds its own in competition on the Pacific coast despite the adverse factor of market remoteness with freight charges which amount to more than half the cost of growing the product. What more can the proponents of a higher duty ask unless they aim at a complete embargo on foreign corn?

There is no justification whatever for building into the structure of normal and typical corn costs the inordinately high freight charges

to the Pacific coast unless it can be established that the principal competitive market is located on that coast. Fatal to this contention is the stubborn fact New York rather than San Francisco or any other point on the Pacific coast is the principal competitive market. Transportation costs should be properly based upon the principal competing market. That market is not San Francisco, but New York. Reference to Table No. 32 discloses that in every marketing year for the past four seasons (1924 to 1927, inclusive), receipts of foreign corn in New York have surpassed in volume the receipts at San Francisco, and the total import balance, after making allowance for drawback on reexported corn, is heavier for the port of New York than San Francisco or any other Pacific port. The figures speak for themselves. There can be no possible cavil or dispute about this matter unless one is willing to depart from the trade and statistical practices which obtain universally throughout the civilized world and whimsically substitute the calendar for the crop or marketing year. By this device the receipts at San Francisco of foreign corn for the calendar year 1926 exceed the receipts in New York for the same period.

But let this be understood: (1) That the cost figures in this report for 1927 were obtained before the American crop was harvested and are really projected on the basis of data obtained in 1926. (2) Neither the growing of corn nor the marketing of farm crops bears the slightest relation to the conventional or calendar year as established by Julius Cæsar and rectified by Pope Gregory XIII in the sixteenth century. The calendar-year calculations, while they may have a proper place when it comes to extending the statistical base on which to estimate costs of production, have no place in this or any other report which deals with seasonal production and marketing. We are not dealing with abstractions or phantasms floating in a void. We are concerned with living human beings who work out their life wrestle on this planet by producing and selling corn. These men perform their work under the scepter of nature. Their transactions have to do with the period in which they plant, cultivate, and gather their crops and the period within which these crops are offered for sale. Only by doing violence to the realities of the situation can the business of growing and selling corn be reduced to the compass of the calendar year.

Thus, in conclusion, we have an edifice erected upon the quicksands of conjecture as to foreign costs, with strong presumptive evidence of substantial errors in the computation of domestic costs. As if this were not enough, it is asked that an exceptionally high transportation charge based on an exceptional and fictitious marketing period be accepted in order to lay the foundation for an increase in the existing duty.

Short of an absolute embargo, it is difficult to imagine how competition in any major commodity could possibly be of less importance than it is in corn.

The undersgined commissioners find no warrant for an increase in the duty on corn.

ALFRED P. DENNIS,
*Vice Chairman.*
LINCOLN DIXON,
FRANK CLARK,
*Commissioners.*

# STATISTICAL APPENDIX

# STATISTICAL APPENDIX

TABLE 45.—*Corn: Corn sirup, corn oil, and starch—General statistics for the United States*

[Source: United States Census]

| | 1925 [1] | 1923 [1] | 1921 [1] | 1919 [1] | 1914 [1] |
|---|---|---|---|---|---|
| Number of establishments | 30 | 31 | 32 | 56 | 89 |
| Persons engaged | 7,849 | 7,764 | 7,116 | 8,694 | 5,957 |
| Proprietors and firm members | 14 | 6 | 19 | 37 | 70 |
| Salaried officers and employees | 1,343 | 1,211 | 966 | 862 | 1,378 |
| Wage earners (average number) | 6,492 | 6,537 | 6,131 | 7,795 | 4,509 |
| Capital | (2) | (2) | (2) | $58,182,682 | $43,042,343 |
| Rent and taxes | (2) | (2) | (2) | 4,034,324 | 217,529 |
| Salaries and wages | $12,651,956 | $11,928,597 | $10,069,134 | 14,174,845 | 5,489,697 |
| Salaries | 3,273,799 | 2,838,493 | 2,229,036 | 2,212,362 | 1,940,132 |
| Wages | 9,378,157 | 9,090,104 | 7,840,098 | 11,962,483 | 3,549,565 |
| Paid for contract work | | 6,596 | 18,947 | 551 | 16,394 |
| Cost of materials (including fuel and containers) | 93,063,575 | 74,480,950 | 50,861,124 | 130,328,848 | 40,207,592 |
| Value of products | 132,897,074 | 116,560,034 | 80,040,795 | 186,256,260 | 52,615,401 |
| Value added by manufacture [3] | 39,834,399 | 42,079,084 | 29,179,671 | 55,927,412 | 12,407,809 |
| Primary horsepower.....number | 72,617 | 65,704 | (2) | [4] 52,036 | [4] 41,454 |
| Coal consumed.....short tons | (2) | 1,208,454 | (2) | 985,851 | 761,819 |

[1] Data for establishments with products under $5,000 in value included for 1919 and 1914 but not for 1923 and 1921.

[2] Not called for on schedule.

[3] Value of products less cost of materials.

[4] These figures differ slightly from those published in previous reports because of exclusion here and the inclusion in previous reports of data for rented power other than electric.

TABLE 46.—*Corn: Source and percentage distribution of farm income,*[1] *1926*

| | Farm income | | | | | | | | Distribution of farm income | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Corn | Other crops | Hogs | Beef cattle | Dairy | Poultry | Other livestock | Total | Corn | Other crops | Hogs | Beef cattle | Dairy | Poultry | Other livestock | Total |
| | | | | | | | | | *Per cent* | *Per cent* | *Per cent* | *Per cent* | *Per cent* | *Per cent* | *Per cent* | *Per cent* |
| United States weighted averages | $1,403.58 | $513.18 | $1,027.38 | $508.69 | $277.46 | $171.88 | $125.80 | $4,927.97 | 34.4 | 13.0 | 25.4 | 12.3 | 7.0 | 4.3 | 3.6 | 100.0 |
| Ohio | 228.30 | 663.33 | 1,227.36 | 622.38 | 507.59 | 173.21 | 51.19 | 3,473.36 | 7.8 | 23.0 | 32.1 | 14.3 | 14.7 | 6.6 | 1.5 | 100.0 |
| Napoleon | 243.22 | 727.63 | 438.74 | 49.07 | 304.56 | 243.56 | 37.85 | 2,044.63 | 11.9 | 35.6 | 21.5 | 2.4 | 14.9 | 11.9 | 1.8 | 100.0 |
| Urbana | 217.10 | 615.06 | 1,819.37 | 1,052.77 | 660.00 | 120.40 | 61.20 | 4,545.90 | 4.8 | 13.5 | 40.0 | 23.2 | 14.5 | 2.7 | 1.3 | 100.0 |
| Indiana | 1,101.24 | 695.59 | 1,010.87 | 230.82 | 139.91 | 115.05 | 132.39 | 3,425.87 | 32.1 | 20.1 | 29.7 | 6.6 | 4.2 | 3.5 | 3.8 | 100.0 |
| Fowler | 2,344.16 | 1,599.76 | 1,896.56 | 624.40 | 140.84 | 69.28 | 309.20 | 6,984.20 | 33.6 | 22.9 | 27.2 | 8.9 | 2.0 | 1.0 | 4.4 | 100.0 |
| Shelbyville | 956.48 | 508.88 | 1,032.16 | 94.04 | 247.08 | 240.40 | 93.08 | 3,222.12 | 29.7 | 15.8 | 33.6 | 2.9 | 7.7 | 7.4 | 2.9 | 100.0 |
| Illinois | 2,395.43 | 644.03 | 457.49 | 189.20 | 278.57 | 154.04 | 151.08 | 4,269.84 | 56.1 | 15.1 | 10.7 | 4.4 | 6.5 | 3.6 | 3.6 | 100.0 |
| Iowa | 1,421.00 | 443.16 | 1,790.68 | 922.99 | 328.24 | 276.92 | 48.65 | 5,231.64 | 27.2 | 8.5 | 34.2 | 17.6 | 6.3 | 5.3 | .9 | 100.0 |
| Minnesota: Worthington | 479.77 | 331.35 | 1,971.65 | 1,510.92 | 445.46 | 198.85 | 103.85 | 5,041.85 | 9.5 | 6.6 | 39.1 | 30.0 | 8.8 | 3.9 | 2.1 | 100.0 |
| South Dakota: Parkston | 194.24 | 9.24 | 1,451.00 | 376.00 | 419.76 | 165.04 | 46.20 | 2,661.48 | 7.3 | .4 | 54.5 | 14.1 | 15.8 | 6.2 | 1.7 | 100.0 |
| Nebraska | 842.95 | 412.95 | 791.89 | 376.36 | 158.18 | 102.55 | 224.08 | 2,908.96 | 30.1 | 12.5 | 27.1 | 13.2 | 5.4 | 3.5 | 8.2 | 100.0 |
| Walthill | 964.16 | 132.60 | 733.84 | 389.88 | 145.24 | 87.40 | 275.40 | 2,733.52 | 35.2 | 4.8 | 26.8 | 14.6 | 5.3 | 3.2 | 10.1 | 100.0 |
| Seward | 401.96 | 1,432.92 | 1,003.08 | 290.77 | 205.27 | 157.69 | 37.35 | 3,526.04 | 11.4 | 40.6 | 28.4 | 8.2 | 5.8 | 4.5 | 1.1 | 100.0 |
| Kansas: Holton | 266.89 | 113.33 | 833.52 | 821.30 | 160.89 | 172.22 | 45.52 | 2,413.67 | 11.1 | 4.7 | 34.5 | 34.0 | 6.7 | 7.1 | 1.9 | 100.0 |

[1] Weighted averages obtained by weighting area costs by shipments of corn out of counties where grown (Method I). Slightly different results would have been obtained if area costs had been weighted by total production (Method II).

TABLE 47.—*Corn: Land tenure and utilization, 1926* [1]

[Acres per farm]

| | Land tenure | | | | | Principal crops | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Owned | Rented | Total | Rented out | Total farmed | Corn for grain | Other corn | Other crop land | Total crop land | Permanent pasture | Woods | Waste | Total farm area |
| United States weighted average | 101.9 | 117.3 | 219.2 | 0.3 | 218.9 | 85.8 | 7.5 | 94.2 | 187.5 | 28.6 | 0.9 | 1.9 | 218.9 |
| Ohio | 79.9 | 41.5 | 121.4 | .7 | 120.7 | 27.1 | 7.1 | 67.1 | 101.3 | 11.3 | 4.7 | 3.4 | 120.7 |
| Napoleon | 48.4 | 50.5 | 98.9 | | 98.9 | 22.4 | 2.0 | 57.6 | 82.0 | 6.5 | 7.4 | 3.0 | 98.9 |
| Urbana | 103.6 | 34.7 | 138.3 | 1.3 | 137.0 | 30.6 | 10.9 | 74.3 | 115.8 | 14.8 | 2.7 | 3.7 | 137.0 |
| Indiana | 242.1 | 48.9 | 291.0 | .5 | 290.5 | 108.1 | 13.8 | 131.4 | 253.3 | 32.0 | 2.4 | 2.8 | 290.5 |
| Fowler | 328.6 | 52.8 | 381.4 | | 381.4 | 143.4 | 19.9 | 174.2 | 337.5 | 40.5 | | 3.4 | 381.4 |
| Shelbyville | 106.1 | 42.8 | 148.9 | 1.2 | 147.7 | 52.5 | 4.2 | 64.2 | 120.9 | 18.7 | 6.1 | 2.0 | 147.7 |
| Illinois | 83.8 | 133.2 | 217.0 | | 217.0 | 95.7 | 1.4 | 95.8 | 192.9 | 23.0 | .4 | .7 | 217.0 |
| Iowa | 99.8 | 127.3 | 227.1 | | 227.1 | 86.7 | 10.9 | 100.1 | 197.7 | 27.2 | .6 | 1.6 | 227.1 |
| Minnesota | 91.8 | 131.1 | 222.9 | | 222.9 | 59.6 | 17.3 | 101.2 | 178.1 | 37.1 | .6 | 7.1 | 222.9 |
| South Dakota | 203.1 | 71.9 | 275.0 | | 275.0 | 73.5 | 20.2 | 124.7 | 218.4 | 56.0 | | .6 | 275.0 |
| Nebraska | 57.3 | 146.2 | 203.5 | .5 | 203.0 | 86.9 | 7.1 | 73.9 | 167.9 | 32.8 | .1 | 2.2 | 203.0 |
| Walthill | 54.5 | 149.4 | 203.9 | | 203.9 | 92.8 | 7.4 | 65.1 | 165.3 | 36.0 | .1 | 2.5 | 203.9 |
| Seward | 67.3 | 134.7 | 202.0 | 2.5 | 199.5 | 65.3 | 5.9 | 106.0 | 177.2 | 21.1 | | 1.2 | 199.5 |
| Kansas: Holton | 145.9 | 83.6 | 229.5 | 1.5 | 228.0 | 82.2 | 5.9 | 74.1 | 162.2 | 60.9 | 2.8 | 2.1 | 228.0 |

[1] Weighted averages obtained by weighting area costs by shipments of corn out of counties where grown (Method I). Slightly different results would have been obtained if area costs had been weighted by total production (Method II).

TABLE 48.—*Corn: Value per acre of land devoted to growing corn* [1]

| | Quantity | Total value | Value per acre |
|---|---|---|---|
| | *Acres* | | |
| Corn Belt of the United States where investigation was made | | | $120.72 |
| Ohio | | | 99.71 |
| Napoleon | 606 | $78,959 | 130.30 |
| Urbana | 918 | 77,411 | 84.33 |
| Indiana | | | 122.88 |
| Fowler | 3,585 | 452,772 | 126.30 |
| Shelbyville | 1,312 | 155,288 | 118.36 |
| Illinois | 7,170 | 1,313,601 | 182.95 |
| Iowa | 6,505 | 1,071,272 | 164.68 |
| Minnesota | 1,550 | 205,543 | 132.61 |
| South Dakota | 1,797 | 185,922 | 103.48 |
| Nebraska | | | 115.01 |
| Walthill | 2,321 | 226,840 | 97.73 |
| Seward | 1,698 | 225,549 | 132.83 |
| Kansas | 2,221 | 168,250 | 75.75 |

[1] Weighted on acres grown in areas covered by the investigation.

TABLE 49.—*Corn: Land values—Current value and renting value of land per acre in Buenos Aires, Santa Fe, and Cordoba districts* [1]

| Distance from rail shipping point | Average value per acre | | | Average rental charge per acre | | |
|---|---|---|---|---|---|---|
| | 1922-23 | 1923-24 | 1924-25 | 1922-23 | 1923-24 | 1924-25 |
| BUENOS AIRES DISTRICT | | | | | | |
| 1 league [2] equals 3.1 miles | $69.82 | $63.90 | $76.69 | $4.58 | $4.17 | $5.28 |
| 2 leagues equal 6.2 miles | 61.92 | 56.34 | 63.54 | 4.10 | 3.76 | 4.07 |
| 3 leagues equal 9.3 miles | 55.75 | 50.44 | 60.05 | 3.65 | 3.33 | 4.23 |
| 4 leagues equal 12.4 miles | 48.77 | 44.50 | 50.13 | 3.27 | 3.00 | 3.68 |
| 5 leagues equal 15.5 miles | 44.83 | 40.91 | 46.93 | 3.06 | 2.79 | 3.42 |
| 6 leagues equal 18.6 miles | 39.96 | 36.26 | 41.64 | 2.65 | 2.42 | 3.01 |
| SANTA FE DISTRICT | | | | | | |
| 1 league equals 3.1 miles | 57.60 | 53.76 | 61.19 | 4.17 | 3.97 | 4.54 |
| 2 leagues equal 6.2 miles | 54.82 | 50.98 | 56.34 | 3.94 | 3.72 | 4.35 |
| 3 leagues equal 9.3 miles | 50.68 | 46.97 | 54.21 | 3.55 | 3.36 | 4.04 |
| 4 leagues equal 12.4 miles | 48.14 | 45.72 | 52.25 | 3.52 | 3.31 | 3.93 |
| 5 leagues equal 15.5 miles | 45.57 | 42.00 | 48.02 | 3.28 | 3.01 | 3.51 |
| 6 leagues equal 18.6 miles | 41.39 | 38.45 | 44.22 | 3.01 | 2.93 | 3.41 |
| CORDOBA DISTRICT | | | | | | |
| 1 league equals 3.1 miles | 37.59 | 36.00 | 40.75 | 2.72 | 2.58 | 3.16 |
| 2 leagues equal 6.2 miles | 33.53 | 31.73 | 37.59 | 2.40 | 2.27 | 2.87 |
| 3 leagues equal 9.3 miles | 33.14 | 30.52 | 34.35 | 2.14 | 1.99 | 2.49 |
| 4 leagues equal 12.4 miles | 30.03 | 26.98 | 31.65 | 1.94 | 1.79 | 2.24 |
| 5 leagues equal 15.5 miles | 25.72 | 23.33 | 28.61 | 1.88 | 1.68 | 1.98 |
| 6 leagues equal 18.6 miles | 25.33 | 22.55 | 25.39 | 1.60 | 1.43 | 1.69 |

[1] Anuario de Estadistica Agro-Pecuario, Ministerio de Agricultura de Argentina, 1925-26, section B, p. 147.

[2] A liga equals 3.1 miles.

TABLE 50.—*Corn: Comparison of prices in Buenos Aires and Chicago, by months, July 1, 1921, to December 31, 1927*

| Year and month | Buenos Aires [1] | Chicago No. 2 yellow [2] | Excess of Buenos Aires over Chicago | Excess of Chicago over Buenos Aires | Chicago No. 3 yellow [2] | Excess of Buenos Aires over Chicago | Excess of Chicago over Buenos Aires |
|---|---|---|---|---|---|---|---|
| 1921-22 | *Per bu.* | *Per bu.* | *Per bu.* | *Per bu.* | *Per bu.* | *Per bu.* | *Per bu.* |
| July | $0.65 | $0.62 | $0.03 | | $0.60 | $0.05 | |
| August | .66 | .57 | .09 | | .56 | .10 | |
| September | .65 | .54 | .11 | | .53 | .12 | |
| October | .58 | .47 | .11 | | .45 | .13 | |
| November | .61 | .48 | .13 | | .47 | .14 | |
| December | .63 | .48 | .15 | | .47 | .16 | |
| January | .63 | .49 | .14 | | .48 | .15 | |
| February | .73 | .58 | .15 | | .55 | .18 | |
| March | .79 | .58 | .21 | | .57 | .22 | |
| April | .77 | .60 | .17 | | .58 | .19 | |
| May | .75 | .62 | .13 | | .62 | .13 | |
| June | .71 | .62 | .09 | | .61 | .10 | |
| 1922-23 | | | | | | | |
| July | .78 | .64 | .14 | | .64 | .14 | |
| August | .78 | .63 | .15 | | .62 | .16 | |
| September | .76 | .64 | .12 | | .64 | .12 | |
| October | .74 | .69 | .05 | | .69 | .05 | |
| November | .70 | .72 | | $0.02 | .71 | | $0.01 |
| December | .74 | .74 | | | .73 | .01 | |
| January | .80 | .72 | .08 | | .70 | .10 | |
| February | .82 | .74 | .08 | | .72 | .10 | |
| March | .81 | .75 | .06 | | .73 | .08 | |
| April | .80 | .80 | | | .79 | .01 | |
| May | .77 | .82 | | .05 | .82 | | .05 |
| June | .75 | .85 | | .10 | .84 | | .09 |
| 1923-24 | | | | | | | |
| July | .73 | .87 | | .14 | .88 | | .15 |
| August | .69 | .89 | | .20 | .88 | | .19 |
| September | .74 | .89 | | .15 | .89 | | .15 |
| October | .78 | 1.03 | | .25 | 1.04 | | .26 |
| November | .81 | .93 | | .12 | .82 | | .01 |
| December | .79 | .74 | .05 | | .71 | .08 | |
| January | .78 | .77 | .01 | | .76 | .02 | |
| February | .82 | .82 | | | .78 | .04 | |
| March | .77 | .80 | | .03 | .77 | | |
| April | .67 | .79 | | .12 | .77 | | .10 |
| May | .65 | .70 | | .14 | .77 | | .12 |
| June | .57 | .83 | | .26 | .82 | | .25 |
| 1924-25 | | | | | | | |
| July | .68 | 1.10 | | .42 | 1.09 | | .41 |
| August | .85 | 1.18 | | .33 | 1.17 | | .32 |
| September | .93 | 1.17 | | .24 | 1.14 | | .21 |
| October | 1.05 | 1.11 | | .06 | 1.10 | | .05 |
| November | 1.06 | 1.13 | | .07 | 1.11 | | .05 |
| December | 1.07 | 1.23 | | .16 | 1.20 | | .13 |
| January | 1.12 | 1.30 | | .18 | 1.24 | | .12 |
| February | 1.08 | 1.29 | | .21 | 1.22 | | .14 |
| March | .96 | 1.20 | | .24 | 1.17 | | .21 |
| April | .92 | 1.09 | | .17 | 1.05 | | .13 |
| May | 1.00 | 1.18 | | .18 | 1.15 | | .15 |
| June | .92 | 1.14 | | .22 | 1.13 | | .21 |
| 1925-26 | | | | | | | |
| July | .93 | 1.09 | | .16 | 1.08 | | .15 |
| August | .96 | 1.06 | | .10 | 1.02 | | .06 |
| September | .91 | .92 | | .01 | .91 | | |
| October | .82 | .82 | | | .82 | | |
| November | .84 | .86 | | .02 | .83 | .01 | |
| December | .86 | .82 | .04 | | .76 | .10 | |
| January | .78 | .82 | | .04 | .79 | | .01 |
| February | .73 | .81 | | .08 | .75 | | .02 |
| March | .66 | .75 | | .09 | .72 | | .06 |
| April | .70 | .74 | | .04 | .71 | | .01 |
| May | .68 | .72 | | .04 | .71 | | .03 |
| June | .68 | .72 | | .04 | .70 | | .02 |

[1] Compiled from International Review of Agricultural Statistics and Review of River Plate.
[2] Compiled from Crops and Markets and 1925 Yearbook United States Department of Agriculture.

TABLE 50.—*Corn: Comparison of prices in Buenos Aires and Chicago, by months, July 1, 1921, to December 31, 1927*—Continued

| Year and month | Buenos Aires [1] | Chicago No. 2 yellow [2] | Excess of Buenos Aires over Chicago | Excess of Chicago over Buenos Aires | Chicago No. 3 yellow [2] | Excess of Buenos Aires over Chicago | Excess of Chicago over Buenos Aires |
|---|---|---|---|---|---|---|---|
| 1926-27 | *Per bu.* | *Per bu.* | *Per bu.* | *Per bu.* | *Per bu.* | *Per bu.* | *Per bu.* |
| July | $0.68 | $0.80 | | $0.12 | $0.78 | | $0.10 |
| August | .70 | .82 | | .12 | .80 | | .10 |
| September | .65 | .81 | | .16 | .79 | | .14 |
| October | .60 | .78 | | .18 | .77 | | .17 |
| November | .56 | .72 | | .06 | .71 | | .15 |
| December | .55 | .77 | | .22 | .75 | | .20 |
| January | .60 | .79 | | .19 | .74 | | .14 |
| February | .63 | .77 | | .14 | .73 | | .10 |
| March | .62 | .73 | | .11 | .68 | | .06 |
| April | .60 | .74 | | .14 | .71 | | .11 |
| | [1] .66 | | | .08 | | | .05 |
| May | .61 | .94 | | .33 | .87 | | .26 |
| | [1] .66 | | | .28 | | | .21 |
| June | .64 | 1.01 | | .37 | .99 | | .35 |
| | [1] .69 | | | .32 | | | .30 |
| 1927-28 | | | | | | | |
| July | .77 | 1.04 | | .33 | 1.02 | | .31 |
| August | .77 | 1.11 | | .34 | 1.09 | | .32 |
| September | .78 | .99 | | .21 | .97 | | .19 |
| October | .77 | .86 | | .09 | .84 | | .07 |
| November | .76 | .86 | | .10 | .84 | | .08 |
| December | .84 | .91 | | .07 | .86 | | .02 |

[1] First quotation, new corn; second, old.

TABLE 51.—*Corn: Comparison of prices in Chicago and Liverpool, by months, July 1, 1921, to December 31, 1927*

| Year and month | Chicago [1] | | Liverpool-American mixed [2] | Margin of Liverpool over Chicago | |
|---|---|---|---|---|---|
| | No. 2 yellow | No. 3 yellow | | No. 2 yellow | No. 3 yellow |
| 1921-22 | *Per bu.* | *Per bu.* | *Per bu.* | *Per bu.* | *Per bu.* |
| July | $0.62 | $0.60 | $0.98 | $0.36 | $0.38 |
| August | .57 | .56 | .92 | .35 | .36 |
| September | .54 | .53 | .85 | .31 | .32 |
| October | .47 | .45 | .71 | .24 | .26 |
| November | .48 | .47 | .78 | .30 | .31 |
| December | .48 | .47 | .85 | .37 | .38 |
| January | .49 | .48 | .81 | .32 | .33 |
| February | .58 | .55 | .90 | .32 | .35 |
| March | .58 | .57 | .85 | .27 | .28 |
| April | .60 | .58 | .83 | .23 | .25 |
| May | .62 | .62 | .84 | .22 | .22 |
| June | .62 | .61 | .84 | .22 | .23 |
| 1922-23 | | | | | |
| July | .64 | .64 | .98 | .34 | .34 |
| August | .63 | .62 | .92 | .29 | .30 |
| September | .64 | .64 | .90 | .26 | .26 |
| October | .69 | .69 | 1.00 | .31 | .31 |
| November | .72 | .71 | 1.00 | .28 | .29 |
| December | .74 | .73 | 1.00 | .26 | .27 |
| January | .72 | .70 | .89 | .27 | .29 |
| February | .74 | .72 | 1.00 | .26 | .28 |
| March | .75 | .73 | 1.00 | .25 | .27 |
| April | .80 | .79 | 1.06 | .26 | .27 |
| May | .82 | .82 | 1.07 | .25 | .25 |
| June | .85 | .84 | 1.09 | .24 | .25 |

[1] Mostly weighted average cash sales from Crops and Markets, and 1926 Yearbook, U. S. Department of Agriculture.

[2] Broomhall's Corn Trade News and International Yearbook of Agricultural Statistics.

TABLE 51.—*Corn: Comparison of prices in Chicago and Liverpool, by months, July 1, 1921, to December 31, 1927*—Continued

| Year and month | Chicago | | Liverpool-American mixed | Margin of Liverpool over Chicago | |
|---|---|---|---|---|---|
| | No. 2 yellow | No. 3 yellow | | No. 2 yellow | No. 3 yellow |
| | *Per bu.* | *Per bu.* | *Per bu.* | *Per bu.* | *Per bu.* |
| 1923–24 | | | | | |
| July | $0.87 | $0.88 | $0.95 | $0.08 | $0.07 |
| August | .89 | .88 | 1.16 | .27 | .28 |
| September | .89 | .89 | 1.16 | .27 | .27 |
| October | 1.03 | 1.04 | (1) | | |
| November | .93 | .82 | (1) | | |
| December | .74 | .71 | (1) | | |
| January | .77 | .76 | 1.06 | .29 | .30 |
| February | .82 | .78 | 1.15 | .33 | .37 |
| March | .80 | .77 | 1.13 | .33 | .36 |
| April | .79 | .77 | 1.06 | .27 | .29 |
| May | .79 | .77 | 1.08 | .29 | .31 |
| June | .83 | .82 | 1.00 | .17 | .18 |
| 1924–25 | | | | | |
| July | 1.10 | 1.09 | 1.12 | .02 | .03 |
| August | 1.18 | 1.17 | (1) | | |
| September | 1.17 | 1.14 | (1) | | |
| October | 1.11 | 1.10 | (1) | | |
| November | 1.13 | 1.11 | (1) | | |
| December | 1.23 | 1.20 | (1) | | |
| January | 1.30 | 1.24 | (1) | | |
| February | 1.29 | 1.22 | (1) | | |
| March | 1.20 | 1.17 | (1) | | |
| April | 1.09 | 1.05 | (1) | | |
| May | 1.18 | 1.15 | (1) | | |
| June | 1.14 | 1.13 | (1) | | |
| 1925–26 | | | | | |
| July | 1.09 | 1.08 | (1) | | |
| August | 1.06 | 1.02 | (1) | | |
| September | .92 | .91 | (1) | | |
| October | .82 | .82 | 1.19 | .37 | .37 |
| November | .86 | .83 | 1.16 | .30 | .33 |
| December | .82 | .76 | (1) | | |
| January | .82 | .79 | 1.01 | .19 | .21 |
| February | .81 | .75 | 1.00 | .19 | .25 |
| March | .75 | .72 | .92 | .17 | .20 |
| April | .74 | .71 | .97 | .23 | .26 |
| May | .72 | .71 | .92 | .20 | .21 |
| June | .72 | .70 | .94 | .22 | .24 |
| 1926–27 | | | | | |
| July | .80 | .78 | 1.02 | .22 | .24 |
| August | .82 | .80 | (1) | | |
| September | .81 | .79 | 1.09 | .28 | .30 |
| October | .78 | .77 | 1.09 | .31 | .32 |
| November | .72 | .71 | (1) | | |
| December | .77 | .75 | (1) | | |
| January | .79 | .74 | 1.14 | .35 | .40 |
| February | .77 | .73 | 1.07 | .30 | .34 |
| March | .73 | .68 | 1.00 | .27 | .32 |
| April | .74 | .71 | .97 | .23 | .26 |
| May | .94 | .87 | .99 | .05 | .12 |
| June | 1.01 | .99 | 1.06 | .05 | .07 |
| 1927 | | | | | |
| July | 1.04 | 1.02 | 1.10 | .06 | .08 |
| August | 1.11 | 1.09 | 1.17 | .06 | .08 |
| September | .99 | .97 | (1) | | |
| October | .86 | .84 | (1) | | |
| November | .86 | .84 | (1) | | |
| December | .91 | .86 | (1) | | |

[1] No quotation.

TABLE 52.—*Corn: Comparison of prices in Buenos Aires and Liverpool, by months, July 1, 1921, to December 31, 1927.*

[Per bushel]

| Year and month | Buenos Aires[1] | Liverpool[2] | | Excess of Liverpool over Buenos Aires (Yellow La Plata) |
|---|---|---|---|---|
| | | Yellow La Plata | American mixed | |
| 1921–22 | | | | |
| July | $0.65 | $1.05 | $0.98 | $0.40 |
| August | .66 | .93 | .92 | .27 |
| September | .65 | .83 | .85 | .18 |
| October | .58 | .72 | .71 | .14 |
| November | .61 | .78 | .78 | .17 |
| December | .63 | .88 | .85 | .25 |
| January | .63 | .92 | .81 | .29 |
| February | .73 | 1.08 | .90 | .35 |
| March | .79 | 1.08 | .85 | .29 |
| April | .77 | 1.03 | .83 | .26 |
| May | .75 | 1.06 | .94 | .31 |
| June | .71 | 1.01 | .84 | .30 |
| 1922–23 | | | | |
| July | .78 | 1.10 | .98 | .32 |
| August | .78 | 1.10 | .92 | .32 |
| September | .76 | 1.09 | .90 | .33 |
| October | .74 | 1.08 | 1.00 | .34 |
| November | .70 | .96 | 1.00 | .26 |
| December | .74 | 1.00 | 1.00 | .26 |
| January | .80 | .99 | .99 | .19 |
| February | .82 | 1.04 | 1.00 | .22 |
| March | .81 | 1.05 | 1.00 | .24 |
| April | .80 | 1.09 | 1.06 | .29 |
| May | .77 | 1.14 | 1.07 | .37 |
| June | .75 | 1.10 | 1.09 | .35 |
| 1923–24 | | | | |
| July | .73 | 1.02 | .95 | .29 |
| August | .69 | .94 | 1.16 | .25 |
| September | .74 | .98 | 1.16 | .24 |
| October | .78 | .97 | [3] | .19 |
| November | .81 | .96 | [3] | .15 |
| December | .79 | 1.02 | [3] | .23 |
| January | .78 | 1.03 | 1.06 | .25 |
| February | .82 | 1.15 | 1.15 | .33 |
| March | .77 | 1.11 | 1.13 | .34 |
| April | .67 | 1.07 | 1.06 | .40 |
| May | .65 | 1.12 | 1.08 | .47 |
| June | .57 | 1.00 | 1.00 | .43 |
| 1924–25 | | | | |
| July | .68 | .91 | 1.12 | .26 |
| August | .85 | 1.04 | [3] | .19 |
| September | .93 | 1.14 | [3] | .21 |
| October | 1.05 | 1.24 | [3] | .19 |
| November | 1.06 | 1.21 | [3] | .15 |
| December | 1.07 | 1.22 | [3] | .15 |
| January | 1.12 | 1.31 | [3] | .19 |
| February | 1.08 | 1.29 | [3] | .21 |
| March | .96 | 1.14 | [3] | .18 |
| April | .92 | 1.11 | [3] | .19 |
| May | 1.00 | 1.30 | [3] | .30 |
| June | .92 | 1.28 | [3] | .36 |

[1] Compiled from International Review of Agricultural Statistics and Review of River Plate.
[2] Compiled from Broomhall's Corn Trade News and International Yearbook of Agricultural Statistics.
[3] No quotations.

TABLE 52.—*Corn: Comparison of prices in Buenos Aires and Liverpool, by months, July 1, 1921, to December 31, 1927*—Continued

[Per bushel]

| Year and month | Buenos Aires | Liverpool | | Excess of Liverpool over Buenos Aires (Yellow La Plata) |
|---|---|---|---|---|
| | | Yellow La Plata | American mixed | |
| 1925–26 | | | | |
| July | $0.93 | $1.27 | (1) | $0.34 |
| August | .96 | 1.38 | (1) | .42 |
| September | .91 | 1.20 | (1) | .29 |
| October | .82 | 1.03 | $1.19 | .21 |
| November | .84 | 1.07 | 1.16 | .23 |
| December | .86 | 1.10 | (1) | .24 |
| January | .78 | 1.97 | 1.01 | .19 |
| February | .73 | .91 | 1.00 | .18 |
| March | .66 | .89 | .92 | .23 |
| April | .70 | .94 | .97 | .24 |
| May | .68 | .89 | .92 | .21 |
| June | .68 | .87 | .94 | .19 |
| 1926–27 | | | | |
| July | .68 | 1.00 | 1.02 | .32 |
| August | .70 | .98 | (1) | .28 |
| September | .65 | .90 | 1.09 | .25 |
| October | .60 | .93 | 1.09 | .33 |
| November | .56 | .95 | (1) | .39 |
| December | .55 | .92 | (1) | .37 |
| January | .60 | .89 | 1.14 | .29 |
| February | .63 | .93 | 1.07 | .30 |
| March | .62 | .87 | 1.00 | .25 |
| April: | | | | |
| Old corn | .60 | .88 | .97 | .28 |
| New corn | .66 | ---- | ---- | .22 |
| May: | | | | |
| Old corn | .61 | .94 | .99 | .33 |
| New corn | .66 | ---- | ---- | .28 |
| June: | | | | |
| Old corn | .64 | .91 | 1.06 | .27 |
| New corn | .69 | .90 | ---- | .21 |
| 1927–28 | | | | |
| July: | | | | |
| Old corn | .71 | .88 | 1.10 | .17 |
| New corn | ---- | .91 | ---- | .20 |
| August | .77 | .98 | 1.17 | .21 |
| September | .78 | .97 | (1) | .19 |
| October | .77 | .95 | (1) | .18 |
| November | .76 | .97 | (1) | .21 |
| December | .84 | 1.04 | (1) | .20 |

[1] No quotations.

TABLE 53.—*Corn: Summary by areas of items entering into the cost of growing and delivering to elevator [1] on all farms in the United States covered by the cost inquiry of the commission, 1926*

[Per acre]

| Item | Ohio | Indiana | Illinois | Iowa | Minnesota | South Dakota | Nebraska | Kansas |
|---|---|---|---|---|---|---|---|---|
| Number of acres | 1,524 | 4,897 | 7,180 | 6,505 | 1,550 | 1,797 | 4,010 | 2,221 |
| Total bushels | 71,830 | 212,028 | 335,535 | 289,941 | 69,092 | 46,266 | 108,758 | 30,869 |
| Bushels per acre, normal | 47.4 | 45.0 | 46.7 | 44.6 | 44.6 | 25.7 | 28.4 | 13.9 |
| Bushels per acre, shrunken | 41.6 | 40.1 | 42.5 | 40.5 | 39.3 | 22.6 | 25.5 | 12.2 |
| COST DATA | | | | | | | | |
| Detailed farm cost: | | | | | | | | |
| Labor | $10.75 | $5.19 | $4.34 | $4.98 | $6.57 | $4.07 | $4.88 | $3.48 |
| Horse work | 4.62 | 5.02 | 3.93 | 4.38 | 5.13 | 4.23 | 4.03 | 3.75 |
| Machine work hired | .54 | .05 | .03 | .09 | .02 | ---- | .08 | .01 |
| Tractor work | 1.39 | 1.55 | 1.75 | 1.34 | 1.24 | .28 | .12 | .40 |
| Truck work | ---- | ---- | ---- | .01 | ---- | ---- | .07 | ---- |
| Auto costs | .66 | .48 | .46 | .50 | .70 | .47 | .52 | .37 |
| Manure, fertilizer, and lime | 3.22 | .84 | .64 | 1.06 | 1.68 | .96 | .47 | .48 |
| Seed and twine | .43 | .46 | .53 | .57 | .66 | .39 | .26 | .28 |
| Equipment and building | 2.00 | 1.61 | 1.52 | 1.78 | 1.88 | 1.25 | .92 | .97 |
| Taxes | 1.64 | 1.67 | 1.75 | 1.48 | 1.33 | .67 | 1.11 | 1.06 |
| Fence and drainage repairs | .36 | .35 | .27 | .28 | .33 | .22 | .20 | .17 |
| Miscellaneous | .21 | .13 | .13 | .23 | .28 | .20 | .15 | .05 |
| Shelling costs | .70 | .78 | .72 | .81 | 1.18 | .66 | .74 | [2].35 |
| Hauling to elevator | 1.53 | 1.42 | 1.15 | 1.09 | .86 | .99 | .97 | .49 |
| Total gross cost | 28.14 | 19.55 | 17.22 | 18.60 | 21.86 | 14.38 | 14.52 | 11.86 |
| Credits for fodder and cobs | 3.20 | .59 | .50 | .78 | .67 | .82 | .56 | .70 |
| Net cost | 24.94 | 18.96 | 16.72 | 17.82 | 20.69 | 13.56 | 13.96 | 11.16 |
| Interest: | | | | | | | | |
| On land at 6 per cent | 6.24 | 7.39 | 10.98 | 9.88 | 7.76 | 6.14 | 6.32 | 4.55 |
| On other capital | 1.19 | 1.24 | .93 | 1.22 | .93 | .82 | .66 | .57 |
| Total interest on land and other capital | 7.43 | 8.63 | 11.91 | 11.10 | 8.69 | 6.96 | 6.98 | 5.12 |
| Net cash rental | 5.16 | 4.61 | 5.76 | 7.39 | 5.35 | 3.78 | 4.47 | 2.98 |
| Total net cost delivered at elevator with interest on land and other capital | 32.37 | 27.59 | 28.63 | 28.92 | 29.38 | 20.52 | 20.94 | 16.28 |
| With net cash rental on land and interest on other capital | 31.29 | 24.81 | 23.41 | 26.43 | 26.97 | 18.16 | 19.09 | 14.71 |
| Returns to farmer per acre [3] | 29.05 | 28.34 | 32.64 | 30.29 | 27.33 | 15.29 | 17.86 | 9.16 |

[1] Cost calculated as though the entire corn crop had been shelled on the farm and delivered to elevator. In States having more than one area the average cost for the State was obtained by weighting the area costs by shipments of corn out of county where grown (Method I). Slightly different results would have been obtained if the area cost had been weighted by total production (Method II).

[2] The shelling cost found in Nebraska was also used in Kansas, as it was considered to be more representative than the shelling cost actually obtained in Kansas.

[3] Returns per acre to the farmer include that sold and fed on the farm at the value given by the farmer.

TABLE 54.—*Corn: Array showing number of farms, acres, and bushels of corn produced at varying costs per bushel, and the accumulative number and per cent of each, 1926*

| Cost per bushel | Farms | | | Acres | | | Bushels [1] | | |
|---|---|---|---|---|---|---|---|---|---|
| | Number | Accumulative number | Accumulative per cent of total | Number | Accumulative number | Accumulative per cent of total | Number | Accumulative number | Accumulative per cent of total |
| Less than $0.39 | 6 | 6 | 1.55 | 371 | 371 | 1.25 | 21,399 | 21,399 | 2.04 |
| $0.39 and less than $0.40 | 1 | 7 | 1.81 | 16 | 387 | 1.30 | 945 | 22,344 | 2.13 |
| $0.40 and less than $0.41 | 2 | 9 | 2.33 | 183 | 570 | 1.92 | 8,785 | 31,129 | 2.97 |
| $0.41 and less than $0.42 | 6 | 15 | 3.89 | 522 | 1,092 | 3.68 | 27,803 | 58,932 | 5.63 |
| $0.42 and less than $0.43 | 4 | 19 | 4.92 | 332 | 1,424 | 5.80 | 15,200 | 74,132 | 7.08 |
| $0.43 and less than $0.44 | 4 | 23 | 5.96 | 390 | 1,814 | 7.11 | 20,511 | 94,643 | 9.04 |
| $0.44 and less than $0.45 | 4 | 27 | 6.99 | 444 | 2,258 | 8.60 | 21,088 | 115,731 | 11.05 |
| $0.45 and less than $0.46 | 4 | 31 | 8.03 | 408 | 2,666 | 9.98 | 16,974 | 132,705 | 12.67 |
| $0.46 and less than $0.47 | 5 | 36 | 9.33 | 666 | 3,332 | 12.22 | 29,169 | 161,874 | 15.46 |
| $0.47 and less than $0.48 | 5 | 41 | 10.62 | 281 | 3,613 | 13.17 | 12,745 | 174,619 | 16.68 |
| $0.48 and less than $0.49 | 7 | 48 | 12.43 | 341 | 3,954 | 14.32 | 17,576 | 192,195 | 18.35 |
| $0.49 and less than $0.50 | 8 | 56 | 14.51 | 795 | 4,749 | 16.99 | 32,610 | 224,805 | 21.47 |
| $0.50 and less than $0.51 | 7 | 63 | 16.32 | 905 | 5,654 | 20.04 | 33,728 | 258,533 | 24.69 |
| $0.51 and less than $0.52 | 5 | 68 | 17.62 | 389 | 6,043 | 21.35 | 18,459 | 276,992 | 26.45 |
| $0.52 and less than $0.53 | 11 | 79 | 20.47 | 860 | 6,903 | 24.25 | 35,523 | 312,515 | 29.84 |
| $0.53 and less than $0.54 | 14 | 93 | 24.09 | 1,306 | 8,209 | 27.65 | 55,361 | 367,876 | 35.13 |
| $0.54 and less than $0.55 | 11 | 104 | 26.94 | 973 | 9,182 | 30.92 | 43,050 | 410,926 | 39.24 |
| $0.55 and less than $0.56 | 8 | 112 | 29.02 | 666 | 9,848 | 33.17 | 27,077 | 438,003 | 41.83 |
| $0.56 and less than $0.57 | 4 | 116 | 30.05 | 428 | 10,276 | 34.61 | 14,110 | 452,113 | 43.18 |
| $0.57 and less than $0.58 | 6 | 122 | 31.61 | 507 | 10,783 | 36.31 | 18,957 | 471,070 | 44.99 |
| $0.58 and less than $0.59 | 10 | 132 | 34.20 | 1,000 | 11,783 | 39.68 | 33,135 | 504,205 | 48.15 |
| $0.59 and less than $0.60 | 8 | 140 | 36.27 | 692 | 12,475 | 42.01 | 27,175 | 531,380 | 50.75 |
| $0.60 and less than $0.61 | 10 | 150 | 38.86 | 1,401 | 13,876 | 46.73 | 55,054 | 586,434 | 56.00 |
| $0.61 and less than $0.62 | 13 | 163 | 42.23 | 1,010 | 14,886 | 50.13 | 37,576 | 624,010 | 59.59 |
| $0.62 and less than $0.63 | 11 | 174 | 45.08 | 1,017 | 15,903 | 53.56 | 37,471 | 661,481 | 63.17 |
| $0.63 and less than $0.64 | 5 | 179 | 46.37 | 257 | 16,160 | 54.42 | 11,841 | 673,322 | 64.30 |
| $0.64 and less than $0.65 | 12 | 191 | 49.48 | 908 | 17,068 | 57.48 | 30,176 | 703,498 | 67.18 |
| $0.65 and less than $0.66 | 15 | 206 | 53.37 | 1,279 | 18,347 | 61.79 | 45,014 | 748,512 | 71.48 |
| $0.66 and less than $0.67 | 9 | 215 | 55.70 | 688 | 19,035 | 64.11 | 23,944 | 772,456 | 73.77 |
| $0.67 and less than $0.68 | 7 | 222 | 57.51 | 400 | 19,435 | 65.45 | 16,131 | 788,587 | 75.31 |
| $0.68 and less than $0.69 | | | | | | | | | |
| $0.69 and less than $0.70 | 8 | 230 | 59.59 | 451 | 19,886 | 66.97 | 15,324 | 803,911 | 76.77 |
| $0.70 and less than $0.71 | 6 | 236 | 61.14 | 284 | 20,170 | 67.92 | 9,433 | 813,344 | 77.67 |
| $0.71 and less than $0.72 | 7 | 243 | 62.95 | 342 | 20,512 | 69.08 | 10,986 | 824,330 | 78.72 |
| $0.72 and less than $0.73 | 8 | 251 | 65.03 | 589 | 21,101 | 71.06 | 21,116 | 845,446 | 80.74 |
| $0.73 and less than $0.74 | 4 | 255 | 66.06 | 527 | 21,628 | 72.84 | 19,491 | 864,937 | 82.60 |
| $0.74 and less than $0.75 | 9 | 264 | 68.39 | 663 | 22,291 | 75.07 | 23,287 | 888,224 | 84.82 |
| $0.75 and less than $0.76 | 4 | 268 | 69.43 | 224 | 22,515 | 75.83 | 7,589 | 895,813 | 85.55 |
| $0.76 and less than $0.77 | 5 | 273 | 70 73 | 443 | 22,958 | 77.32 | 13,459 | 909,272 | 86.83 |
| $0.77 and less than $0.78 | 9 | 282 | 73.06 | 392 | 23,350 | 78.64 | 11,437 | 920,709 | 87.92 |
| $0.78 and less than $0.79 | 2 | 284 | 73.58 | 150 | 23,500 | 79.14 | 2,970 | 923,679 | 88.21 |
| $0.79 and less than $0.80 | 2 | 286 | 74.09 | 130 | 23,630 | 79.58 | 3,354 | 927,033 | 88.53 |
| $0.80 and less than $0.81 | 3 | 289 | 74.87 | 220 | 23,850 | 80.32 | 6,043 | 933,076 | 89.11 |
| $0.81 and less than $0.82 | 3 | 292 | 75.65 | 158 | 24,008 | 80.85 | 5,158 | 938,234 | 89.60 |
| $0.82 and less than $0.83 | 1 | 293 | 75.91 | 53 | 24,061 | 81.03 | 1,377 | 939,611 | 89.73 |
| $0.83 and less than $0.84 | 9 | 302 | 78.23 | 661 | 24,722 | 83.26 | 19,515 | 959,126 | 91.59 |
| $0.84 and less than $0.85 | 5 | 307 | 79.53 | 330 | 25,102 | 84.54 | 7,919 | 967,045 | 92.35 |
| $0.85 and less than $0.86 | 2 | 309 | 80.05 | 140 | 25,242 | 85.01 | 4,313 | 971,358 | 92.76 |
| $0.86 and less than $0.87 | 2 | 311 | 80.57 | 109 | 25,351 | 85.38 | 2,871 | 974,229 | 93.04 |
| $0.87 and less than $0.88 | 1 | 312 | 80.83 | 29 | 25,380 | 85.47 | 1,260 | 975,489 | 93.16 |
| $0.88 and less than $0.89 | 2 | 314 | 81.35 | 85 | 25,465 | 85.76 | 1,830 | 977,319 | 93.33 |
| $0.89 and less than $0.90 | 2 | 316 | 81.87 | 110 | 25,575 | 86.13 | 3,255 | 980,574 | 93.64 |
| $0.90 and less than $0.91 | 1 | 317 | 82.12 | 70 | 25,645 | 86.37 | 1,969 | 982,543 | 93.83 |
| $0.91 and less than $0.92 | 4 | 321 | 83.16 | 120 | 25,765 | 86.77 | 2,833 | 985,376 | 94.10 |
| $0.92 and less than $0.93 | 2 | 323 | 83.68 | 165 | 25,930 | 87.33 | 4,831 | 990,207 | 94.56 |
| $0.93 and less than $0.94 | 1 | 324 | 83.94 | 25 | 25,955 | 87.41 | 978 | 991,185 | 94.66 |
| $0.94 and less than $0.95 | 1 | 325 | 84.20 | 28 | 25,983 | 87.51 | 956 | 992,141 | 94.75 |
| $0.95 and less than $0.96 | 3 | 328 | 84.97 | 162 | 26,145 | 88.05 | 3,549 | 995,690 | 95.09 |
| $0.96 and less than $0.97 | 1 | 329 | 85.23 | 46 | 26,191 | 88.21 | 1,024 | 996,714 | 95.18 |
| $0.97 and less than $0.98 | 1 | 330 | 85 49 | 72 | 26,263 | 88.45 | 1,140 | 997,854 | 95.29 |
| $0.98 and less than $0.99 | 3 | 333 | 86.27 | 155 | 26,418 | 88.97 | 3,681 | 1,001,538 | 95.64 |
| $0.99 and less than $1.00 | 1 | 334 | 86.53 | 40 | 26,458 | 89.11 | 789 | 1,002,327 | 95.72 |
| $1.01 and less than $1.02 | 2 | 336 | 87.05 | 50 | 26,508 | 89.27 | 1,138 | 1,003,465 | 95.83 |
| $1.02 and less than $1.03 | 1 | 337 | 87.31 | 100 | 26,608 | 89.61 | 1,146 | 1,004,611 | 95.94 |
| $1.04 and less than $1.05 | 2 | 339 | 87.82 | 180 | 26,788 | 90.22 | 2,710 | 1,007,321 | 96.20 |
| $1.05 and less than $1.06 | 2 | 341 | 88.34 | 98 | 26,886 | 90.55 | 1,421 | 1,008,742 | 96.33 |
| $1.07 and less than $1.08 | 1 | 342 | 88.60 | 60 | 26,946 | 90.75 | 1,323 | 1,010,065 | 96.46 |
| $1.08 and less than $1.09 | 1 | 343 | 88.86 | 15 | 26,961 | 90.80 | 652 | 1,010,717 | 96.52 |
| $1.09 and less than $1.10 | 3 | 346 | 89.64 | 106 | 27,067 | 91.16 | 3,593 | 1,014,310 | 96.86 |
| $1.10 and less than $1.11 | 1 | 347 | 89.90 | 53 | 27,120 | 91.33 | 831 | 1,015,141 | 96.94 |
| $1.12 and less than $1.13 | 1 | 348 | 90.16 | 180 | 27,300 | 91.94 | 3,246 | 1,018,387 | 97.25 |

[1] Shrunken (see p. 15 for discussion)

TABLE 54.—*Corn: Array showing number of farms, acres, and bushels of corn produced at varying costs per bushel, and the accumulative number and per cent of each, 1926*—Continued

| Cost per bushel | Farms | | | Acres | | | Bushels | | |
|---|---|---|---|---|---|---|---|---|---|
| | Number | Accumulative number | Accumulative per cent of total | Number | Accumulative number | Accumulative per cent of total | Number | Accumulative number | Accumulative per cent of total |
| $1.13 and less than $1.14 | 2 | 350 | 90.67 | 125 | 27,425 | 92.36 | 1,408 | 1,019,795 | 97.39 |
| $1.16 and less than $1.17 | 1 | 351 | 90.93 | 150 | 27,575 | 92.70 | 3,508 | 1,023,303 | 97.72 |
| $1.18 and less than $1.19 | 2 | 353 | 91.45 | 100 | 27,625 | 93.04 | 1,303 | 1,024,606 | 97.85 |
| $1.19 and less than $1.20 | 2 | 355 | 91.97 | 172 | 27,847 | 93.78 | 2,361 | 1,026,967 | 98.07 |
| $1.20 and less than $1.21 | 1 | 356 | 92.23 | 100 | 27,947 | 94.12 | 617 | 1,027,584 | 98.13 |
| $1.21 and less than $1.22 | 2 | 358 | 92.75 | 342 | 28,289 | 95.27 | 4,207 | 1,031,791 | 98.53 |
| $1.22 and less than $1.23 | 2 | 360 | 93.26 | 35 | 23,324 | 95.39 | 1,001 | 1,032,792 | 98.63 |
| $1.24 and less than $1.25 | 1 | 361 | 93.52 | 180 | 28,504 | 96.00 | 1,580 | 1,034,372 | 98.78 |
| $1.28 and less than $1.29 | 2 | 363 | 94.04 | 46 | 23,550 | 96.15 | 1,119 | 1,035,491 | 98.89 |
| $1.29 and less than $1.30 | 1 | 364 | 94.30 | 12 | 28,562 | 96.19 | 313 | 1,035,804 | 98.92 |
| $1.30 and less than $1.31 | 1 | 365 | 94.56 | 120 | 28,682 | 96.60 | 1,304 | 1,037,108 | 99.04 |
| $1.31 and less than $1.32 | 2 | 367 | 95.08 | 70 | 23,752 | 96.83 | 899 | 1,038,007 | 99.13 |
| $1.40 and less than $1.41 | 1 | 368 | 95.34 | 80 | 28,832 | 97.10 | 1,122 | 1,039,129 | 99.23 |
| $1.44 and less than $1.45 | 2 | 370 | 95.85 | 93 | 28,925 | 97.41 | 1,129 | 1,040,258 | 99.34 |
| $1.46 and less than $1.47 | 1 | 371 | 96.11 | 15 | 28,940 | 97.46 | 261 | 1,040,519 | 99.37 |
| $1.47 and less than $1.48 | 1 | 372 | 96.37 | 50 | 28,990 | 97.63 | 304 | 1,040,823 | 99.40 |
| $1.53 and less than $1.54 | 1 | 373 | 96.63 | 55 | 29,045 | 97.82 | 439 | 1,041,262 | 99.44 |
| $1.54 and less than $1.55 | 1 | 374 | 96.89 | 18 | 29,063 | 97.98 | 419 | 1,041,681 | 99.48 |
| $1.64 and less than $1.65 | 1 | 375 | 97.15 | 45 | 29,108 | 98.03 | 978 | 1,042,659 | 99.57 |
| $1.68 and less than $1.69 | 1 | 376 | 97.41 | 25 | 29,133 | 98.11 | 326 | 1,042,985 | 99.60 |
| $1.69 and less than $1.70 | 1 | 377 | 97.67 | 100 | 29,233 | 98.45 | 1,206 | 1,044,191 | 99.72 |
| $1.87 and less than $1.88 | 1 | 378 | 97.93 | 75 | 29,308 | 98.70 | 652 | 1,044,843 | 99.78 |
| $2.02 and less than $2.03 | 1 | 379 | 98.19 | 10 | 29,318 | 98.72 | 87 | 1,044,930 | 99.79 |
| $2.12 and less than $2.13 | 1 | 380 | 98.45 | 40 | 29,358 | 98.87 | 343 | 1,045,278 | 99.82 |
| $2.19 and less than $2.20 | 1 | 381 | 98.70 | 30 | 29,388 | 98.97 | 261 | 1,045,539 | 99.85 |
| $2.80 and less than $2.81 | 1 | 382 | 98.96 | 135 | 29,523 | 99.43 | 939 | 1,046,478 | 99.94 |
| $2.91 and less than $2.92 | 1 | 383 | 99.22 | 65 | 29,588 | 99.65 | 348 | 1,046,826 | 99.97 |
| $3.17 and less than $3.18 | 1 | 384 | 99.48 | 40 | 29,628 | 99.78 | 217 | 1,047,043 | 99.99 |
| $3.51 and less than $3.52 | 1 | 385 | 99.74 | 30 | 29,658 | 99.88 | 87 | 1,047,130 | 100.00 |
| $50.85 and less than $50.86 | 1 | 386 | 100.00 | 35 | 29,693 | 100.00 | 13 | 1,047,143 | 100.00 |
| Total | 386 | | | 29,693 | | | 1,047,143 | | |

TABLE 55.—*Corn: Cost of handling corn and grain in country elevators, 1926*

[20 elevators in the States of Ohio, Indiana, Illinois, Iowa, South Dakota, and Nebraska]

| | Ohio | Indiana | Illinois | Iowa | South Dakota | Nebraska | United States average | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Weighted average [1] | Simple average [2] |
| Cost per elevator for handling grain and side lines: | | | | | | | | |
| Salaries and wages | $5,537.07 | $5,204.73 | $3,884.77 | $2,718.05 | $2,466.05 | $2,431.90 | $3,517.57 | $3,734.79 |
| Taxes and insurance | 1,427.86 | 1,541.94 | 705.77 | 455.57 | 654.56 | 299.00 | 697.15 | 718.49 |
| Shelling | | | 165.27 | 184.00 | 57.93 | | 103.96 | 111.99 |
| Power, heat, and light | 916.48 | 1,076.95 | 471.50 | 187.88 | 127.15 | 515.75 | 497.09 | 458.69 |
| Depreciation | 453.08 | 1,238.62 | 1,269.98 | 554.84 | 1,368.83 | 790.27 | 943.88 | 1,163.55 |
| Office expense | 226.18 | 212.33 | 450.21 | 298.85 | 284.77 | 239.48 | 325.93 | 329.20 |
| Repairs | 285.07 | 816.05 | 286.37 | 161.11 | | 50.00 | 252.06 | 240.13 |
| Miscellaneous | 314.32 | 574.82 | 335.45 | 173.52 | 73.61 | 604.60 | 389.07 | 371.00 |
| Total cost without interest | 9,460.91 | 10,715.44 | 7,575.82 | 4,733.82 | 4,972.90 | 4,929.06 | 6,726.71 | 7,127.84 |
| Interest at 6 per cent on fixed and working capital | 1,236.15 | 2,502.04 | 2,273.58 | 1,384.26 | 1,242.96 | 923.66 | 1,700.05 | 1,898.74 |
| Total cost including interest | 10,697.09 | 13,217.48 | 9,849.40 | 6,118.08 | 6,215.86 | 5,852.72 | 8,426.76 | 9,026.58 |
| Cost of side lines and shelling | 2,061.50 | 1,362.73 | 1,247.49 | 1,678.37 | 897.16 | 1,527.19 | 1,468.87 | 1,311.19 |
| Cost per elevator for handling grain only, including interest | 8,635.59 | 11,854.75 | 8,601.91 | 4,439.71 | 5,318.70 | 4,325.53 | 6,957.89 | 7,715.39 |

[1] Calculated according to weights used for agricultural costs (Method I) on the assumption that the areas shown represent 100 per cent. Slightly different State averages would have been obtained if the area costs had been weighted by total production (Method II).

[2] Secured by dividing the total costs by total elevators.

TABLE 56.—*Freight rates on corn from producing points to the various markets and milling points*

[Rates are on carload basis stated in cents per bushel (56 pounds to the bushel) and are those in effect during the period July 1, 1923, to September 30, 1927]

[Source: Bureau of Railway Economics, Bulletin No. 25, December, 1927]

| Origin point | Market or milling point | Rate per bushel in effect at— | | |
|---|---|---|---|---|
| | | Beginning of period | End of period | Date of change |
| Illinois: | | | | |
| Bongard | Chicago, Ill | 7.0 | 7.0 | |
| Do | Decatur, Ill | 8.4 | 8.4 | |
| Do | Indianapolis, Ind | 9.2 | 9.2 | |
| Do | St. Louis, Mo | 6.4 | 6.4 | |
| Broadwell | Chicago, Ill | 7.0 | 7.0 | |
| Do | Decatur, Ill | 8.1 | 8.1 | |
| Do | Peoria, Ill | 5.3 | 5.3 | |
| Do | St. Louis, Mo | 6.4 | 6.4 | |
| Brocton | Chicago, Ill | 9.0 | 9.0 | |
| Do | Decatur, Ill | 7.6 | 7.6 | |
| Do | Indianapolis, Ind | 8.1 | 8.1 | |
| Do | St. Louis, Mo | 6.4 | 6.4 | |
| Clifton | Chicago, Ill | 5.6 | 5.6 | |
| Do | Indianapolis, Ind | 9.5 | 9.5 | |
| Do | Battle Creek, Mich | 11.5 | 10.4 | July 1, 1925 |
| Newman | Chicago, Ill | 8.1 | 8.1 | |
| Do | Decatur, Ill | 6.2 | 6.2 | |
| Do | Indianapolis, Ind | 7.3 | 7.3 | |
| Do | Battle Creek, Mich | 11.5 | 11.5 | |
| Sheldon | Chicago, Ill | 6.4 | 6.4 | |
| Do | Fowler, Ind | 8.1 | 8.1 | |
| Do | Indianapolis, Ind | 8.1 | 8.1 | |
| Do | Battle Creek, Mich | 9.5 | 9.5 | |
| Indiana: | | | | |
| Fowler | Indianapolis, Ind | 7.0 | 7.0 | |
| Do | La Fayette, Ind | 6.4 | 5.6 | Mar. 25, 1926 |
| Do | Battle Creek, Mich | 9.8 | 9.8 | |
| Do | Buffalo, N. Y | 14.8 | 14.8 | |
| Do | Akron, Ohio | 12.0 | 12.0 | |
| Mount Vernon | Evansvillis, Ind | 3.9 | 3.9 | |
| Do | Indianapolis, Ind | 9.0 | 9.0 | |
| Do | Henderson, Ky | 5.0 | 5.0 | |
| Do | Louisville, Ky | 6.4 | 6.4 | |
| Do | Nashville, Tenn | 11.5 | 10.1 | May 25, 1927 |
| St. Paul | Indianapolis, Ind | 5.3 | 5.3 | |
| Do | Cincinnati, Ohio | 5.3 | 6.4 | Sept. 16, 1927 |
| Iowa: | | | | |
| Ames | Cedar Rapids, Iowa | 6.4 | 6.4 | |
| Do | Des Moines, Iowa | 3.9 | 3.9 | |
| Do | Kansas City, Mo | 9.8 | [1] 10.1 | Oct. 1, 1926 |
| Do | Manitowoc, Wis | 10.4 | 10.4 | |
| Havelock | Chicago, Ill | 11.5 | 11.5 | |
| Do | Cedar Rapids, Iowa | 8.1 | 8.1 | |
| Do | Minneapolis, Minn | 9.8 | 9.8 | |
| Do | Milwaukee, Wis | 11.5 | 11.5 | |
| Paton | Chicago, Ill | 10.6 | 10.6 | |
| Do | Cedar Rapids, Iowa | 8.4 | 8.4 | |
| Do | Kansas City, Mo | 10.4 | 10.4 | |
| Do | Milwaukee, Wis | 10.6 | 10.6 | |
| Roland | Chicago, Ill | 10.4 | 10.4 | |
| Do | Cedar Rapids, Iowa | 7.3 | 7.3 | |
| Do | Kansas City, Mo | 10.1 | 10.1 | |
| Do | Milwaukee, Wis | 10.4 | 10.4 | |
| Sac City | Chicago, Ill | 11.5 | 11.5 | |
| Do | Cedar Rapids, Iowa | 8.4 | 8.4 | |
| Do | Oakland, Minn | 10.9 | 10.9 | |
| Do | Omaha, Nebr | 6.7 | 6.7 | |
| Do | Milwaukee, Wis | 11.5 | 11.5 | |
| Woodbine | Council Bluffs, Iowa | 4.5 | 4.5 | |
| Do | St. Louis, Mo | 12.9 | 12.6 | May 5, 1926 |
| Do | Kansas City, Mo | 8.4 | 8.4 | |
| Kansas: | | | | |
| Hiawatha | Atchison, Kans | 4.5 | 4.5 | |
| Do | Cawker City, Kans | 9.5 | 9.5 | |
| Do | Concordia, Kans | 9.0 | 9.0 | |
| Do | Logan, Kans | 9.8 | 9.8 | |
| Do | St. Joseph, Mo | 5.3 | 5.3 | |
| Olathe | Topeka, Kans | 5.3 | 5.3 | |
| Do | Kansas City, Mo | 4.8 | 4.8 | |

[1] More than one change of rates during the period, the last effective change being shown.

TABLE 56.—*Freight rates on corn from producing points to the various markets and milling points*—Continued

| Origin point | Market or milling point | Rate per bushel in effect at— | | |
|---|---|---|---|---|
| | | Beginning of period | End of period | Date of change |
| Minnesota: | | | | |
| Brewster | Cedar Rapids, Iowa | 12.0 | 12.0 | |
| Do | Kasota, Minn | 5.6 | 5.6 | |
| Do | Minneapolis, Minn | 6.4 | 6.4 | |
| Do | Milwaukee, Wis | 12.0 | 12.0 | |
| Truman | Chicago, Ill | 11.5 | 11.5 | |
| Do | Kasota, Minn | 3.9 | 3.9 | |
| Do | Minneapolis, Minn | 6.4 | 6.4 | |
| Do | Lincoln, Nebr | 14.0 | 14.0 | |
| Do | Milwaukee, Wis | 11.5 | 11.5 | |
| Nebraska: | | | | |
| Alvo | Kansas City, Mo | 8.7 | 8.7 | |
| Do | St. Louis, Mo | 11.8 | 10.9 | Feb. 25, 1926 |
| Do | Lincoln, Nebr | 3.9 | 3.9 | |
| Do | Omaha, Nebr | 5.0 | 5.0 | |
| Do | Richfield, Nebr | 3.9 | 3.9 | |
| Dorchester | Kansas City, Mo | 9.5 | 9.5 | |
| Do | Crete, Nebr | 3.4 | 3.4 | |
| Do | Lincoln, Nebr | 3.9 | 3.9 | |
| Do | Omaha, Nebr | 7.3 | 7.3 | |
| Ohio: | | | | |
| Bellevue | Buffalo, N. Y | 9.0 | 9.0 | |
| Do | Rochester, N. Y | 14.0 | 14.0 | |
| Do | Cleveland, Ohio | 5.3 | 5.3 | |
| Do | Toledo, Ohio | 3.4 | 3.4 | |
| London | Buffalo, N. Y | 10.9 | 10.9 | |
| Do | Cleveland, Ohio | 7.3 | 7.3 | |
| Do | Springfield, Ohio | 4.5 | 4.5 | |
| Do | Toledo, Ohio | 6.4 | 6.4 | |
| South Dakota: | | | | |
| Beresford | Sioux City, Iowa | 5.6 | 5.6 | |
| Do | Omaha, Nebr | 5.1 | 7.8 | Apr. 10, 1924 |
| Do | Huron, S. Dak | 9.0 | 7.5 | May 22, 1926 |
| Do | Lebanon, S. Dak | 12.5 | 10.6 | Do. |
| Canton | Cedar Rapids, Iowa | 11.5 | 11.5 | |
| Do | Sioux City, Iowa | 6.2 | 6.2 | |
| Do | Minneapolis, Minn | 9.8 | 9.8 | |
| Do | Mount Vernon, S. Dak | 7.8 | 6.7 | Do. |

# SUPPLEMENTAL REPORT OF THE UNITED STATES TARIFF COMMISSION TO THE PRESIDENT OF THE UNITED STATES

## LETTER OF TRANSMITTAL

AUGUST 16, 1929.

The PRESIDENT,
*The White House.*

MY DEAR MR. PRESIDENT: In response to your request of May 14, the commission has reviewed the cost data secured in its investigation of corn.

No additional information concerning costs of production is available. Factors that may be taken into consideration in ascertaining differences in costs of production for the purposes of section 315 are referred to in the attached report, which is submitted by the commission in response to your request that we reconsider the report on corn in the light of any additional information which may be available since the report was made.

For your convenience, the original report is enclosed herewith.

Respectfully,

THOMAS O. MARVIN, *Chairman.*

# SUPPLEMENTAL REPORT OF THE UNITED STATES TARIFF COMMISSION TO THE PRESIDENT OF THE UNITED STATES

UNITED STATES TARIFF COMMISSION,
*Washington, August 1, 1929.*

To the PRESIDENT:

In response to your request for recent and additional information concerning corn, the following is presented:

The corn report was submitted by the Tariff Commission on October 23, 1928. Statistics on production, imports, exports, and prices for the year 1928 and for a few months of 1929 have since become available.

These data, together with other pertinent information not contained in the original report, are here summarized.

*Acreage and production—the United States and Argentina.*—Table 1 shows acreage and production data for corn in the United States and Argentina for the years 1919–1928.

TABLE 1.—*Corn: Acreage and production in the United States and Argentina, 1919–1928, with 5-year averages 1909–1928*

[000 omitted]

| Year | United States | | Argentina | | Yield per acre | |
|---|---|---|---|---|---|---|
| | Acreage | Quantity | Acreage | Quantity | United States | Argentina |
| | | *Bushels* | | *Bushels* | | |
| 1919 | 97,170 | 2,811,302 | 9,800 | 240,144 | 28.9 | 24.5 |
| 1920 | 101,699 | 3,208,584 | 8,184 | 258,686 | 31.5 | 31.6 |
| 1921 | 103,740 | 3,068,569 | 8,090 | 230,420 | 29.6 | 28.5 |
| 1922 | 102,846 | 2,906,020 | 7,851 | 176,103 | 28.3 | 22.4 |
| 1923 | 104,324 | 3,053,557 | 8,464 | 276,756 | 29.3 | 32.7 |
| 1924 | 100,863 | 2,309,414 | 9,162 | 186,301 | 22.9 | 20.3 |
| 1925 | 101,350 | 2,916,961 | 10,618 | 279,516 | 28.8 | 26.3 |
| 1926 | 99,713 | 2,692,217 | 10,599 | 320,853 | 27.0 | 30.3 |
| 1927 | 98,393 | 2,763,093 | 10,739 | 305,691 | 28.1 | 28.3 |
| 1928 [1] | 100,761 | 2,839,959 | | | 28.2 | |
| 5-year averages: | | | | | | |
| 1909–1913 | 104,229 | 2,712,364 | 8,710 | 191,698 | 26.0 | 22.0 |
| 1914–1918 | 107,225 | 2,760,484 | 9,652 | 198,400 | 25.7 | 20.5 |
| 1919–1923 | 101,956 | 3,009,606 | 8,478 | 236,422 | 29.5 | 27.9 |
| 1924–1928 | 100,218 | 2,704,329 | [2] 10,280 | [2] 273,090 | 27.9 | [2] 26.6 |

[1] Preliminary.
[2] 4-year average; 1928 not available.

Acreage in the United States, which reached an average of 107,225,000 acres during the 5-year period 1914–1918, decreased to an average of 100,218,000 for the 5-year period 1924–1928. Production has not declined in proportion. The average annual yield for the 5-year period 1914–1918 was 2,276,000,000 bushels and for the period 1924–1928, 2,704,000,000 bushels. During the 5-year period 1919–1923,

when the average acreage declined to 101,956,000 acres, production increased and averaged 3,010,000,000 bushels annually.

There has been little change in 20 years in the corn acreage in the Atlantic and Pacific seaboard areas of the United States, while during that period acreage has increased 3,000,000 acres in the Corn Belt and 2,000,000 acres in the Mountain States, but has decreased 9,000,000 acres in the Southern States.

Acreage in Argentina, which averaged 9,652,000 acres for the period 1914–1918, likewise declined during the next five years, but for the 4-year period, 1924–1927, the acreage increased to 10,280,000 acres. Average production increased during each period over the preceding. In the years 1924 to 1927 in both the United States and Argentina, however, the yield per acre is somewhat lower than during the 5-year period 1919–1923. If there be omitted from the acreage the apparent crop failures in Argentina in 1922 and 1924, the increased acreage in Argentina during the past four years apparently had not, on the average, resulted in any great increase in production.

The yield per acre in Argentina has increased to a greater extent than in the United States. The increase in the United States from 1909–1913 to 1924–1928 was from 26 bushels to 27 bushels, whereas the increase in Argentina was from 22 bushels to 26.6 bushels, thus bringing average yields nearly the same at the present time. Both countries fell off slightly during the last period due to the fact that each had a year with a very high yield in the former period (31.5 and 31.6 bushels, respectively) and each had a very low yield in the latter period (22.9 and 20.3 bushels, respectively).

*Corn production and population in the United States.*—Table 1 indicates that corn acreage reached its maximum in the United States during the period of the World War, 1914–1918, and has since decreased in total acreage. This decrease is more noticeable in relation to population. The per capita corn production which averaged 1.17 acres or 29 bushels for the 5-year period 1909–1913 declined to 0.86 acre or 23 bushels for the most recent 5-year period—a decrease in per capita acreage of 26 per cent and in production of over 20 per cent.

TABLE 2.—*Corn: Per capita production of corn in the United States, 1900–1928*

| Period | Production per capita | Period | Production per capita |
|---|---|---|---|
| | *Bushels* | | *Bushels* |
| 1900–1904 | 29.03 | 1914–1918 | 27.60 |
| 1905–1909 | 30.83 | 1919–1923 | 27.87 |
| 1909–1913 | 29.48 | 1924–1928 | 23.11 |

Table 3 shows the imports for consumption of corn for 1926–1929 by months.

TABLE 3.—*Corn: Imports for consumption, 1926–1929, by months*

| Month | Bushels imported | | | |
|---|---|---|---|---|
| | 1926 | 1927 | 1928 | 1929 |
| January | 23,667 | 77,961 | 23,435 | 38,419 |
| February | 39,268 | 27,117 | 16,429 | 9,761 |
| March | 48,263 | 44,164 | 49,050 | 28,343 |
| April | 42,397 | 33,962 | 33,560 | 19,092 |
| May | 23,164 | 26,445 | 95,069 | [1] 25,403 |
| June | 22,363 | 33,188 | 47,449 | |
| July | 25,295 | 443,929 | 105,429 | |
| August | 19,626 | 1,112,749 | 50,493 | |
| September | 41,791 | 787,578 | 59,206 | |
| October | 254,479 | 1,332,611 | 42,578 | |
| November | 234,476 | 808,614 | 26,499 | |
| December | 281,106 | 189,197 | 33,833 | |
| Total | 1,055,895 | 4,916,615 | 574,120 | |

[1] General imports, as imports for consumption are not available for this month; the corresponding figure for May, 1928, was 93,011 bushels

Imports decreased from 4,916,615 bushels in the calendar year 1927 to 574,120 bushels in the calendar year 1928; and from 3,356,254 bushels in the year October 1, 1926, to September 30, 1927; to 2,801,632 bushels in the year October 1, 1927, to September 30, 1928. Imports of corn during the first four months of 1929 were 95,645 bushels, as compared with imports of 113,474 bushels in the corresponding months of 1928. The figure for May, 1929 (25,403 bushels), is based upon general imports, as imports for consumption are not available for this month; the corresponding figure for May, 1928, is 93,011 bushels.

*Imports.*—Table 4 shows imports for consumption for 1909–1928 and the periods of free and dutiable imports of corn.

TABLE 4.—*Corn: Imports for consumption, 1909–1928*

| Year | Duty | Quantity | Value |
|---|---|---|---|
| Fiscal: | | *Bushels* | |
| 1909 | 15 cents per bushel | 229,015 | $170,914 |
| 1910 | do | 117,933 | 72,341 |
| 1911 | do | 52,205 | 37,843 |
| 1912 | do | 53,381 | 47,853 |
| 1913 | do | 865,124 | 470,176 |
| 1914 | do | 524,175 | 318,542 |
| 1914 | Free | 11,765,187 | 7,564,699 |
| 1915 | do | 9,893,573 | 6,083,390 |
| 1916 | do | 5,210,470 | 2,866,335 |
| 1917 | do | 2,267,414 | 1,488,617 |
| 1918 | do | 3,197,051 | 3,482,211 |
| Calendar: | | | |
| 1918 | do | 156,362 | 114,454 |
| 1919 | do | 11,212,717 | 10,966,911 |
| 1920 | do | 7,784,482 | 9,296,891 |
| 1921 | do | 113,419 | 128,941 |
| 1921 | 15 cents per bushel | 45,329 | 56,860 |
| 1922 | do | 112,790 | 115,605 |
| 1923 | do | 202,776 | 228,202 |
| 1924 | do | 3,905,667 | 3,393,868 |
| 1925 | do | 1,123,193 | 1,223,276 |
| 1926 | do | 1,055,895 | 903,911 |
| 1927 | do | 4,916,615 | 3,906,699 |
| 1928 | do | 574,120 | 616,976 |
| Average, 5-year period: | | | |
| 1909–1913 | do | 263,550 | 159,825 |
| 1914–1918 | Free | 6,571,584 | 4,360,760 |
| 1919–1923 | [1] | 4,494,303 | 4,158,774 |
| 1924–1928 | 15 cents per bushel | 2,315,098 | 2,069,946 |

[1] Free 1919 to May 28, 1921; dutiable May 28, 1921 to 1923 at 15 cents per bushel.

*Exports.*—Table 5 shows the exports of corn from the United States during 1900–1928.

TABLE 5.—*Corn: Domestic exports of the United States, 1900–1928*

| Year | Quantity | Value | Year | Quantity | Value |
|---|---|---|---|---|---|
| Fiscal: | *Bushels* | | Calendar—Continued | *Bushels* | |
| 1909 | 35,853,412 | $25,194,466 | 1922 | 163,609,213 | $15,095,358 |
| 1910 | 36,892,374 | 25,427,993 | 1923 | 42,187,732 | 36,805,723 |
| 1911 | 63,761,458 | 35,961,479 | 1924 | 18,365,628 | 17,824,785 |
| 1912 | 40,038,795 | 28,957,450 | 1925 | 12,761,606 | 14,252,931 |
| 1913 | 49,084,967 | 28,800,544 | 1926 | 23,063,923 | 19,839,741 |
| 1914 | 9,380,855 | 7,008,028 | 1927 | 13,428,387 | 11,432,465 |
| 1915 | 48,786,291 | 39,339,064 | 1928 | 25,798,949 | 26,367,356 |
| 1916 | 38,217,012 | 30,780,887 | Average 5-year period: | | |
| 1917 | 64,720,842 | 72,497,204 | 1900–1904 | 108,899,901 | 60,966,405 |
| 1918 | 40,997,827 | 75,305,692 | 1905–1909 | 75,625,160 | 42,681,451 |
| Calendar: | | | 1909–1913 | 45,104,000 | 28,888,380 |
| 1918 | 39,899,091 | 69,269,329 | 1914–1918 | 40,420,000 | 44,986,175 |
| 1919 | 11,192,533 | 18,624,386 | 1919–1923 | 72,745,000 | 57,949,228 |
| 1920 | 17,761,420 | 26,453,087 | 1924–1928 | 18,684,000 | 17,943,450 |
| 1921 | 128,974,505 | 92,766,988 | | | |

Table 6 shows, for recent years, United States exports of corn and corn products, including corn sirup and canned corn. There are also shown in this table exports of pork and pork products, largely derived from corn.

TABLE 6.—*Corn: Domestic exports of corn, corn products, and pork products, 1923–1929*

| Item | Calendar year | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1923 | 1924 | 1925 | 1926 | 1927 | 1928 | 1929, January to May |
| Corn: | | | | | | | |
| Bushels | 42,187,732 | 18,365,628 | 12,761,606 | 23,063,923 | 13,428,387 | 25,798,949 | 28,573,373 |
| Value | $36,805,723 | $17,824,785 | $14,252,931 | $19,839,741 | $11,432,465 | $26,367,356 | $28,992,605 |
| Corn products: | | | | | | | |
| Corn meal and flour[1] | $3,626,998 | $2,226,809 | $2,010,087 | $2,499,561 | $1,871,997 | $1,348,275 | $590,360 |
| Hominy and corn grits | 942,640 | 658,804 | 490,080 | 554,296 | 471,731 | 290,186 | 173,364 |
| Corn breakfast foods, etc. | 347,266 | 488,337 | 597,797 | 738,927 | 697,834 | 521,003 | 205,152 |
| Corn oil | 558,834 | 495,777 | 517,919 | 190,454 | 35,457 | 49,616 | 10,044 |
| Glucose (corn sirup) | 4,570,074 | 6,099,725 | 5,660,984 | 4,593,644 | 4,402,830 | 4,279,907 | 1,055,658 |
| Grape (corn) sugar | 268,613 | 291,161 | 107,786 | 321,136 | 224,034 | 295,233 | 92,676 |
| Cornstarch[1] | 5,895,139 | 8,522,143 | 7,977,655 | 6,240,751 | 7,473,516 | 7,803,269 | 921,636 |
| Canned corn | 254,399 | 477,659 | 502,131 | 353,661 | 362,001 | 682,927 | 198,981 |
| Total corn products | 15,463,963 | 19,260,415 | 17,563,539 | 15,492,433 | 15,439,400 | 15,260,416 | 7,250,871 |
| Total corn and corn products | 52,269,686 | 37,055,200 | 32,116,470 | 35,332,174 | 26,871,865 | 41,627,772 | 36,159,476 |
| Pork products: | | | | | | | |
| Fresh pork | 8,000,071 | 4,651,937 | 3,497,253 | 3,195,911 | 1,505,325 | 1,773,671 | 846,303 |
| Hams, shoulders, and bacon | 119,403,780 | 83,855,780 | 86,109,176 | 71,651,411 | 42,003,706 | 39,986,777 | 20,348,326 |
| Sides, pickled and canned pork, and sausages | 8,552,712 | 13,918,914 | 17,209,608 | 13,895,759 | 11,353,038 | 10,577,389 | 5,935,336 |
| Lard | 133,332,838 | 129,750,936 | 121,637,792 | 111,648,405 | 95,038,075 | 101,925,785 | 46,972,971 |
| Total pork products | 269,289,431 | 232,177,567 | 228,453,829 | 200,391,477 | 149,900,144 | 154,263,622 | 74,102,936 |
| Total corn, corn products, and pork products | 321,559,117 | 269,232,767 | 260,570,299 | 235,723,651 | 176,772,009 | 195,891,394 | 110,262,412 |

[1] Corn flour included with cornstarch after 1926.

## MARKETS

*Corn deficiency areas in the United States.*—Table 7 shows a division of the United States into five areas—the Atlantic seaboard, the Gulf States, the Pacific seaboard, the Corn Belt, and the Mountain States.

TABLE 7.—*Corn: Acreage, production, and acreage and production per capita, by regions, 1926 and 1927*

| Regions | Area [1] | | Production [1] | | Population [1] | | Per capita | |
|---|---|---|---|---|---|---|---|---|
| | Acres | Per cent | Quantity | Per cent | Number | Per cent | Acres | Production |
| 1926 | | | *Bushels* | | | | | |
| Atlantic seaboard [2] | 12,962 | 13.00 | 317,219 | 11.78 | 46,520 | 39.89 | 0.28 | 6.82 |
| Gulf States [3] | 20,912 | 20.87 | 506,100 | 18.80 | 22,105 | 18.96 | .94 | 22.90 |
| Pacific seaboard [4] | 201 | .20 | 6,615 | .25 | 6,731 | 5.77 | .03 | .98 |
| Corn States [5] | 63,360 | 63.54 | 1,835,615 | 68.18 | 37,316 | 32.00 | 1.70 | 49.19 |
| Mountain States [6] | 2,378 | 2.39 | 26,667 | .99 | 3,936 | 3.38 | .60 | 6.78 |
| Total, United States | 99,713 | 100.00 | 2,692,217 | 100.00 | [7] 116,608 | 100.00 | .86 | 23.09 |
| 1927 | | | | | | | | |
| Atlantic seaboard [2] | 12,805 | 12.95 | 312,670 | 11.22 | 47,079 | 39.87 | .27 | 6.64 |
| Gulf States [3] | 22,738 | 22.99 | 495,141 | 17.77 | 22,364 | 18.94 | 1.02 | 22.14 |
| Pacific seaboard [4] | 201 | .20 | 6,971 | .25 | 6,885 | 5.83 | .03 | 1.01 |
| Corn States [5] | 60,956 | 61.62 | 1,930,268 | 69.23 | 37,746 | 31.96 | 1.61 | 51.14 |
| Mountain States [6] | 2,214 | 2.24 | 41,238 | 1.48 | 4,013 | 3.40 | .54 | 10.28 |
| Total, United States | 98,914 | 100.00 | 2,786,288 | 100.00 | [7] 118,087 | 100.00 | .84 | 23.59 |

[1] Thousands, i. e., 000 omitted.
[2] Includes Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, and Georgia.
[3] Includes Florida, Alabama, Mississippi, Louisiana, Texas, Tennessee, Kentucky, Arkansas, and Oklahoma.
[4] Includes Washington, Oregon, and California.
[5] Includes Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.
[6] Includes Montana, Idaho, Wyoming, Nevada, Utah, Colorado, Arizona, and New Mexico.
[7] District of Columbia omitted in the total population.

From Table 7 it appears that the group of States treated as the Gulf States is essentially self-supporting so far as corn is concerned, assuming that per capita consumption of corn and products derived from corn is approximately the same throughout the United States. The Mountain States are a corn-deficient area, but competition here with foreign producers is unlikely because of the geographic location of the Mountain States with reference to the surplus producing corn States. The Atlantic seaboard and the Pacific seaboard are clearly deficient areas and represent the areas which must be supplied either from the domestic surplus producing Corn Belt or from foreign competing countries.

*Principal competing market.*—Since the submission of the commission's report, additional information on the subject of the principal competing market for domestic and Argentine corn has become available, through a study of imports of corn for the crop year October 1, 1927, to May 31, 1929. Table 8 shows the total receipts of domestic and foreign corn at Pacific, Atlantic, and Gulf ports for October 1, 1927, to May 31, 1929.

TABLE 8.—*Corn: Receipts of foreign and domestic corn at Pacific, Atlantic, and Gulf ports, October 1, 1927, to May 31, 1929*

[In thousands of bushels, i. e. 000 omitted]

| | Domestic receipts | Foreign duty-paid entries | Total domestic and foreign | Per cent supplied by foreign |
|---|---|---|---|---|
| Pacific ports: | | | | |
| Seattle | 2,783 | 1,032 | 3,815 | 27.05 |
| Portland | 2,692 | 80 | 2,772 | 2.89 |
| San Francisco | 287 | 671 | 958 | 70.04 |
| Los Angeles | 6,443 | 20 | 6,463 | .31 |
| Total, Pacific ports | 12,205 | 1,803 | 14,008 | 12.87 |
| Atlantic ports: | | | | |
| Boston | 114 | 3 | 117 | 2.56 |
| New York | 2,714 | 409 | 3,123 | 13.10 |
| Philadelphia | 3,263 | 209 | 3,472 | 6.02 |
| Baltimore | 3,694 | 40 | 3,734 | 1.07 |
| Total, Atlantic ports | 9,785 | 661 | 10,446 | 6.33 |
| Gulf ports: | | | | |
| New Orleans | 13,644 | 120 | 13,764 | .87 |
| Galveston | 8,699 | | 8,699 | |
| Total, Gulf ports | 22,343 | 120 | 22,463 | .53 |

Source: Imports for consumption, Schedule E, Department of Commerce. Domestic receipts, Grain Division, Department of Agriculture.

Table 9 following shows the total receipts of domestic and foreign corn at Pacific, Atlantic, and Gulf ports for the 5-year period, October 1, 1923, to September 30, 1928:

TABLE 9.—*Corn: Total receipts of foreign and domestic corn at Pacific, Atlantic, and Gulf ports, 5-year period, October 1, 1923, to September 30, 1928*

[In thousands of bushels, i. e., 000 omitted]

| | Domestic receipts | Imports | Total domestic receipts and imports | Per cent supplied by imports |
|---|---|---|---|---|
| Pacific ports: | | | | |
| Seattle | 7,448 | 2,134 | 9,582 | 22.27 |
| Portland | 4,844 | 516 | 5,360 | 9.63 |
| San Francisco | 1,772 | 2,296 | 4,060 | 56.44 |
| Los Angeles | 13,557 | 143 | 13,700 | 1.04 |
| Total, Pacific ports | 27,621 | 5,089 | 32,710 | 15.56 |
| Atlantic ports: | | | | |
| Boston | 377 | 6 | 383 | 1.57 |
| New York | 6,527 | [1] 4,399 | 10,926 | 40.26 |
| Philadelphia | 6,887 | 377 | 7,264 | 5.19 |
| Baltimore | 9,437 | 77 | 9,514 | .81 |
| Total, Atlantic ports | 23,288 | [1] 4,859 | 28,087 | 17.30 |
| Gulf ports: | | | | |
| New Orleans | 23,675 | 373 | 24,048 | 1.55 |
| Galveston | 3,573 | | 3,573 | |
| Total, Gulf ports | 27,248 | 373 | 27,621 | 1.35 |

[1] The quantity of corn on which drawback was paid during this period, included in these figures, amounted to 1,871,841 bushels.

The Atlantic and Pacific seaboard regions were, during the entire period covered by the investigation, the areas in which the domestic corn met Argentine corn in competition. (1) Each seaboard may be

regarded as an area of competition; or (2) a single point—in one case, New York, in the other, San Francisco—may be regarded as the principal competitive market; or (3) the Atlantic and Pacific seaboards combined may be regarded as the competing market.

The Pacific coast received a larger quantity of imports than the Atlantic coast from the point of view of competing area during the 20-month period October 1, 1927, to May 31, 1929. That area received greater quantities of foreign corn than the Atlantic coast in the crop years 1925, 1927, and 1928, whereas the Atlantic coast received greater quantities in the crop years 1924 and 1926. During the 5-year period October 1, 1923, to September 30, 1928, the Pacific coast received a greater quantity of imports than the Atlantic coast, and especially so if there be deducted from the imports on the Atlantic coast the amount of corn upon which drawback was obtained after export of corn products made from imported corn.

Regarding a single city as the chief competing market, New York received a greater quantity of imports than any other port on either coast during the crop years 1924, 1926, and 1927, and also during the 5-year period October 1, 1923, to September 30, 1928. During the crop years 1925 and 1928 Seattle received the greatest quantity of imports.

An important element in competition is the relative quantity of domestic and of imported corn which enters the principal markets. During the crop years 1924, 1925, 1926, and 1928, and during the 5-year period October 1, 1923, to September 30, 1928, a greater percentage of the corn supplied to the San Francisco market was foreign corn than the percentage supplied by foreign corn in any other market on either the west or the east coast. During the crop year 1927 the proportion of foreign corn to domestic corn received was greater at New York than at any other market. San Francisco ranked second in 1927.

It appears that the chief competing market in the sense of the deficiency regions supplied by both domestic and imported corn is the combined Atlantic and Pacific seaboard. If one seaboard is taken it is the Pacific coast with San Francisco as its approximate center. The chief competing market in the sense of a single city is New York.

*Origin of corn shipped to the principal markets.*—In the original report upon corn it was stated that "the quantities of corn received at the principal markets in the United States are available, but it is not possible to trace the points of origin of the shipments."

This statement is still largely true with respect to the points of origin of corn shipped to the Atlantic and Pacific coasts as a whole, but partial information has recently become available through a publication by the Department of Commerce entitled "Transcontinental and Intercoastal Trade of the Pacific Southwest in 1926," in which there are shown shipments of corn from the mid-Western States to the Pacific Southwest, including the States of California, Nevada, Utah, Arizona, and New Mexico. No data are yet available to the Pacific Northwest, including the important market of Seattle, nor from the Middle West to the Atlantic seaboard. The report of the Department of Commerce shows that in 1926 practically all of the shipments of corn to the five southwestern States named above originated in Iowa, Nebraska, and Kansas. Out of the total shipments of 254,248 short tons of corn into this area, 213,307 tons originated in Iowa, Nebraska,

and Kansas; 880 tons were shipped to the area from Illinois, and 94 tons from Indiana.

Table 10 and chart 5 show the details of the shipments for 1926.

TABLE 10.—*Corn: Transcontinental rail and water shipments of corn to the Pacific Southwest, calendar year, 1926* [1]

[Source: Department of Commerce, "Transcontinental and Intercoastal Trade of the Pacific Southwest in 1926," Domestic Commerce Series No. 26]

| | Short tons |
|---|---|
| Wyoming and Colorado, rail | 19,355 |
| Texas, rail | 13,690 |
| Oklahoma, rail | 190 |
| Kansas and Nebraska, rail | 164,605 |
| North Dakota and South Dakota, rail | 744 |
| Minnesota, rail | 666 |
| Wisconsin, rail | 109 |
| Iowa, rail | 48,702 |
| Missouri, rail | 4,075 |
| Illinois, rail | 880 |
| Indiana, rail | 94 |
| Duplications, rail | 1,138 |
| Total rail | 254,248 |

*Cost of production and transportation, by States, to the principal markets.*—As supplementary data bearing upon the cost of production of corn and transportation to the Atlantic and Pacific seaboards, Tables 11 and 12, show for each State in the areas studied the farm cost, plus transportation to New York and San Francisco, weighted upon the basis of the production of corn in each State.

TABLE 11.—*Corn: Cost of production by States, including transportation costs to New York, 2-year average, 1926 and 1927, weighted by production* [a]

[Per bushel]

| State | Farm cost with interest on land and other capital | Local elevator costs | Terminal elevator costs | Total costs | Transportation costs | Total costs, including transportation |
|---|---|---|---|---|---|---|
| Ohio | $0.817 | $0.040 | $0.038 | $0.895 | $0.171 | $1.066 |
| Indiana | .804 | .047 | .038 | .889 | .203 | 1.092 |
| Illinois | .710 | .025 | .038 | .773 | .235 | 1.008 |
| Iowa | .731 | .019 | .038 | .788 | .275 | 1.063 |
| Minnesota | .750 | [b] .034 | .038 | .822 | .290 | 1.112 |
| South Dakota | .824 | .070 | .038 | .932 | .328 | 1.260 |
| Nebraska | .777 | .038 | .038 | .853 | .309 | 1.162 |
| Kansas | 1.198 | [b] .034 | .038 | 1.270 | .309 | 1.579 |
| Weighted average | .780 | .034 | .038 | .852 | .258 | 1.110 |

[a] The transportation and marketing costs shown in the report to the President have been revised. This results in a reduction of about one-half cent per bushel in the United States costs.

[b] No local elevator costs obtained; an average of all areas was used.

[1] Rail shipments moved on Atchison, Topeka & Santa Fe, Southern Pacific (Sunset Route included), and Western Pacific, traffic of Los Angeles & Salt Lake not included.

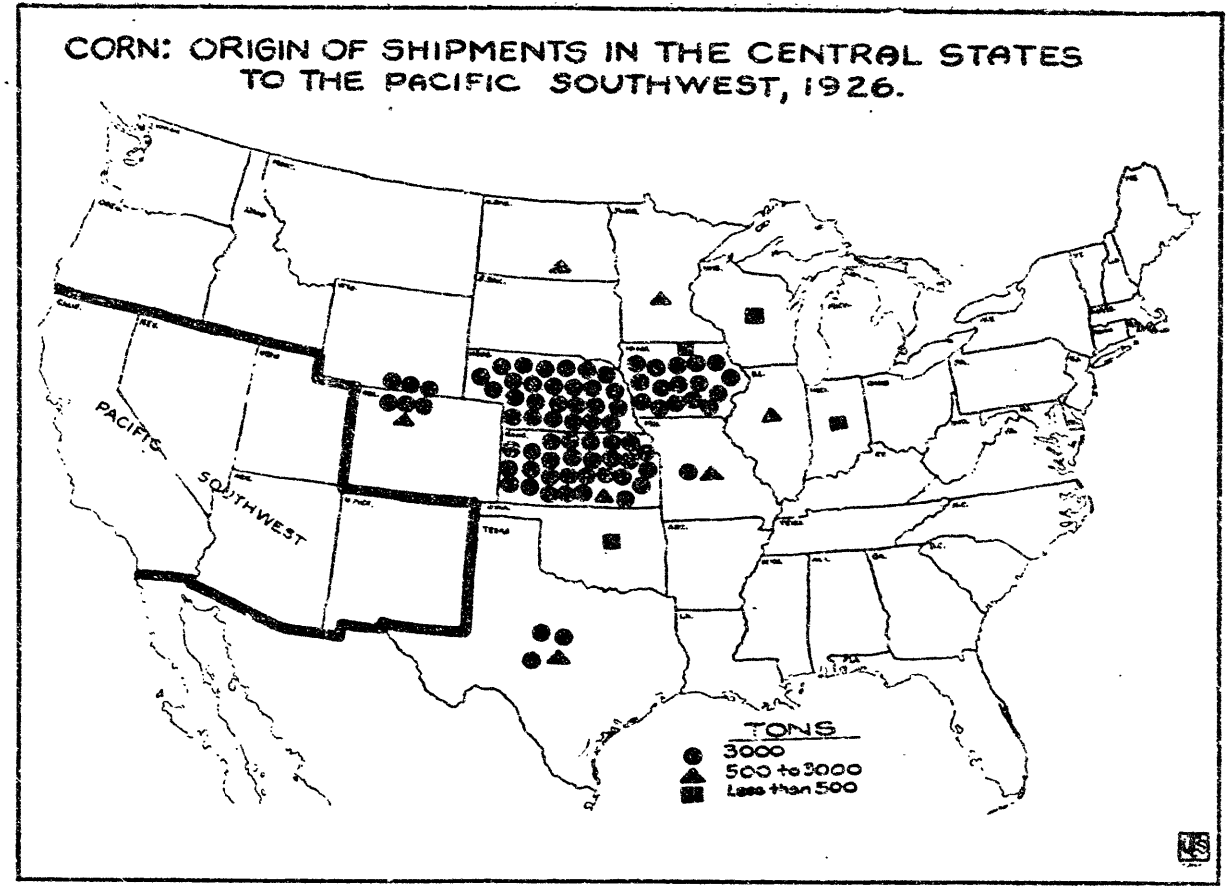
CORN: ORIGIN OF SHIPMENTS IN THE CENTRAL STATES TO THE PACIFIC SOUTHWEST, 1926.
PACIFIC SOUTHWEST
TONS
3000
500 to 3000
Less than 500

CHART 5

TABLE 12.—*Corn: Cost of production by States, including transportation costs to San Francisco, 2-year average, 1926 and 1927, weighted by production* [1]

[Per bushel]

| State | Farm cost with interest on land and other capital | Local elevator costs | Terminal elevator costs | Total costs | Transportation costs | Total costs, including transportation |
|---|---|---|---|---|---|---|
| Ohio | $0.817 | $0.040 | $0.038 | $0.895 | $0.496 | $1.391 |
| Indiana | .804 | .047 | .038 | .889 | .481 | 1.370 |
| Illinois | .710 | .025 | .038 | .773 | .467 | 1.240 |
| Iowa | .731 | .019 | .038 | .788 | .423 | 1.211 |
| Minnesota | .750 | [2] .034 | .038 | .822 | .447 | 1.269 |
| South Dakota | .824 | .070 | .038 | .932 | .438 | 1.370 |
| Nebraska | .777 | .038 | .038 | .853 | .342 | 1.195 |
| Kansas | 1.198 | [2] .034 | .038 | 1.270 | .342 | 1.612 |
| Weighted average | .780 | .034 | .038 | .852 | .431 | 1.283 |

[1] The transportation and marketing costs shown in the report to the President have been revised. This results in a reduction of about one-half cent per bushel in the United States costs.
[2] No local elevator costs obtained; an average of all areas was used.

*Prices in central markets plus transportation to New York and San Francisco.*—Table 13 shows the simple average of monthly prices of No. 2 yellow corn for 1926 and 1927 in the principal markets, plus transportation to New York and San Francisco. Corn is usually bought on the basis of these market prices plus transportation. From this table it appears that prices, plus transportation to New York, are almost the same for all of the important central markets, including Kansas City and Omaha, but that prices, plus transportation to San Francisco, are considerably lower from Kansas City and Omaha than from other important supply markets.

TABLE 13.—*Corn: Prices at principal markets, freight rates to New York and to San Francisco and prices plus freight rates to New York and to San Francisco*

[Per bushel]

| Market | Average price | | Freight rates | | Average price plus freight rates to New York | | Average price plus freight rates to San Francisco | |
|---|---|---|---|---|---|---|---|---|
| | 1926 | 1927 | To New York | To San Francisco | 1926 | 1927 | 1926 | 1927 |
| Chicago | $0.87 | $1.00 | $0.168 | $0.400 | $1.040 | $1.173 | $1.272 | $1.405 |
| Kansas City | .87 | .93 | .258 | .342 | 1.126 | 1.186 | 1.210 | 1.270 |
| St. Louis | .88 | .99 | .190 | .370 | 1.065 | 1.182 | 1.245 | 1.362 |
| Omaha | .83 | .92 | .258 | .342 | 1.091 | 1.180 | 1.175 | 1.264 |
| Minneapolis | .88 | .97 | .232 | .370 | 1.109 | 1.204 | 1.247 | 1.342 |
| Cleveland [1] | .91 | 1.06 | .159 | .507 | 1.070 | 1.220 | 1.417 | 1.567 |
| Cincinnati [1] | .91 | 1.06 | .151 | .476 | 1.061 | 1.211 | 1.386 | 1.535 |

[1] No quotations for Cleveland and Cincinnati on No. 2 yellow corn are available. Prices here shown are derived by adding to farm price in Ohio the same differential that is found between farm price in the State of Illinois and price of No. 2 yellow corn at Chicago.

*Final cost comparisons.*—No additional cost data have been obtained but there have been made additional cost calculations including transportation to the two deficiency areas of corn consumption in the

United States taken together, namely, the Pacific and Atlantic seaboards. Tables 14 and 15, given below, are similar to Tables 41 and 43 of the original report, except that at the end of each table there has been included the cost of production plus transportation to New York and San Francisco combined, as representative of the seaboard deficiency areas.

TABLE 14.—*Corn: Comparison of costs of production of domestic and Argentine corn, including transportation (1) to New York, (2) to San Francisco, and (3) to New York and San Francisco combined as representative of the seaboard deficiency areas for 1926, 1927, and 2-year average, based on Table 41 of the original report; weighted by quantities shipped out of counties where grown, Method I; transportation costs from eastern area to New York and from western area to San Francisco, with land charge on interest basis*

[Per bushel]

| Competitive market [1] | 1926 [1] | | 1927 [1] | | 2-year average | |
|---|---|---|---|---|---|---|
| | Domestic cost | Foreign cost | Domestic cost | Foreign cost | Domestic cost | Foreign cost |
| New York: | | | | | | |
| Farm cost | $0.701 | ..... | $0.781 | ..... | $0.741 | ..... |
| Marketing cost | .064 | ..... | .067 | ..... | .066 | ..... |
| Transportation cost | .241 | ..... | .241 | ..... | .241 | ..... |
| Total cost | 1.006 | $1.027 | 1.089 | $0.827 | 1.048 | $0.927 |
| San Francisco: | | | | | | |
| Farm cost | .808 | ..... | .761 | ..... | .785 | ..... |
| Marketing cost | .067 | ..... | .070 | ..... | .069 | ..... |
| Transportation cost | .382 | ..... | .382 | ..... | .382 | ..... |
| Total cost | 1.257 | .914 | 1.213 | .957 | 1.236 | .936 |
| Atlantic and Pacific combined: | | | | | | |
| Farm cost | .759 | ..... | .770 | ..... | .765 | ..... |
| Marketing cost | .066 | ..... | .069 | ..... | .068 | ..... |
| Transportation cost | .317 | ..... | .317 | ..... | .317 | ..... |
| Total cost | 1.142 | .969 | 1.156 | .894 | 1.150 | .932 |
| Amount by which United States cost exceeds Argentine cost including transportation: | | | | | | |
| At New York | [2] —.021 | | .262 | | .121 | |
| At San Francisco | .343 | | .256 | | .300 | |
| To New York and San Francisco combined [3] | .173 | | .262 | | .218 | |

[1] The crop year May 1 to Apr. 30, for the domestic; the calendar year for the foreign; such a comparison is made necessary by the overlapping seasons in the Northern and Southern Hemispheres.
[2] Minus sign means excess of Argentine over domestic costs.
[3] As representative of the seaboard deficiency areas.

TABLE 15.—*Corn: Comparison of costs of production of domestic and Argentine corn, including transportation (1) to New York, (2) to San Francisco, and (3) to New York and San Francisco combined as representative of the seaboard deficiency areas for 1926, 1927, and 2-year average, based on Table 43 of the original report; weighted by production in areas investigated, Method II; transportation costs from all areas investigated to New York and San Francisco*

[Per bushel]

| Competitive market | 1926 [1] | | 1927 [1] | | 2-year average | |
|---|---|---|---|---|---|---|
| | Domestic cost | Foreign cost | Domestic cost | Foreign cost | Domestic cost | Foreign cost |
| New York: | | | | | | |
| Farm cost | $0.778 | ..... | $0.781 | ..... | $0.780 | ..... |
| Marketing cost | .071 | ..... | .074 | ..... | .072 | ..... |
| Transportation cost | .261 | ..... | .261 | ..... | .261 | ..... |
| Total cost | 1.110 | $1.027 | 1.116 | $0.827 | 1.113 | $0.927 |
| San Francisco: | | | | | | |
| Farm cost | .778 | ..... | .781 | ..... | .780 | ..... |
| Marketing cost | .071 | ..... | .074 | ..... | .072 | ..... |
| Transportation cost | .432 | ..... | .432 | ..... | .432 | ..... |
| Total cost | 1.281 | .914 | 1.287 | .957 | 1.284 | .936 |
| Atlantic-Pacific combined: | | | | | | |
| Farm cost | .778 | ..... | .781 | ..... | .780 | ..... |
| Marketing cost | .071 | ..... | .074 | ..... | .072 | ..... |
| Transportation cost | .354 | ..... | .354 | ..... | .354 | ..... |
| Total cost | 1.203 | .969 | 1.209 | .894 | 1.206 | .932 |
| Amount by which United States cost exceeds Argentine cost including transportation— | | | | | | |
| At New York | .083 | | .289 | | .186 | |
| At San Francisco | .367 | | .330 | | .348 | |
| To New York and San Francisco combined [2] | .234 | | .315 | | .274 | |

[1] The crop year, May 1 to Apr. 30, for the domestic the calendar year for the foreign; such a comparison is made necessary by the overlapping seasons in the Northern and Southern Hemispheres.
[2] As representative of the seaboard deficiency areas.

If the Pacific coast is taken as the chief geographical area of competition, with San Francisco as its approximate center, the cost of United States corn delivered at San Francisco exceeds the cost of Argentine corn by $0.348 per bushel if domestic costs are weighted by the total production in all areas of investigation and $0.30 per bushel if domestic costs are weighted by quantities shipped out of the counties where grown in the States of Minnesota, South Dakota, Iowa, Nebraska, and Kansas. If New York is taken as the chief competing market because it is the market where the greatest imports have been received (making deduction of exports with benefit of drawback), the delivered cost of United States corn exceeds the cost of Argentine corn by $0.186 per bushel if domestic costs are weighted by total production and $0.121 if domestic costs are weighted by quantities shipped out of the counties where grown in the States of Ohio, Indiana, Illinois, Iowa, and Minnesota.

If the "Atlantic and Pacific seaboards" are recognized as "the principal competing market," the amount by which the United States cost exceeds the Argentine cost, including transportation, is $0.218 per bushel at the Atlantic and Pacific seaboard (under Method I, weighted by quantities shipped out of counties where grown with transportation costs from the eastern area to New York and from the western area to San Francisco); and the amount by which the United States cost exceeds the Argentine cost, including transportation to

the Atlantic and Pacific seaboard (under Method II, weighted on total production in areas studied with transportation costs from all areas to New York and San Francisco), is $0.274 per bushel.

Respectfully submitted.

THOMAS O. MARVIN,
*Chairman.*
ALFRED P. DENNIS,
*Vice Chairman.*
EDGAR B. BROSSARD,
SHERMAN J. LOWELL,
LINCOLN DIXON,
FRANK CLARK,
*Commissioners.*

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COMMENT OF COMMISSIONERS DENNIS, DIXON, AND CLARK

The undersigned commissioners have affixed their signatures to the supplemental information incorporated in the original corn report.

No new information has been secured as to cost of producing corn in the United States and in Argentina. The only significant fact about the new material is revealed by the later 16-month period for which international trade figures in corn have been obtained. This later statistical period (calendar year 1928 and first four months of 1929) indicates that our imports of corn are declining and our exports of corn increasing. While the 1927 import was about one-fifth of 1 per cent of the national production, the 1928 import had declined to only one-fiftieth of 1 per cent with a corresponding falling off in imports for the first four months of 1929. Similarly the total of our exports of corn, corn products, and pork products had risen in 1928 some $19,000,000 over 1927, while the export values for the first four months of 1929 were running in even greater proportion ahead of the same period for 1927. The later figures, therefore, tend to confirm rather than weaken our former judgment. If the facts before us in the autumn of 1928 suggested no basis for a higher duty when imports of corn amounted to 5,000,000 bushels, how can we modify that position when imports have now declined to 547,100 bushels (calendar year 1928)?

We have no new facts to alter our judgment that New York is the principal competing market for corn in the United States or to modify our objection to the fiction which would weight domestic transportation charges on corn to coastal markets by the entire output of the surplus-producing States. In point of fact, the corn market study of the Department of Commerce, the publication of which was made available since the transmission of the original report, shows that in 1926 practically all the shipments of corn to the Southwestern States originated in Iowa, Kansas, and Nebraska (see pp. 81, 82, and 83, Supplementary Report). Prices of corn in the principal markets plus transportation to San Francisco (p. 84, Supplementary Report) confirms the conclusion that the Pacific coast shipments originate in Kansas and Nebraska and confutes the doctrine that such transportation charges should be weighted by the entire production of all surplus-producing States. We reaffirm our former judgment that transportation charges should be limited to actual shipments or to shipments

which might take place under conditions which are reasonable and conceivable to the human understanding.

With imports ranging around one-fiftieth of 1 per cent is it reasonable to believe that our corn industry is not already adequately protected by the existing duty of 15 cents per bushel? If, as some commissioners claim, differences in the cost of laying down corn in our coastal markets greatly favor the Argentine product why have these American markets not been overwhelmed with a flood of imported corn?

We are not yet ready to accept the doctrine that customs duties should be increased on infinitesimal imports. How can an import of one-fiftieth of 1 per cent affect the general price level of corn in the domestic market, and if such import does not affect the general price level how defend a proposed increase in duty?

The undersigned commissioners stand by their judgment as recorded in the original report that no warrant exists for a change in the present duty on corn.

Respectfully submitted.

ALFRED P. DENNIS,
*Vice Chairman.*
LINCOLN DIXON,
FRANK CLARK,
*Commissioners.*

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STATEMENT BY COMMISSIONERS MARVIN, BROSSARD, AND LOWELL

Because corn, a distinctively American farm crop, representing almost 25 per cent of the farm value of all crops grown by American farmers, is declining as a farm crop, the undersigned commissioners believe that direct reference should be called to the following facts:

1. Acreage of corn was increasing up to the period of the World War, 1914–1918, the average during that 5-year period being 107,225,000 acres. It declined to an average of 101,956,000 acres during the 5-year period 1919–1923, and to an average of 100,218,000 acres during the last 5-year period 1924–1928.

| 5-year periods | Acreage (1,000 acres) | Production (1,000 bushels) | Yield per acre (bushels) | Remarks |
|---|---|---|---|---|
| 1900–1904 | 93,839 | 2,322,747 | 24.8 | The yield in 1901 (17 bushels) is the lowest on record. |
| 1905–1909 | 95,115 | 2,651,165 | 27.9 | No exceptional yields. |
| 1909–1913 | 104,229 | 2,712,364 | 26.0 | Do. |
| 1914–1918 | 107,225 | 2,760,484 | 25.7 | Do. |
| 1919–1923 | 101,956 | 3,009,606 | 29.5 | The yield in 1920 (31.5 bushels) is the highest on record. |
| 1924–1928 | 100,218 | 2,704,329 | 26.9 | The yield in 1924 (22.9 bushels) is the second lowest in 30 years. |

2. Imports of corn, which averaged only 263,000 bushels a year during 1909–1914 with a rate of duty of 15 cents per bushel, increased to an average of 7,355,000 bushels during 1914–1920 with no tariff. Table 4, page 77, of the commission's supplementary report, indicates that while imports fell to an average of only 120,165 bushels per year during 1921, 1922, and 1923, imports of corn into the United States averaged 2,315,000 bushels per year for the last five years

under the tariff act of 1922, with a duty on corn of 15 cents per bushel, including the one year (1928) of small imports due to exceptional conditions affecting the yield per acre. The equivalent ad valorem rate of duty of 15 cents per bushel for the period 1909–1913 was 24.7 per cent, and for the period 1924–1928 the equivalent ad valorem rate of duty was 17.2 per cent.

3. Exports of corn and the more important products derived from corn have declined very considerably during recent years, as shown by Tables 5 and 6 of the commission's supplementary report. The trend of exports, or of imports, can not be adequately shown by citing only one year, or a year and four months. In the case of agricultural products where yields vary greatly one year may show a large surplus for export while the general trend is down; likewise this large yield may so depress the home market as to make it unattractive and thus result temporarily in a falling off of imports. Whereas our average annual exports of corn during the 5-year period, 1919–1923, amounted to 72,745,000 bushels, during the last five years the average annual exports amounted to only 18,684,000 bushels, over 40 per cent of which went to Canada.

The following table shows further the trend in decline of our exports:

| | 5-year average, 1910–1914 | 5-year average, 1924–1928 | | 5-year average, 1910–1914 | 5-year average, 1924–1928 |
|---|---|---|---|---|---|
| Domestic corn exported from the United States to— | *Bushels* | *Bushels* | Domestic corn exported from the United States to—Continued. | *Bushels* | *Bushels* |
| United Kingdom | 10,906,000 | 2,299,000 | France | 604,000 | 97,000 |
| Denmark | 2,496,000 | 640,000 | Belgium | 1,888,000 | 164,000 |
| Netherlands | 5,111,000 | 2,521,000 | | | |
| Germany | 6,232,000 | 963,000 | Total | 25,737,000 | 6,624,000 |

4. In the meantime, the corn acreage in Argentina, the chief competing country, and other countries in the Southern Hemisphere, has increased from a 5-year average of 21,900,000 acres, during 1909–1913, to 31,500,000 acres in 1927. These countries have not alone displaced the United States in the European markets but are now actively competing with the Corn Belt States of the United States for the corn-deficient markets of our Atlantic and Pacific seaboard States.

5. It has been suggested that since we export some corn, corn products, and pork products, and that since our imports are relatively small, therefore the tariff is or would be noneffective. It is only necessary to point out that the situation with respect to corn is almost identical with the dairy products situation where milk, cream, butter, cheese, and condensed, evaporated, and powdered dairy products are both imported and exported in relatively a very small percentage of domestic production and consumption, and yet the need of a duty on those products has been recognized by the Congress. It may not be inappropriate to note in this connection that the House of Representatives, with all available information before them, increased the duty on corn from 15 cents per bushel to 25 cents per bushel. (H. R. 2667, par. 724.)

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6. The comment by Commissioners Dennis, Dixon, and Clark lays emphasis upon the small percentage of imported corn compared with the national production of corn. Such a comparison fails to present fully the situation in our competitive markets, the Atlantic and Pacific seaboard areas. A fairer method would be a comparison of the amount of imports with the production of the deficiency areas. Thus the Pacific seaboard States—California, Oregon, and Washington—produce 6,616,000 bushels of corn and import 1,018,000 bushels (average for 1923–1928). In other words, the imports are equal to 15 per cent of the amount produced in that area. Furthermore, the imports are by no means negligible when compared with the domestic corn sold in the open market instead of with total corn production, including that fed to livestock on the farms where produced.

7. The cost-of-production studies in the United States were made on farms in the center of the Corn Belt where yields per acre averaged 41 bushels, as shown on page 14 of the commission's report. This is 14 bushels per acre over the average for the United States, 12 bushels per acre over the average for the Corn Belt, and 11.7 bushels per acre over the average for the 193 counties in which studies were made. It would appear, therefore, that the areas in which costs of production were obtained were areas of the highest yield per acre and the lowest unit cost. A representative cost for the United States, therefore, would require the inclusion of transportation costs from the areas included in the investigation to the Atlantic and Pacific seaboard markets.

8. Section 315 of the tariff act of 1922, under the provisions of which the corn investigation was conducted, does not contemplate adjustment of rates of duty on the basis of the percentage of imports to domestic production or to amounts of a product sold. It requires equalization of costs of production in the principal market or markets. The purposes of section 315 are not complied with by selecting as the market, for purposes of equalizing costs of production, the single city which shows the lowest difference in costs of production. Over a 5-year period more corn was imported on the Pacific coast than on the Atlantic coast. Weighting by the surplus corn shipped out of the counties where grown, and including the transportation costs from the eastern area of production to New York and from the western area of production to San Francisco, the United States cost exceeds the Argentine cost by 12.1 cents per bushel at New York and by 30 cents per bushel at San Francisco. (Table 14, p. 85.) Weighting by the production of corn in the areas investigated, and including transportation costs from the areas investigated in all nine surplus-producing States to New York and to San Francisco, the United States cost exceeds the Argentine cost by 18.6 cents per bushel at New York and by 34.8 cents per bushel at San Francisco. (Table 15, p. 86.)

In the report submitted October 23, 1928, the undersigned commissioners expressed the opinion that San Francisco, being the principal port of entry of the Pacific seaboard where the largest amount of corn was imported over the last 5-year period, was the chief competing market. No new data have been made available to change that opinion. However, believing that the two seaboard areas which are deficient and must depend upon other sources of supply for their corn requirements may be considered the principal market or markets,

a weighted average of the costs of production, including transportation costs, has been shown in Tables 14 and 15 of the supplementary report of the commission, using New York as the principal port of entry on the Atlantic seaboard and San Francisco as the principal port of entry on the Pacific seaboard. By this method the differences between United States costs and Argentine costs in the seaboard deficiency areas are averaged, and the extremes, both high and low, are eliminated.

9. In view of the facts set forth in the report, the undersigned commissioners are of the opinion that the corn-deficient areas (the Atlantic and Pacific seaboard States) may be accepted as the principal competing market, and that the weighted average cost of production in the United States, including transportation costs to New York and San Francisco as representative points in the deficiency areas, may be compared with the weighted average cost of production of of Argentine corn, including costs of transportation to the same points. On that basis of comparison, and weighting transportation costs by Method I (Table 14, p. 85), the United States cost exceeds the Argentine cost by $0.218 per bushel, and weighting transportation costs by Method II (Table 15, p. 86), the United States cost exceeds the Argentine cost by $0.274 per bushel, and the rate of duty necessary to equalize the difference in costs of production of corn in the United States and in the principal competing country, within the limit specified in section 315 of the tariff act of 1922, is 22½ cents per bushel of 56 pounds.

Respectfully submitted.

THOMAS O. MARVIN, *Chairman*,
EDGAR B. BROSSARD,
SHERMAN J. LOWELL,
*Commissioners.*

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